Chapter 4. Elements, Rules and Conventions: Architecture as Material Knowledge

> The reality of the drawing board and the model is not the same as that of materials and volumes.[1]
> *Oswald Mathias Ungers*

As noted in Chapter 1, the 1970s overall form a period of self-reflection in architecture. The oil crisis of 1973 and the pessimistic projections of the Club of Rome report have their impact on the field. Yet within the profession there is also a conviction of the value of architecture. The converging lines of internal legitimacy and external transformations lead to a period of heightened self-consciousness. As the world begins to transform in the 1970s, and as architects increasingly seek a logic in architecture that is less susceptible to external conditions, the turn to autonomy is crucial. Ideas on the city are transforming in response to the differentiation in our cities, and to the collapse of a unified understanding of the city. In the meantime, the projects for houses are used as testing grounds, explorations of the limits – not of industrial fabrication or other modern exploits – but of the internal language and the undeniable logic of architecture.

What this then revolves around is rules and conventions, elements and compositions, techniques and materials. The approach to architecture is self-focused, without the very large themes such as Utopia, but with a particular aim at understanding key features of architecture. These are architecture explorations that focus on constituent elements rather than on architecture as a whole. They train particular skills and focus on specific features and allow for freedom in reconstituting the subsequent whole. Studio programmes and experiments such as John Hejduk's Diamond Houses and Ungers's *Wochenaufgaben* follow this structure, with the assignment

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focusing on particular aspects of design such as materialization and spatial composition.

In essence, there is a return to the internal drives of architecture, though this is also in response to the externalization of demands. This focus can be related both to the historical continuum of architecture as a whole, and to the societal conditions it resides within.[2] The condition of crisis triggers a reconsideration of the legitimacy of architecture, a field that is in many senses a luxury.[3] Yet within the discipline, a clear move towards autonomy is already visible in the work of the Texas Rangers, in Analogue Architecture, in the Flemish generation of 1974 and in the work of the New York Five. These developments dovetail, with the lower number of commissions requiring a search for alternate forms of practice, or offering the time to rethink the conventions of the discipline. More architects involved in education and fewer in building, which also drives internal innovations. Portoghesi's 1980 Biennale 'The Presence of the Past' might be said to definitively usher in a postmodern position in architecture, with use of historical references and a semantic approach to architecture determining the face of architecture in its first Venice Biennale.[4]

Fig. 4.1: Strada Novissima, Venice Biennale, 1981. Facades by Ungers (4th from left), OMA (right) in bottom row. Others include Bofill, Venturi and Scott Brown, Graves.

All this simply goes to show the dependency of architecture on external influences, and at the same time the fact that there is a 'hard core' of the discipline.[5] Koolhaas is exceptionally attuned to external conditions, observing concerns such as scale, density and traffic flow, from which he derives ideas such as Bigness, Generic City, Junkspace and the self-organizing logic of slums. In so doing, he seeks out the elements that can be folded into a repositioning of architecture. Architecture, in this approach, remains the

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Vitruvian Mother of the Arts, where the features of the external world become material to work with.

Ideological positions notwithstanding, the architecture of the (late) twentieth century continues to wrestle with the conditions of modernity. As early twentieth-century architecture found its new élan in references to immediate and visible developments (industrialization) and at the same time claimed techniques of the avant-garde, it shattered quite a number of conventions. This took decades, if not nearly half a century, to show its full impact in the built environment. The shaking off of traditions, and the seeking out of new logic and vocabularies also necessitated a dispelling of the charm of the historical. And as the scientific enlightenment of modernism expanded, the enchantment of the world as it is faded further from our view. It could be argued that for some decades now, we have been seeking this sense of enchantment again as a counterweight to the disenchantment of pure rationality. Yet it is also a pendulum movement from the building booms of the 1950s and 1960s (or later, the 1990s and 2000s) to the moments of crisis that not only bring the field to a standstill but also require reflection as conditions are changing and will not return to the previous status quo. Each time, the question arises as to what shape these new transitions will take, and architecture, as a field engaging both with rapidly shifting social contexts and with longstanding traditional building methods, sits squarely at the junction of tradition and innovation.

This chapter springboards from the more contained transformations in urban thinking and in the architectural articulation of ideas in the houses to seek out the lines running underneath the changes in approach and what this means to the discipline as a whole. The legitimacy sought in the 1970s is perhaps not what is needed today, but the two are related. As the discipline formerly known as a 'minor profession', architecture has become institutionalized, causing unexpected side effects in teaching and research.[6] Architecture theory has become all but separated from the practice and reflection on architecture, holding its own in the academic world. At the same time, there is a growing interest in design methods and in design research. And to continue the question posed by Kazys Varnelis in 2004, 'Is there research in the studio?', we now might ask: 'What kind of research is there in the studio?'[7] The Harvard studios run by Koolhaas, taking their cue from the Las Vegas and Levittown studios by Robert Venturi and Denise Scott Brown, introduced an expansion of research approaches in architecture.

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It is questions such as these that underlie this book. If the assumption is that architecture still offers a valuable contribution to society today, then what does this consist of? Is it the 'tolerant normality' identified by Vittorio Lampugnani as an essential feature of European architecture?[8] Is it the 'spiritual content' once suggested by Ungers as central to architecture?[9] Or is it rather an oscillation between cultural convention and autonomy, as Hays proposed in his seminal essay on 'critical architecture'?[10] The irony is that we often see particular strengths yet equally often have a difficult time identifying them.

This is what I am trying to get at here – architecture is multiple. It has more than one interpretation and it can last (often significantly) longer than the moment and aim it is realized for. It is situated in a time yet appeals to timeless principles. And as such it is a complicated object, with cultural evaluations that are similar to objects of 'pure' art, yet with the additional constraints of construction, convention and function. As such, it is a messy discipline, dependent on many conditions outside of its grasp (gravity, regulations, patronage), and at the same time an overconfident discipline, convinced of its own internal logic.

The hopes of the early moderns notwithstanding, architecture cannot adhere solely to the rules of scientific analysis, because it is involved in less rigorous domains of life. It cannot appeal to a pure autonomy, because it is too dependent, but it is also a discipline that aims at more than simply solving problems. As such, one might identify architecture as a discipline of situated autonomy. Its core revolves around a self-propelling autonomous trajectory of disciplinary inquiry and development, while each individual project and indeed the discipline as a whole is tied by its very nature to an intricate web of dependencies that cannot be dismissed as 'mere' constraints.[11]

Setting aside the distinctions between modernity and postmodernity, throughout these transformations in the field of architecture there is a notable struggle with an underlying sense of alienation: the structures that comprise the built environment may answer to minimal requirements of space and light, but the abstract systems and structures somehow do not align with a self-evident presence in the world.[12] As such, some of the developments discussed in this chapter will show an exploration of the rationality of architecture, while others are attuned precisely to the underlying desires. Ungers remains in this division more aligned with principles of rationality, while Koolhaas consciously seeks out enchantment and the surreal. Both, however, seem to be strongly rooted in some form of humanism, and presume

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an *agency* for the architect: the ability to create conditions that might lead to new habits. The question is what their approaches might have to offer in a time of posthuman agency.

In this chapter, I trace out a few particular approaches that negotiate the sticky terrain of what philosopher Gilbert Ryle once identified as 'knowing that' versus 'knowing how'. In his 1946 lecture, he identified the philosophical dilemma that there are modes of knowledge we cannot convey or learn purely in theory.[13] In essence, one can learn the physical laws and calculations pertaining to gravity, force and trajectory, but this will not guarantee that one can hit a home run in a baseball game. Cookbooks may offer an aid in learning how to cook, but truly knowing how cannot be conveyed in abstract theories or rules. This dilemma was further refined by Michael Polanyi in distinguishing 'tacit knowledge' from 'explicit knowledge', where acquiring 'tacit knowledge' requires a leap from the student.[14] It can be explained to some degree, but it is in the embodiment of this knowledge and the act of actually trying it that it becomes more solid than the mere abstract understanding of principles.

Both Koolhaas and Ungers typically relate their projects to fundamental ideas, working through them in texts, drawings, models and buildings. It is the irreducibility of one medium to the other that makes these oeuvres worth studying, particularly as they navigate all of them with an agenda for the current status of architecture.[15] In the retrospective gaze of Nikolaus Kuhnert, editor of *Arch+*, the 'discursive design' of Ungers situated architecture as a collective exchange of ideas and design principles, while the 'conceptual architecture' of Koolhaas pushed the boundaries of design.[16] Overall, their work has an explicit relation to architecture's body of knowledge, addressing issues of the underlying information being incorporated in designs, or of methodological interests. Koolhaas identifies the nature of architecture as complicated and ambivalent, which allows him to set aside what he cannot influence in order to have a stronger impact with his work. This negotiation of the limitations of architecture while exploring alternative avenues of influence is perhaps one of the most characteristic aspects of the work of OMA. The work of Ungers takes the inverse approach, not explicitly staking out which societal forces he is dependent on as an architect, but rather exploring the expanse of the intellectual and visual universe encompassed within architecture. Nevertheless, his depth and breadth of knowledge of architecture as a field of intellectual and design discipline forms a basis on which Koolhaas could build his tactical manoeuvres. In neither case can

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we speak of purely intellectual interests, in which the design or building is reduced to an illustration of intellectual concerns.

The distinction between the resulting form of ideas, whether that lies in two-dimensional representations, linguistic explications or the larger built form of a house or even the abstracted infrastructure of an urban design, is what this work is concerned with. Each manifestation finds its roots in the ideas, but it is not until its specific execution that new insights arise. Each idea may be easily supported, but the realization of that idea leads its own life. Thus it is in the specific iteration of an idea that a qualitative assessment can be formulated.

So what if the current challenge for architecture is to offer a plausible relation between the social and the formal? This would suggest a contingency to the epistemological status of architecture – it is not about definitive evidence, but about the 'right idea at the right time'. In addition, it would suggest that this 'right idea' may be rethought over time, that architecture is loosely defined: as it is a long-term project, it remains open to reinterpretation after the immediate spatial needs have perhaps disappeared. Think, for example, of the many empty churches around the European continent that are currently finding new uses, from residential apartments to bookstores. The material presence remains, while the surrounding context transforms. Moreover, by emphasizing the relation between the social and the formal, the suggestion arises that these domains are able to relate, thereby countering the underlying schism that has been exacerbated over the course of the twentieth century. In this field, 'plausibility' between the social and the formal then suggests that there may be some sense to and pattern in why buildings are reappropriated that support the legitimacy of architecture. It suggests that architecture provides more than simply shelter, but on a more modest scale than Utopia.

What becomes apparent in the urban ideas and the work on the houses is the volatile status of the implicit values of architecture, such as in the domains of ethics and aesthetics, as well as its lack of explicit vocabulary and clear standards of evaluation. The meaning of architecture is at once both carved in stone (or concrete) and dependent on the shifting sands of cultural sensibilities. This unstable status is partially tempered by the actual buildings, as they remain open to multiple interpretations and revaluations. It is within the objects of architectural production (whether projected, drawn or built) that this multivalent nature becomes most clear. Yet it all revolves around the ideas put forward, regardless of the vessel they are presented in.

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> Ungers does both [write and make things]. His immense written body of work proves his ability to make seminal contributions to both disciplines, enriching the world of architecture with artefacts while building a conceptual world out of words. The foundations for both lie in the world of ideas.[17]

Words and Things, Ideas and Realities

If the old saying that 'a picture is worth a thousand words' is true, then why do architects write?[18] For one, there is a tension between words and things: they are not entirely commensurate.[19] They may be able to get quite close, as an evocative literary description might adequately identify a city, or as a building might evoke a particular style of description. Yet it remains difficult to collapse one medium into the other.

Most architecture is primarily public in nature. While the fiction writer might be able to keep a novel in their desk drawer, and the painter may be able to turn their paintings to the wall, architecture is bound to a complex interrelation of patronage, execution and reception. Buildings are typically funded by the client (who may or may not be the occupant). The financial risks are with the client. Execution is typically given to a contractor (who may employ numerous subcontractors). The final building, in this sense, stands at arm's length from the architect's direct intervention. It is the interpretation of the design. And in this age many buildings – even some private homes – are so eminently present in public space that the public may often feel the need to evaluate the results.

In the era of the starchitect, these developments have fundamentally complicated the Renaissance rhetoric of *disegno*. The classical 'genius' of artistic inspiration has been modernized and globalized in the contemporary notion of the starchitect. As such, writing fulfils a wide variety of functions for the architect, from the mundane to the highly theoretical. It can help to convey the ideas in a building to the client. It may help to explain irregularities in relation to zoning requirements. It can help clarify the main ideas in the design process, and it can identify the most important constraints for a contractor. In the history of architecture, however, writing has also had a privileged status. It constructs theories around the built oeuvre and it builds up legitimacy for architecture as an intellectual endeavour, requiring more than a simple instruction manual.[20]

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In other words, by its very public nature, the material results of an architectural idea are examined, evaluated and written about, by architects, critics and the general public. Koolhaas and Ungers show a productive slippage between words and architectural tools in their work. They show the tension between 'just words' or 'learning in theory' and what it means to 'know how'. This knowing how is eminently present in the houses, and perhaps a little more hidden in the urban proposals, because these are dependent on large structures and systems. But what we can see in the projects is a material reality of testing boundaries, of elegance, of precision and of reconsideration. In recent years, much attention has been given to the writing on architecture; to architects' words and their intents. But has equal time been given to the material presence of architecture?

Koolhaas is a paradoxical figure in this spectrum of words and things – he produces endless amounts of writing, while at the same time proclaiming the impossibility of speaking about architecture. He dismisses the possibility of explanation, yet constantly seeks to define what it is he does. His writing can be oblique in terms of the particular effects or features of a building, yet it also contains remarkably clear observations on the work of the architect in a globalized world, documenting the cultural misunderstandings in project meetings on Fukuoka, even if hidden in what is designated as a poem.[21] In contrast, the writing of Ungers is more controlled on particular topics and far more straightforward. It typically situates the historical context and explores specific ideas in architecture such as proportion or precedents, or a general cultural context such as the autonomous language question. The rogue perspective of Koolhaas is well-known and often seen in the ambivalent reviews of his work.[22]

The importance of Ungers is indisputable in terms of his combination of practice and theory, and his systematic approach to both.[23] He is perhaps best known for his didactic influence, which has been emphasized in recent years with the republication of some of his teaching material in *Arch+*.[24] As a whole, his fundamental rethinking of and writing on architecture, combined with his continuing practice, seems more akin to the thinkers of the nineteenth century such as Viollet-le-Duc and Ruskin, than to his contemporaries such as the members of Team 10. Ungers's lectures for the TU Berlin are testimony to his intellectual approach, which is grounded in architecture history but oriented towards the derivation of systematic principles. In concurrence with his teaching, from 1963 to 1978, Ungers spent most of his time thinking rather than building. Beginning with his

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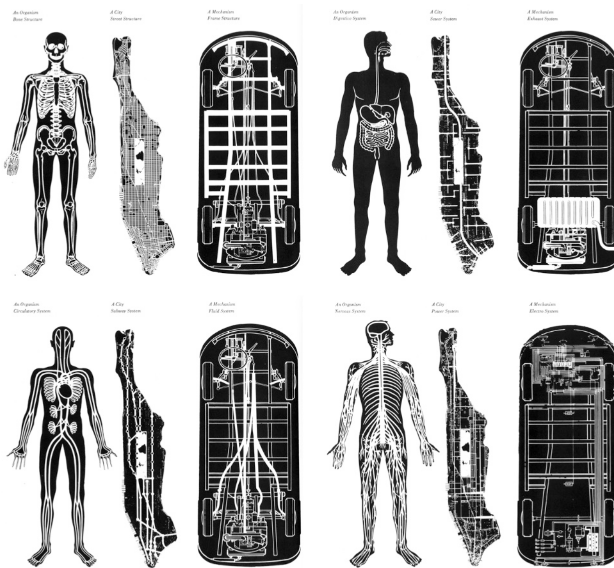
Fig. 4.2: O.M. Ungers, Systems of the body, the city, and the car. Contribution to Man TransFORMS, 1978



exhibition catalogue *Man TransFORMS*

appointment at the TU Berlin, his practice slowed down, and his focus shifted to teaching and systematically disseminating his ideas on architecture. According to Kieren, from the perspective of the mid-1990s, 'this was precisely the period when the foundations of his present international fame were laid, as he began a cathartic pursuit of a purely intellectual, conceptual, programmatic architecture.'[25] It may well have been the time invested in picking through architectural principles and their exemplars that allowed him to delve further into this intellectual architecture. Throughout however, it remained founded on the material objects of architecture. Even at its most conceptual, as a reflection on human modes of perception, the writing of Ungers remained fundamentally tied to architecture, never becoming a pure thought experiment. In the context of the Cornell years, Sébastien Marot also makes note of the striking contrast between Ungers and Rowe. He identifies Rowe as above all a historian, despite his love of and interest in architectural practice and techniques. While Ungers is presented as the inverse: despite

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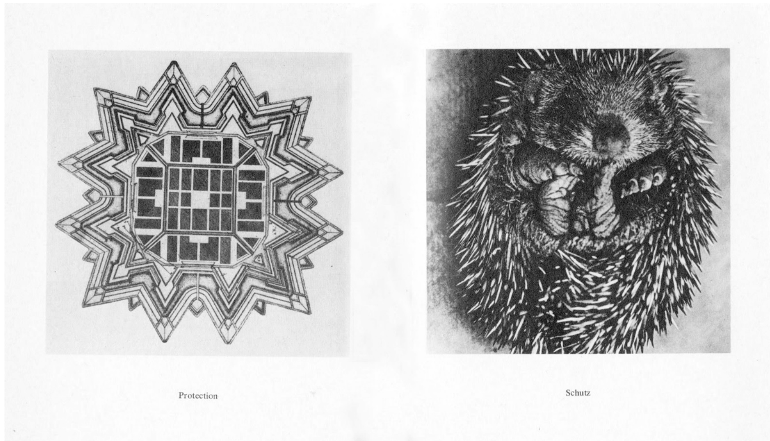
Fig. 4.3: O.M. Ungers, 'Protection': Ideal city (Georg Rimpler, 1670) and hedgehog



O.M. Ungers, *City Metaphors*

his love of and interest in research, use of models, precedents and systematic thought, he is above all an architect. He needs to make buildings, to intervene in cities and to add new realities to the world as it is.[26]

This then draws the boundaries between the analytic nature of natural sciences and the synthetic nature of the sciences of the artificial.[27] The pejorative identification of the 'muddled' domain of architecture as not pure, and as operative, could here make way for a view to its singular qualities, shared among the domains of engineering, city planning and computer programming. In these domains, as Marot notes in relation to the work of Ungers, 'it is important not so much to have an abstract definition of conditions, but to find an operative manner of dealing with things'.[28] It is in the operative (in 'knowing how') that the tacit dimension of architecture is apparent. In fact, it is the unexpected dimension raised by reality, by material phenomena, impossible to preconceive in systems, that discloses alternate, singular perceptions. This may even be where the ideas of Ungers converge with Koolhaas's predilection for the surreal: not in how the underlying desires are expressed, but in the fact that there are hidden dimensions of life that find their way into the project, either explicitly or as spiritual content.

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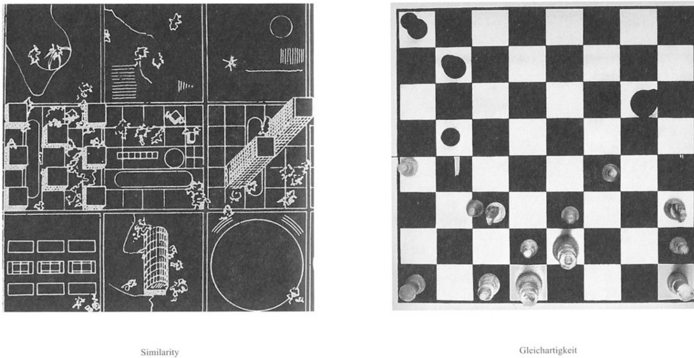
Fig. 4.4: O.M. Ungers, 'Similarity': Magnitogorsk (Leonidov, 1930) and chessboard



O.M. Ungers, *City Metaphors*

Koolhaas in fact seems to generate many of his ideas from this operative dimension, gathering his energy from the constraints on architecture. In reflecting on the Milan Triennale of 1986, he implies that the purity of abstract ideas is less interesting than built architecture: 'Because real work was rare, these occasions were invaded by mini-, sub- and quasi-architectures that, liberated from issues like clients, use, money, and technique, could become "pure".'[29] Criticizing the dry, irrelevant nature of this pure architecture, Koolhaas shows in his work that he is more interested in the underbelly and the rough edges. It is the underlying discomfort that he seeks out in order to feed his understanding of architecture.

For Ungers, much of the identifiable knowledge of architecture is based in pattern seeking and categorizing objects. This forms the heart of the 1976 exhibition 'Man TransForms' at the Cooper Hewitt, which was reworked for the 1982 book *City Metaphors*.[30] The book consists of two sections, an essay and a series of images and plans that were presented in the 1976 exhibition. The central premise of the essay revolves around designing with analogies and metaphors, emphasizing the importance of formal articulation. It suggests that visual thinking and pattern seeking are the most fundamental human traits in conceptualizing the world. The analogy, the metaphor and other

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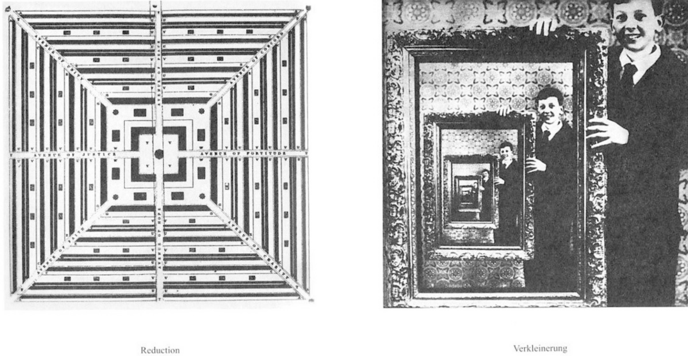
Fig. 4.5: O.M. Ungers, 'Reduction': Plan for Victoria (Buckingham, 1848) and infinity image.



O.M. Ungers, *City Metaphors*

forms of (visual) structuring are the most important connection between ideas and material reality. Here, the ideas of architecture, arranged in parallel with historical developments but according to essentialist categories of architectural form, are aligned with specifically intellectual interests. Historical context, formal autonomy and intellectual inquiry: these ingredients combine to intuit an alternative epistemology of architecture, combining city plans, associative imagery and words denoting ideas. This approach acknowledges external forces and disciplines, while maintaining a firm grip on the specific expertise of the architect, which consists of composing space and building forms. His interest in a rational approach to architecture led him to categorize these objects, not only in their historical situations, but also – importantly at the time – according to their architectural elements and structures.[31] Many years later, in reflecting on specific themes in architecture, he also notes that the spatial interrelations have been central to defining a number of themes. For example, on the figure of the doll-within-a-doll, Ungers writes:

> It is possible to ascribe a series of spatial interrelations to architecture which may be epitomized by this concept. In the broadest sense any urban

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> structure that is separated by a city wall from the surrounding countryside, is phenomenologically an object within an object. The city wall is like a shell inside which buildings and squares are arranged. These in their turn contain internal courts and spaces, that are divided up into ever smaller units. Thus the image of a doll inside a doll fits the mediaeval city from a spatial point of view.[32]

As such, Ungers suggests that there is 'solid' knowledge in architecture, although it may not be quantifiable in a traditional scientific manner. He shows his conviction that there are spatial relations that can be studied, that historical precedents are not mere interesting objects of study but that they hold some kind of truth within, about the way we prefer to live, to organize our cities. His early work and lectures, and his great efforts of categorization both in his teaching and in his writing, show the intuitions behind his later identification of pattern seeking as central.

Knowing, Showing *and* Telling: Reincorporating Architecture's Tacit Dimension

Twentieth-century architecture, particularly in the second half, is marked by an eminently intellectual approach. This includes an emphasis on discourse and ideas rather than buildings and the everyday conditions of practice. There are a few identifiable moments that mark the increasing interest in a theoretical approach. For one, as the schools of the 'minor professions' (architecture among them) became steadily more integrated in university settings, they began to seek out a legitimation of their own methods and discourses. Additionally, there have been moments (such as the late 1970s) when economic conditions slowed down the industry, leaving architects little recourse but drawing and speculation. It is during one such time that the Institute for Architecture and Urban Studies was founded in New York. Although it was initially seen as an experimental platform for exploring real-life case studies, it rapidly developed into one of the most important proponents of theoretical discourse.[33] At the same time, the legitimacy and nature of research in architecture have been an integral part of the discourse for a long time.[34] As Gutman convincingly argues, self-reflection and the quest for legitimacy is part and parcel of the profession.[35] Many debates have played out on this topic, and it is by no means settled. However, one of the

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interesting turns in the early twenty-first-century debate that continues to hold sway, is the revaluation of craftsmanship combined with a questioning of whether scientific methods are the only avenue of exploration in some fields.

In the intellectual history of architecture, it is the ideas that are paramount, and the categories imposed on architectural production imply a cleanness and identifiable movements that are never as clear in reality. Koolhaas, with his prolific writing, has often been identified more with his written positions on architecture than with his buildings. Yet his own relation to this has at times been ambivalent. In looking back at the Milan Triennale, he notes: 'Architecture, with all its messy complexities, is notoriously resistant to explanation, hostile to revelation. Corralled together, we now had to "think" our presentations.'[36] The implied ending to this sentence, of course, is rather than 'make' their presentations. This distinction between thinking and making runs through the twentieth century and taps into a fundamental division often held between intellectual activity and the physical and creative activities of the craftsman, of design, or of writing – in short, any domain that produces things (or events) beyond analysis. The tangible difficulties in bridging the domains of art academies and university faculties of art and architecture are still present, but there are many experiments revolving around the need to set a new direction.[37] This is founded on the acknowledgment, however intuitive, that both aspects, reflection and making, are necessary to a full understanding of the field.

Despite Koolhaas's observation on architecture being resistant to explanation, he has built much of his reputation on writing. In this, he acknowledges the need to *try* to explain, to explore in words ideas that are similar to those that underpin the building proposals. The development of his ideas has equally taken form in publications like *Delirious New York* and in buildings such as the Kunsthal. In the early years of OMA, the importance of writing far exceeded the few realized buildings, or even the competitions. The built work did not catch up until the early 1990s, with the Kunsthal arguably forming the turning point from written to built work. In fact, in the mid-1990s, the public reception had been so founded on the written material, that it led OMA partner (and erstwhile tutor) Elia Zenghelis to comment: 'In the end it is a pity that in this historical process, everybody has been concentrating on Rem Koolhaas for his smartness and not for his ability as a good architect.'[38] Here, however, one might also interject that the texts not only explore new territories, but also offer shelter, a place where the essential

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features of the project are cloaked in speculations and fictions (as a lightning rod for criticism, even).

One might argue that Ungers was bolder in addressing the implicit values of architecture. His professional career followed the more traditional trajectory of building small commissions first (including his own house) and being recognized for these early projects. At the same time, his intellectual development also took place in written work completed in parallel to his buildings, through which he articulated his architectural position, but also analysed and explained the implicit values of architecture. His 1960 manifesto with Reinhard Gieselmann on the spiritual in architecture (apparently completed in the house on Belvederestrasse) precisely tries to negotiate this possibility of explanation despite the complexity of architecture.[39]

In recent years, the centrality of the visual and the associative have become increasingly important, recalling the position articulated in *City Metaphors*. In 2006, for example, Koolhaas makes note of the importance of 'visual language' in a brief comment on the life of buildings after realization.[40] His refusal to speak of certain qualities of architecture sometimes tends to posturing – in a 1992 lecture he notes:

> It's becoming increasingly difficult for me to talk about the architecture my office has built. I think that is because as we get slightly more competent, as we know more about what we're doing and as some of the ambitions that we have are becoming more or less realized, it has become impossible, or intolerable, to try to express these events in words. It is really necessary to see the buildings. Therefore I will absolutely not talk about the buildings, but I will talk about urbanism.[41]

This seems a somewhat strange conclusion, as it implies that urbanism lacks the ineffable qualities that buildings have. Why would one be able to talk about urbanism more accurately than about architecture? Nevertheless, the mere fact of identifying a 'need to see the buildings' is a common thread in the lectures and analyses of many thinkers today. From Bruno Latour in 2004 to Willem Jan Neutelings in 2006, to Aaron Betsky in 2008, each addresses the qualities that cannot be captured in numbers, can only be approached in words, and are manifest in buildings. The central question now is: How close can we get to articulating the knowledge between these different mediations?

Even as Koolhaas regularly proclaims the failure of words, he also seeks alternate words, alternate vocabularies, in order to achieve a more accurate depiction of buildings. His irritation at the inadequacy of words is matched

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by an interest in the power of words: recently, he faulted architects for no longer writing.[42] In the meantime, Koolhaas seems to combine the activity of building with writing exceptionally well, perhaps because he treats the two activities separately. His texts are not simply explanations of the projects, nor do the projects merely illustrate the texts. His projects (like the Kunsthal) are full of architectural concerns: layering, circulation, the combination and the collision of different materials. His texts are eminently quotable, full of short and provocative statements, exploring the underlying conditions for his architecture, or sometimes veering off on tangents relating to the design process, such as cultural miscommunications during his projects in Asia. At the same time, in his own assessment, his persona as a writer is crucial because it allows him the freedom to take on different voices. As an architect, he feels more constrained to live up to expectations and to a seriousness of the discipline.[43] Ungers's texts take less freedom with their subject matter, exploring questions of architecture, the city and form in direct and often didactic form. At the same time, the texts are no more explanations of his projects than those of Koolhaas are. Instead, they explore themes and ideas that are related to the discipline of architecture, from proportion and order to visual metaphors and analogies.[44]

The history of distinguishing between the intellectual operations of thinking and writing and the creative operations of architectural practice feeds this perceived distance between the abstract idea and its material form. This stands in contradiction to the (historical) evidence of developing typologies or formal innovation, which requires an understanding of architecture history and a positioning within it. Ungers is aware of the distinction between the immaterial ideas in drawing and writing, and their realization, when made tangible and concrete, yet he tries to bridge this gap by explaining as clearly as possible the design, from its spatial structure to its cultural implications. Koolhaas, in identifying the same problem in explaining architecture, resists didactic explanations in favour of provocative texts that reiterate or reinforce the ineffable qualities he sees in architecture.

As such, writing about and around architecture also helps to explore to what extent the tacit dimension might be approached, how much of it might be disclosed, and perhaps also to foster an understanding of the limitations of words. In our time of design blogs and retweeting a 'liked' building, this may be more than just a trivial matter. As the contemporary reception of buildings becomes more aware of the limitations of academic reflection and scientific standardization, yet also more mediated by various layers of electronic and

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visual representation, we may well need to remind ourselves to go see the architecture itself before passing final judgment. In other words, what we seem to need most right now is an acknowledgment of the explicit and the tacit dimensions of the discipline. While for credible academic study we may be more dependent on explicating principles and conventions, clarifying hypotheses and analysing hidden conditions, the domain of architecture cannot do without the tacit dimension. And while this may be resistant to classic explanation and analysis, this does not necessarily mean it cannot be shown, and thereby understood.

Transmitting Knowledge in Architecture: Studios, Apprenticeship, Precedent

The problem facing a discipline with such a strong tacit component is therefore one of credibility. While apprenticeship was a common mode of learning in the past, now a university degree is typically also required.[45] We may accept the idea of learning by apprenticeship when it comes to ostensibly simple crafts such as carpentry or even the type of skill it takes to be a musician, but when it comes to a discipline like architecture, we also require the study of codified knowledge, an understanding of principles. Nevertheless, one could still argue that the central place of studio projects in most architecture curricula contains the idea of apprenticeship, albeit in a form that provides more space to experiment (for lack of clients and financial concerns).

The explicit components of architecture lend themselves to more traditional teaching – issues that have clearly identifiable constraints and parameters such as structural stability or building regulations. The activity of design as an act of synthesis of both explicit and tacit knowledge, based in the skills of drawing and spatial composition, may be partially conveyed as an abstract principle, but in essence requires *doing*. The role of the teacher here becomes a matter of coaching the self-taught skills found through practice and reiteration.[46] Indeed, there are those who suggest that 'teaching' architecture is at best an oxymoron. 'The best an architecture school can accomplish is to foster its students as autodidacts. This requires the encouragement to work autonomously towards foundations, to exert critical skepticism, to research intensely, and formulate their own hypotheses and work towards syntheses.'[47] Nevertheless, there are contributing forms

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of knowledge that help develop design-oriented skills. Studying historical precedent is a common form of design teaching in which the qualitative analysis of design is central. Describing the specific qualities of the historical precedent thus does not offer a design guide, but does offer identifiable design themes that are evaluated. These historical precedents become part of the body of knowledge of architecture, which architects then transform to address new and unforeseen problems.

Ungers experimented with various teaching modes, such as the thesis studios on Berlin, the *Wochenaufgaben* as introduction to design tools, and the lecture series to share his knowledge of historical precedent. In recent years, three particular models of the teaching of Ungers have been published in abbreviated form. The winter lectures of 1964-1965 show his approach to the *Gebäudelehre*, bringing order to architecture history through a categorization of projects, forms and compositions. All historical examples are categorized in a way that trains inductive reasoning, deriving general rules from specific examples. Not only does this offer a spectrum of historical precedent, but it is built on the supposition that there is a knowledge to be culled from the building itself. The *Wochenaufgaben* are coherent brief design exercises directed at training design skills, while in the process developing the tacit knowledge founded in particular aspects of architecture: function, composition or material, to name a few. They require the students to propose specific solutions based on general constraints and conditions. Each particular study addresses one type of problem (materialization, composition, volume). By retaining the same programme throughout the course (a house, with the same components and spaces), the *Wochenaufgaben* as a whole embodies the understanding of variation within a limited set of parameters. Precisely because the attention is limited to a smaller number of (practical) issues, the care with which the assignment is articulated is stronger. Exercising just one design component or skill each week thus develops design as an idea-driven activity rather than a list of conditions to fulfil. In this sense, the work shares quite a bit with the design exercises of John Hejduk (both at Cooper Union and in the Texas Rangers period). The external narrative that often accompanies larger design projects is here superseded by constrictions and specificity. In contrast, the summer academies (such as the Urban Villa, the Urban Garden, and the 1976 academy on the Urban Block, in Ithaca) are more akin to the final-year laboratories Ungers led while at the TU Berlin, in which specific problems are confronted from different perspectives by a group of students.

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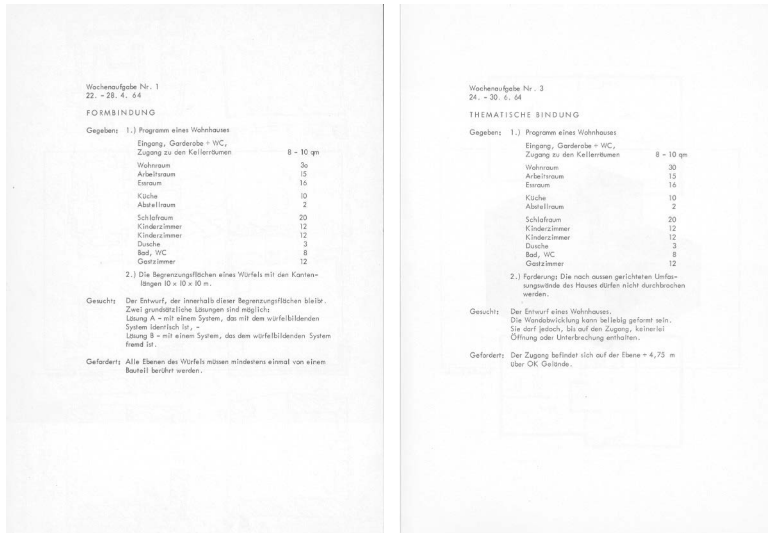
In all of the studios, the practice of looking, analysing, drawing and designing are prominent components.

Fig. 4.6: O.M. Ungers, Wochenaufgaben 1966, topics week 1 (form) and 3 (theme)



Wochenaufgabe Nr. 1
22. – 28. 4. 64

FORMBINDUNG

Gegeben: 1.) Programm eines Wohnhauses

Eingang, Garderobe + WC, Zugang zu den Kellerräumen	8 – 10 qm
Wohnraum	3o
Arbeitsraum	15
Essraum	16
Küche	10
Abstellraum	2
Schlafraum	20
Kinderzimmer	12
Kinderzimmer	12
Dusche	3
Bad, WC	8
Gastzimmer	12

2.) Die Begrenzungsflächen eines Würfels mit den Kantenlängen 10 x 10 x 10 m.

Gesucht: Der Entwurf, der innerhalb dieser Begrenzungsflächen bleibt. Zwei grundsätzliche Lösungen sind möglich:
Lösung A – mit einem System, das mit dem würfelbildenden System identisch ist, –
Lösung B – mit einem System, das dem würfelbildenden System fremd ist.

Gefordert: Alle Ebenen des Würfels müssen mindestens einmal von einem Bauteil berührt werden.

Wochenaufgabe Nr. 3
24. – 30. 6. 64

THEMATISCHE BINDUNG

Gegeben: 1.) Programm eines Wohnhauses

Eingang, Garderobe + WC, Zugang zu den Kellerräumen	8 – 10 qm
Wohnraum	30
Arbeitsraum	15
Essraum	16
Küche	10
Abstellraum	2
Schlafraum	20
Kinderzimmer	12
Kinderzimmer	12
Dusche	3
Bad, WC	8
Gastzimmer	12

2.) Forderung: Die nach aussen gerichteten Umfassungswände des Hauses dürfen nicht durchbrochen werden.

Gesucht: Der Entwurf eines Wohnhauses.
Die Wandabwicklung kann beliebig geformt sein.
Sie darf jedoch, bis auf den Zugang, keinerlei Öffnung oder Unterbrechung enthalten.

Gefordert: Der Zugang befindet sich auf der Ebene + 4,75 m über OK Gelände.

Veröffentlichungen zur Architektur 1

Koolhaas has also published the results of his teaching at Harvard, which were often aimed at analysing in a 'designerly' manner the conditions to be found (on shopping, or in Lagos, for example). While these studios are not directed at the development of design skills as the *Wochenaufgaben* are, they are organized around an implicit mode of examination, analysis and synthesis. In a sense, many of the studios replicate the structure of *Delirious New York*, in which Koolhaas took the existing condition of Manhattan to unravel various (sometimes speculative) storylines that contributed to the existence of Manhattan. Koolhaas's studios are focused more on information gathering. This approach is based on inductive reasoning – seeking out the logic, the patterns, from a vast spectrum of material, not from a preconceived notion of architectural principles. It makes use of both speculations by projecting possible scenarios, and systematic categorization in organizing the material found. In addition, analogies are drawn between architecture and everyday ideas in order to explain phenomena by association rather than

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explanation. The use of literary principles and narratives thus help sensitize the student (or in practice, the client) to more specific architectural issues.

The distinction between the approaches forms perhaps the most striking difference: the explicit considerations on the discourse by Ungers stand in contrast to the oblique explorations of ideas in the work of Koolhaas. In this, Koolhaas seems to be a product of his time, refusing to speak of what cannot be discussed. The work itself shows the carefully considered steps in the design process, turning over the work and reassessing it, taking nothing for granted, exploring the physical material of it as well as the sociocultural conditions and constraints. Yet there is a refusal to engage with a direct vocabulary on the work beyond description, while at the same time his oeuvre is a quest for new definitions, for words not yet tainted by obsolete theories. Is this indeed the personal preference for a paranoid critical method, or is it rather a response to a state of discourse in which value and quality have somehow been relegated to personal preference? Either way, the era of 'truthiness' and 'alternative facts' seem to have blurred the line between expert evaluation and subjective opinion. Reconstituting a plausible relation between architecture and its social context – something that finds a middle ground between knowledge and expertise on the one hand, and the acknowledgement of diverse values and perspectives on the other – has become a key challenge today.

For both Koolhaas and Ungers, teaching studios becomes a valuable tool in producing research and exploring the very status of knowledge within architecture.[48] The 'laboratories' of Ungers (as Koolhaas later dubbed the thesis studios on conditions of Berlin) seem more constrained, more focused on the discipline-based tools and instruments such as historical precedent and design experimentation. The Harvard studios draw on many different examples, not only the design-based seminars of Ungers, but also the many perspectives of analysis used by Venturi and Scott Brown in the Las Vegas and Levittown studios.[49] As such, the teaching of Koolhaas is extended further outward, gathering as much material as possible in order to synthesize later. Ungers addresses the relation between clearly identifiable explicit domains of architectural research, and the tacit components involving practice more directly as a topic of inquiry. In contrast, Koolhaas leaves the epistemic states of architecture aside, instead provoking self-education, breaking rules as much as teaching them. Although Koolhaas 'gathers' more information from distinct domains, he shares a tendency towards structuring, towards bringing order to the information collected.

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Additionally, for Koolhaas, the office is perhaps as much a knowledge exchange as his teaching is. Within the halls of academia, he may be able to explore more personal interests than within the constraints of client demands, but the office seems to work very much as a high-pressure research studio. While Ungers separated his practice from his teaching more – perhaps as much by necessity of time constraints and the move from Germany to the United States as by intention – Koolhaas operates in many distinct spheres simultaneously. This is facilitated by his drive to collaborate and to enter into new networks of people. Some of the differences between the office structures of Ungers and Koolhaas are striking, most notably the compactness of the Ungers office and its hierarchy.[50] It was a more or less traditional small office structure, with work and intellectual discussion, learning and doing intertwined. OMA has a more flattened office structure, and at times used internal competition as a way to encourage new ideas.[51] This structure facilitates autonomy for the project directors, where Koolhaas takes on the role of 'editor' within a large group of people who are working diversely on a number of projects.[52] In this sense, the structure of OMA recalls the way Warhol organized the Factory, and raises similar ambiguities: on the one hand, authorship is seen as less important than the work itself, while on the other, the role of the 'editor' becomes crucial – the group seems to exist by the grace of the intellectual leadership of its founder.

For Ungers, theory plays a key role in understanding architecture, and the years in Berlin allowed him to explore various ideas. In 1967 he organized a conference on architecture theory in Berlin that eventually led to his position at Cornell.[53] At this conference, there were contributions by Colin Rowe, Julius Posener and Kenneth Frampton, among others. Many of them still fell to either side of the division between practice and theory, while Ungers's own contribution focused on the knowledge that was situated between practice and theory. In general, his approach is more focused on explication and he works through successive definitions and arguments thoroughly. In contrast to the enigmatic statements of Koolhaas, these arguments are didactically structured, sometimes to the point that they lose some of their poetic potential. In this manner, Ungers departs more from the position of classical education in terms of *Bildung*, while Koolhaas follows a more empirical approach, fed by the observation of various social and visual phenomena. This informs *Delirious New York* as well in its attempt to avoid any traditional architectural terms, aiming to redefine how we speak and think about architecture.[54] Ungers instead focuses more on clarifying architectural form,

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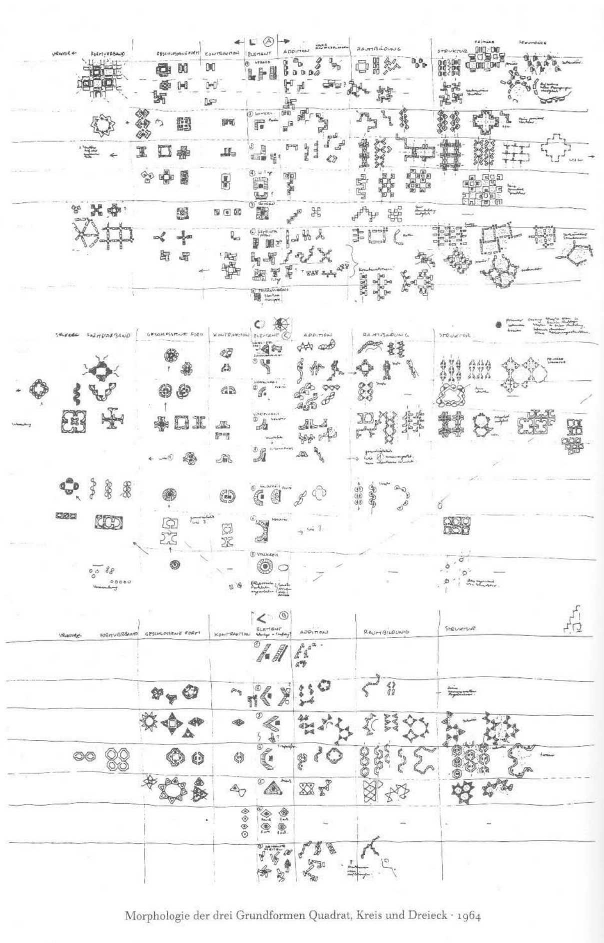
using precedent and systematic categories to do so.[55] The contribution of Ungers in design approaches thus resides in the explication of the knowledge of architecture, sifting through various projects and synthesizing them

Fig. 4.7: O.M. Ungers, patterns and morphological studies: square, circle, and triangle in multiple variations



Morphologie der drei Grundformen Quadrat, Kreis und Dreieck · 1964

O.M. Ungers, *Sieben Variationen*

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into logical families as an encyclopaedic quest in architecture, reminiscent of Viollet-le-Duc's nineteenth-century *Dictionnaire Raisonnée*. The texts of Koolhaas are different, not explanatory but provocative and suggestive, making use of other vocabularies than those of canonized architecture. Yet he has also contributed to the formal language of architecture with architectural elements, such as the slanted columns in the Kunsthal and the floor that curls into wall and ceiling in the Educatorium, identified in *Content* as 'copyrights' of OMA's innovations, which derive from their constantly generating models and prototypes.[56]

A further notable distinction between Ungers and Koolhaas lies in their sources. Where Ungers turns to traditional, weighty, disciplinary sources, Koolhaas often makes use of the not-yet-incorporated, the alternative. Where Ungers makes use of Renaissance treatises on architecture, Koolhaas refers to postcards and Japanese pornography.[57] Unsurprisingly, Ungers comments in an interview on his library as a space of 'dignified knowledge'.[58] While Ungers is acutely aware of the material realities of architecture, he sets his sights on humanist tradition, emphasizing the rational and the spiritual. The endorsement of the civil society, even with the visually humorous interventions of *City Metaphors*, remains a primary characteristic of the writings and projects of Ungers. In contrast, Koolhaas operates more on the principles of Pop, opening up the visual language of architecture by using references from various sources, preferably with multiple associations.[59] In addition, there is a marked presence of the sensual in the work of Koolhaas, perhaps as a counterpoint to the coolly intellectual approach of architecture discourse. As such, he makes use of the new style of drawing by Madelon Vriesendorp, which plays off the raw aspects of the symbolic, the Freudian 'underbelly of modernism', proposing entirely fictional constructions of alternate worlds.[60]

This navigation of both the abstract, intellectual properties of architecture, and the subtle presence of a tangible sensuality mark the instinctive ambivalence of Koolhaas. He has an appreciation of both the primitive and the modern, the temporal and the timeless. Ungers's teaching is directed at reducing the tacit dimension of architecture, by explaining and rationally approaching as much as possible. The *Wochenaufgaben* is exemplary of this approach – by limiting the space for invention, the contributing skills of design are thoroughly trained. Only later in the course of education is the synthesis of a larger design project required. Koolhaas's teaching is based more in a mode of speculation that embodies the tacit dimension. The

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suggestive nature of the writings and studio results triggers personalized associations.

Tactical Manoeuvres: Exercising Material Ideas

Koolhaas and Ungers's oeuvres, particularly in the late 1970s, seem to be oriented towards a reconstruction of an architectural vocabulary. This is immediately evident in the work of Ungers, who explicitly uses historical forms and types in order to construct a legible series of architectural gestures. The 1970s projects such as Roosevelt Island (1975) and Berlin Lichterfelde (1974), but also the summer academies (Urban Garden, Urban Villa, City within the City) identify essential features of historical types in each area. They then use these essential features to construct series of new buildings, each a modulation of the essential type. As such, these projects offer us a history-based series of potential transformations. This didactic and explanatory approach is not in evidence in the work of Koolhaas. Nevertheless, there is a similar attention for the existing vocabulary of building types and their derivations, though Koolhaas gravitates more towards the language of modern architecture. Making use of a more intuitive series of resemblances, or at times even an idiosyncratic selection, the most essential features are isolated and magnified, as a material document of ideas.

In order to reconstruct (or in the case of Koolhaas, reinvent) an architectural vocabulary, Ungers turns back to history for continuity and universal underpinnings of architecture. Koolhaas instead expands out to engulf the world within his logic, or the logic of design. The teaching studios and the office are both organized along this principle of expansion, lending credibility to Yaneva's comment that 'OMA and Koolhaas treat the studio as the world, a world that is to be re-enacted in practice, a world that is to be reinvented by design'.[61] Instead, Ungers sees particular themes as giving voice to the spiritual content of architecture.[62] Despite the individuation of the contemporary, these themes appeal to general ideas, to cultural resonance. In the projects and writings, a number of themes and approaches together construct a position on architecture and its epistemological concerns, such as 'order', 'analogies' and the 'oxymoron'.

This section briefly recapitulates a number of these operational ideas in order to illustrate where these notions take shape and how they construct a plausibility between building and idea.

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Collecting

The very notion of the collection allows for idiosyncrasies, while also suggesting the mass culture of modernity, premised on serialization and industrial production. Collections, as a general condition, or as an architectural project, justify themselves by virtue of their mass. In the work of Ungers and Koolhaas, whether it concerns multiple iterations of the urban dwelling (Ungers's Roosevelt Island, 1975), or the many possible shapes for an alternative skyscraper (OMA's CCTV project, 2012) there is a pattern seeking that becomes manifest in the collections. It shows a manner of bringing order by categorizing, that speaks to how architecture is to approach the endless potential of gestures without predefined rules.

> Das Sammeln als 'Ausdruck einer Auswahl, die immer auf Reduktion abzielt' (Wilfried Kühn) is eine geistige Haltung, die sich im Konkreten erfüllt. So präzis die Kriterien der Reduktion in Ungers's Architektur und Theorie auch sind, so scheint durch die materielle Akkumulation der Bücher, Modelle und Kunstwerke in seiner Sammlung dann eben doch auch das Prinzip der Vielheit, der Mannigfaltigkeit deutlich hindurch.[63]

As a whole, the collection shows a multiplicity and plurality, while its individual components emphasize individuality, subjectivity and the occasional detour. The ambiguity of Ungers's quest for purity and the embrace of multiple possibilities is visible in the library and the collections in the house.

Coincidentia Oppositorum and the Oxymoron

Contradictions run throughout the work of both Ungers and Koolhaas, which may simply be a particular feature of the twentieth century; Robert Venturi, after all, elevated contradiction to an essential feature of architecture.[64] Certainly throughout the 1970s, a wealth of writings address issues of contradiction, opposition and the impossibility of reducing vitality to rules.[65]

Both Koolhaas and Ungers have their own specific concept to instrumentalize these contradictions. For Koolhaas, it is the oxymoron, while for Ungers it is the *Coincidentia Oppositorum*. Ungers borrows this notion from medieval philosopher Nicholas of Cusa, to identify a 'coincidence of antitheses and not their overcoming', where 'these contradictions do not shut themselves up in their antithetical nature, but are integrated into an all-inclusive image'. This is at the heart of the theme of fragmentation and its architectural counterpart,

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assemblage. To Ungers, this allows a new vision for architecture, one that releases itself from the obligation of unity. 'A new dimension of thought is opened up if the world is experienced in all its contradictions, that is in all its multiplicity and variety, if it is not forced into the concept of homogeneity that shapes everything to itself.'[66] While many of his colleagues were still seeking to draw out the possibility of architectural unity, this concept gave him a way to conceptualize plurality and use it in a formal sense. This does not deny a resonance or shared sensibility, but repositions it within the collective rather than the individual: 'Only collectivized thought can aspire to unity: the free, individual spirit seeks contradictions, antitheses, heterogeneity.' This all to address the problem that architecture and the city are typically judged by how well they form a unified whole – while to Ungers it may be worthwhile if 'the unresolved contradiction, was placed at the centre of the conception and of the plan and hence of architectural studies?', yet he follows this directly with the question: 'Is it possible – or even necessary – to produce artificially, and therefore consciously, the contradiction that is usually determined by chance?' [67] Ungers clarifies that the idea of unity within the city is a myth – the growth process of a city is discontinuous, and therefore it is fragmented and contradictory. Here also the early formulation: 'Different epochs have left their traces on the city are different times. Theses are followed by antitheses, so that *the city turns out to be a dialectical structure as far as its essence and image are concerned*'.[68] Similarly, the oxymoron, as any combination of contradictory words, allows a simultaneous presence of incongruous realities. Koolhaas introduces the oxymoron as a way to address the inconsistencies he encounters in – and sees as integral to – what would later be called 'Manhattanism'. As F. Scott Fitzgerald notes: 'The test of a first-rate intelligence is the ability to hold two opposed ideas in the mind at the same time, and still retain the ability to function.'[69]

Lobotomy

This notion is highly suggestive, one way that Koolhaas uses a non-architectural vocabulary to describe an architectural condition that immediately gives rise to associations in the mind of the reader. The descriptive quality of the words thus becomes more important than their historical use for architecture. The lobotomy describes the separation between the inside and outside of buildings – severing a connection that was formerly considered necessary. In direct contradiction to the modern imperative of honesty in

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the façade, the lobotomy describes the liberation of not knowing what is going on inside. It frees architecture from the need to represent internal functions, and it frees it from the constriction of authenticity – of being true to the programmatic infill. As a non-architectural concept, the notion of the lobotomy is suggestive in a directly physical sense, offering an analogy for what may be apprehended in the building. In *Delirious New York*, the goal was to use a non-architectural vocabulary, yet these words have made their mark on the architecture discourse, simply by their evocation of a condition. The psychological undertones of the lobotomy and the vertical schism reinforce the surreal images of buildings as living entities produced by Vriesendorp and Zoe Zenghelis. The Freudian connotations, intentional or not, have become part of the vocabulary of architecture.[70]

Order

The idea of a 'mental order' is crucial to Ungers – it is not only present in his texts as an explicit touchstone for architectural design, but it runs through his built work. In the house on the Kämpchensweg, this is translated into a mathematical ordering system, but the library on the Quadratherstrasse also creates a tangible form of order.[71] It is founded on the systematic dimensions of human thought, presupposing the ability to categorize and arrange according to similarities.

The very notion of order has its architectural expressions in symmetry, grids, proportion and hierarchy, but it is also a theme unto itself, as exemplified in *City Metaphors*. In this essay, analogies and metaphors are not only human tools with which to understand the world, but also to transform it. This manner of conceptualizing illustrates the 'pattern-seeking' nature of people. As such, order exemplifies a way of thinking about architecture that bridges individual perception and the general human condition. Based on *Gestalt* theories on the apprehension of the whole and individual composing elements, it is strikingly resonant with contemporary insights on human thought (in particular the dominance of associative leaps and pattern recognition, as distinct from computer processing), and the literature on design thinking as an activity of synthesis based on apprehension of similarities.

These different themes and approaches do not so much explicate how architecture works, as that they give a presence to its tacit dimensions, formulating it by example and analogy. The loss of an architectural language is not to be remedied by semiology, but by understanding historical precedent

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and by delving into the tacit knowledge of architecture. This exercise may take place within the intellectual discourse of architecture, seeking out ideas such as 'order' and 'collection', or it may equally be the excavation of a symbolic value underpinning the places and objects of everyday life, as found in *Delirious New York*.

These explorations are about reconstituting a vocabulary for architecture that does justice to both its material and intellectual dimensions. Memory plays a central role, as does variation. These ideas are markers for the issues facing architecture in the 1970s in its rethinking of modernist architecture's legacy. Ungers notes, for example: 'Memory as a bearer of cultural and historical values has been consciously denied and ignored by the Neue Bauen. The anonymity of the functionally correct organization of the environment has asserted itself over collective memory.'[72] Moreover, he uses the modern *Siedlung* as an example of how all differentiation and distinction has been replaced with homogenous building, 'the monotony of built boredom'.[73] He attributes the loss of an architectural language and meaning to this enforced uniformity, since its placelessness and universality makes it no more than an 'empty gesture'.

Architecture: Individual Experience and the Collective Dimension of Culture

While the sources and results of Koolhaas and Ungers may be different, they share an underlying approach that intimates a similar structure of thinking. Ungers uses a limited range of sources in order to construct a general conceptual system. Koolhaas uses general references and associations, but brings them into architecture. In this sense, the rise of AMO as compliment to the work of OMA is significant. While AMO notes that it was founded to generate ideas outside the typical field of building, it may equally be seen as a manner of organizing or legitimizing the disparate topics of research in OMA. AMO expands the expertise of the architect to other issues. It utilizes the synthetic nature of design thinking in order to generate unexpected scenarios.[74]

As such, architecture is placed at the interface between the individual and the collective – where the architect is positioned as an individual, but also the experience of the architectural object mediates between individual experience and a larger domain of cultural sensibility. It is the negotiation of

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this individual moment and the traditions and rules that construct a collective experience that delineates the work of the architect.

> The architect operates in much the same way, drawing on his or her own limited experience of perception, appropriation, recollection. But at the same time he refers to the history and traditions of the discipline, formulating models, which he then transforms and modifies. In this way he contributes to the environment that conditions us, to the barrage of ciphers and symbols of what we call 'history'. This is not a question of imitation, for 'that would mean', according to Ungers, 'that one consider[ed] history not as an existential problem but as a series of episodes'.[75]

The salient feature of thinking in architecture is, in other words, inductive: proceeding from the specific, individual and contingent to attain general insight and propose broadly coherent models.

The material expression of ideas is key to articulating the project. While Ungers follows the traditional role of the Renaissance architect, with 'sound ideals, lofty judgment, vast knowledge' (as Leon Battista Alberti would have it), Koolhaas is more aligned with the postmodern intellectual, shifting between different modes of thinking. Both appeal to a highly disciplinary approach to architecture, but while Ungers draws his way through architecture and writes his way through concepts, Koolhaas fluctuates more. Sometimes the conceptual frame for a project is delineated in a simple written note, as in the clear instructions to use the best materials where crucial and the cheapest wherever necessary for the Patio Houses in Rotterdam, making budget constraints form a conceptual directive for material expression. At other times a simple sketch may suggest the fundamental idea behind a project, as in the Tiergarten sketch, in which the six towers are each articulated so distinctly that the basic premise of individual expression of the parts is unmistakable. Ungers more clearly maintains a connection between approach and intent. To determine the place of the staircase in the Quadratherstrasse library, Ungers draws every possible position in plan, and when it seems promising, in section and perspective as well. No notes accompany the drawings beyond the precise dimensions of the grid and the staircase.

In the work of Koolhaas, the role of architecture is grounded in a diffuse society. The 'elegance, lightness and virtuosity of his buildings' emphasizes a positive role for architecture:

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> The intimidating severity of his dogmatic side not only does not exclude the provocative, playful and truly extraordinary nature of his architecture, it is actually bound up with it. Both stem from an attitude and poetics without illusions (but without any distress), adapted to societies whose horizons have collapsed, which are drifting uncontrollably in time and whose very geographical foundations have become unstable. In these societies, new reasons to act must be formulated – among them, pleasure, inquiry, mental speculation and artistic experience.[76]

Its role is set as continually 'other': not as guideline but as pinpricks, unsettling convention. The many faces of the work, from severe to playful, nourish the ambivalent reception, often swinging between acclaim and denunciation. Meanwhile, the figure of Koolhaas remains at the centre of these claims – more than the office, the collaborators, the students.

The persona of the architect now increasingly clouds the question of the role of architecture. There is a complaint – reiterated by so many these days – that we are currently unable to clarify what the expertise of an architect encompasses. While this may be true in a general sense, the historical reflection that shows architecture to have once laid claim to an authority it no longer has is also coloured by the legacy of what has remained standing over time. If one carefully rereads Vitruvius or Alberti, there are equally strong admonitions to architects to hold high their reputations (as not all do). Ruskin equally chides his contemporaries for falseness of material, trying to maintain the standards of architecture, yet implying that they are not (yet). Public opinion and its relation to that of the expert is equally at play in various manifestoes. It is quite possible that this general logic has been exacerbated through the cultural impetus of legislation and regulations (in professional ethics), and by the stronger need for a public persona – often coinciding with a 'branding' or the mythology of the 'starchitect' – yet this does not mean that architects once had the ability to prove themselves valuable and have now lost it. There is a stubborn continuity of the myth of the architect – the Roarkian figure who knows best, or can see beyond the immediate to what is yet to come. This myth of the visionary has enabled a mystique that at times can contribute to getting ideas built, but it also entails a backlash of seeing the architect as a volatile and intuitive trendsetter. This has been exacerbated by the current fixation on celebrity, reinforcing the centrality of the architect as persona to the detriment of a discussion of urban conditions, realized buildings or architectural representations. Refocusing on the architectural

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object rather than its maker may contribute to a more distanced evaluation of architecture in society.

The Knowledge of Design Thinking, Contingent and Transformative

In the 1960s, the interest in explicating architecture knowledge focused on design methodology and the identifiable decision-making steps.[77] This remained inadequate to describe and guide the range of choices that are in essence normative decisions (particularly the domains of ethics and aesthetics). This currently remains one of the strongest arguments against computerized design methods. Even if we can accept the idea of parameters generating a neutral design model, the orientation on design process merely sets parameters within which choices must still be made. Denise Scott Brown already noted this problem in 1975: design methodology does not solve the design problem.[78]

The profession is in part a matter of (explicit) knowledge – some solutions are more adequate than others, especially when it concerns clearly delimited issues such as traffic flow, structure or durable finishing. Yet because most of the issues are some version of wicked problems – which are typically poorly defined, insoluble and non-optimizable, within the realm of the adequate there are still choices to be made, based on values, on moral viewpoints or on aesthetic preferences. These are not 'knowledge' as such, but they contain a component of normative decision making. The issue of parameters being set is important, however, as they constrain the spectrum of possible solutions – and this is in some sense the role of vocabulary: that a series of instruments and descriptions are shared, limiting the otherwise infinite possibilities.

Delirious New York shows a narrative that is attuned to the stories within objects. These stories are a notable combination of the clinical writing from the journalist days of Koolhaas at *de Haagse Post*, and the speculative narratives that Barthes discusses in his mythologies.[79] It combines a matter-of-fact descriptive style with an almost archaeological approach that uncovers the suggestive dimensions of these objects. As such, this approach hovers between the linguistic approach that accommodates rationalism, and a visual approach that accommodates the associative. Neither is sufficient in itself: the linguistic/semiotic is not sufficient to understand the implicit components of architecture knowledge, yet the 'purely' visual is equally inadequate. The 'spatial' offers a further correction, inasmuch as it requires

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a multidimensional approach. However, the tools for showing the spatial are still limited – it requires a projection of the plans, drawings and models that intimate a future built reality. Envisioning the consequences of a scenario that is yet to be realized is part of what constructs architectural expertise.

Koolhaas also makes note of the current absence of the semiotic:

> As a student, I was soaked in the language of semiotics – later on, Deleuze effectively ended that. This is hardly ever mentioned any more in architectural discourse, but, to me, it is actually crucial, and, as an absent force, increasingly important.[80]

The domains of architecture knowledge are constructed out of these separate domains, yet the crucial component of an architectural expertise is founded on the ability to synthesize these different areas into a coherent project. The linguistic, the visual, the spatial and all the contributing facets of technical knowledge, awareness of regulations, sensitivity to contextual concerns. As contributing components, each can be analysed, (partially) explicated and approached as a body of knowledge.[81] As a whole, design thinking is then founded on explicit domains of knowledge and the tacit dimension of contingency and synthesis.

Formal considerations play a crucial role in the definition and articulation of ideas in architecture. Yet according to Ungers it is precisely the ability to formally articulate these ideas that modernist architecture removed from the vocabulary of architecture:

> While the theorists of late historicism argued over fundamental concepts of architectural form, the modernists who followed them (with their reformist mania) in the end even sidetracked the last formal elements and replaced architectural notions with the concepts of engineers. With the instruments of constructive thinking, with the principles of utility and functionalist logic, the primacy of the architectural concepts of body and space lost its strength. Both the building as a symbolic form and space as an experiential envelope disappeared from the architect's vocabulary.[82]

Is this indeed a question of knowledge? Is the body of knowledge in architecture to be derived from, or distilled out of, the objects of study? In other words, does the vocabulary as such contain the knowledge of architecture? The question revolves, again, around what constitutes the expertise of architecture – what is it that the architect knows, or can do,

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that others cannot? For Koolhaas, the erosion of competence is equally clear, though he attributes this to a different cause than modernist architecture:

> Displayed to the public like the fat lady in a freak show, architecture's 'discovery' – by the media, developers, museums – became a Faustian gambit in reverse: a drastic erosion of its competences, a progressive dismantling of its ambitions; the only 'heroism' allowed was that of the tragic white clown injecting a tear of emotion.[83]

In light of the discomfort voiced here, it is ironic that Koolhaas has not only benefited from architecture's discovery by the media, developers and museums, but also contributed to it. Particularly in terms of the media, not only *Delirious New York* made a splash, but also *SMLXL*, an experiment precisely in the conditions of publishing and media. He has proven to be exceptionally adept at manoeuvring through the various media within which he has positioned his architecture.

For Ungers, the best direction forward is relatively clear: it is about the *Gestaltung* of architecture, or the knowledge and ideas that are materially embodied in form. *City Metaphors* in particular addresses this *Gestaltung*, both as an approach and as a topic of study. The book begins with an essay on the role of metaphors in our thinking, and the strongly visual element in our thinking. The essay is followed by a series of composite images, consisting of a city plan, a referential image and a concept articulated by a single word, exploiting the gaps between intellectual comprehension and visual correlation. While the images suggest a naturalized connection between the idea and its formal articulation, they are not necessarily more than correlative. As such, they would be difficult to transfer to contemporary design principles such as those of parametric design, which exploit structural rather than visual similarities. Koolhaas does not go into issues of *Gestaltung* as such, but he does suggest the importance of 'slippage' between media, when he speaks of representation: 'Representing the building (Seattle and Universal, for example) in seemingly incompatible ways. The images do not tell the same story and hopefully the same would be true for the building.'[84] In this, he similarly utilizes the gaps between different media and forms of expression. Overall, these seemingly incompatible perspectives knit together a larger narrative of the tacit knowledge embedded in cultural forms. Of course, these multiple narratives do take on different guises between the two: where Koolhaas builds more on multiple media, Ungers more directly addresses the individual articulation and reception of collectively shared ideas.

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The publications of Ungers on his teaching show his attention to the knowledge that is specific to architectural design in its various articulations – taken as a whole, they show an approach to design thinking. The *Wochenaufgaben* taught in 1966-1967 articulate a number of specific design areas that Ungers sees as crucial: the functional arrangement of spaces, the materialization of the building, and spatial or volumetric delineation, to name a few. As preliminary design exercises, they train specific aspects of design that will later contribute to the composite expertise of the architect. The City within the City makes use of figure-ground schemes of urban areas, followed by visual analogy. It also contains the gathering of photographic reference material to illustrate a local building typology. These elements combine with the quantifiable data of Berlin's shrinking population and predetermined surface area to sketch out the scenario of the archipelago city.

Overall, the work of Ungers and Koolhaas stands against the dissipation of a shared vocabulary, and against the focus on explicating only design decision steps rather than design principles. In different ways, they both seek a manner of communicating the implicit knowledge of architecture. With Koolhaas, this is more in the realm of suggestive narrative coupled with multiple models of architectural schemes, while Ungers is oriented more on the rational underpinnings of design, particularly as trained through long-term practice (both in the studio and in the office). It is particularly this tacit dimension that also does justice to the contingency of knowledge, with its dependence on cultural and social context that allows for subtle but far-reaching transformations.

Reconstructing a Vocabulary for Architecture

If architecture as a discipline indeed contains a tacit dimension (which may be explicated at some point – by increasing insight, and developments in science, from cognitive research on design decisions to research on reception and understanding, as well as increasing the understanding of the epistemic status of images and the spatial), how does one treat this domain? First, accepting that there is a tacit component is not a release from the responsibility to clarify and make explicit what we do know. In this sense, the statements of architects need to be approached with some suspicion – as there is a distinction between what we do (and our motivations) and what we *say* or *think* we do. In other words, even if the post-facto legitimation of

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the architect is an honest statement on the design motivations, this does not necessarily disclose the *actual* design motivations. The explicit dimension of intellectual analysis is important in contributing to the traditional scientific dimension of architecture.

Reconstructing a vocabulary for architecture in a sense sits between these activities. On the one hand, the range of potential forms, types, approaches and materials appeals to explicit and identifiable qualities. Yet it is also dependent on an interpretation, based on seeing the family resemblance between different things.[85] Ungers's belief in the value of a rational approach is present throughout the clear explorations of form, brought into a larger taxonomy that shows many options and identifies them all as it were within families and categories. These families may have unusual mutations, some of which will remain eccentricities and disappear, while others will influence a new subset or continue to evolve into new lines of descent.[86] The inductive reasoning needed to reveal the patterns within these associative clusters may potentially contribute to the construction of a tacit knowledge base.

The very notion of reconstructing an architectural vocabulary goes against the grain of increasing individualization and of total contingency. As such, it moves beyond the postmodern tendency towards relativity, in order to seek out connections and similarities – it builds on a shared vocabulary rather than deconstructing it. The bridge between the individual and the collective resides in this plausible relation between the formal and the social. Its plausibility indicates that it is a shared sensibility but not universal. It holds no truth claims, but it does offer a suggestive narrative. It may make it conceivable to construct an epistemology that is both particularist and contingent, but that also partakes in the collective. Might this be the key to the tacit dimension? A shared sensibility that is not explicable, yet does withstand scrutiny?

The renewed sense of urgency in practice – what, if any, might be the added value of architecture – is related to the economic crisis, but also to a twentieth-century history of focusing on the new, to the detriment of continuity, consensus and the collective. In addressing this problem, Ungers follows the more traditional role of the intellectual architect who uses his understanding of history and a broad palette of references in order to excavate the meaning of architecture in its buildings, manifestoes, drawings and handbooks. In contrast, Koolhaas tends more towards the 'Homme de Lettres' that Le Corbusier fashioned himself.[87] Each work and concept (*Delirious New York*, Bigness, Generic City) questions and refashions existing architectural principles, bringing together a range of societal conditions

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and architecture histories into a narrative of transformation, in which the architect is positioned as uniquely suited to the task.

Both architects hold to a specificity of architecture knowledge. This is immediately clear in the work of Ungers, whose projects give tangible presence to abstract and ideal concepts, almost as an admonition not to get lost in the mundane. All of this is presented through a weighty history of architectural exemplars, of ideal types, and a didactic approach that make it difficult to escape the lessons presented. The work of Koolhaas is less explicit about its architectural focus, yet historical precedent and contextual information directs the development of design ideas, constructing a durable spatial condition out of these contingencies. The specificity of the architect's knowledge does not preclude a shared or general relevance, however. Ungers typically formulates this in relation to a 'human condition', speaking of general underlying structures in thought and perception that guide human behaviour. Koolhaas typically relates it to specific spatial issues derived from observation, whether that concerns the various types of global cities, or the effects of widespread historical preservation in *Cronocaos*.

Moving forward in the field requires a shared vocabulary. It is this vocabulary that was deconstructed by the moderns and the avant-garde, and it is this vocabulary that Ungers and Koolhaas, each in their own way, attempts to reconstruct. While Ungers draws more on the classical approach to architecture, with a more clear-cut series of ordering principles, Koolhaas draws more on an approach that is near universal. It refuses hierarchical distinction and tries to look at everything as if it were entirely new. Both, however, try to articulate positions, ideas and approaches as a manner of reclaiming validity not only for the practice of architecture, but also for design thinking as an approach to complex problems.

And perhaps in all that, the treatises and manifestoes play a role again. Not as a blueprint for a future city, but as a guide in observation, an attempt to structure what we see, to heighten our sensibilities to space and light and form. Writing has been a form of explanation but also of legitimacy. It serves to articulate positions and to communicate with clients and the general public – but this can also be attempted with multiple forms of information, including the visual and the diagrammatic. In the IJ-plein project in Amsterdam, diagrams of canonical modernist projects with varying density, height and configurations were used in order to communicate with the future occupants of the neighbourhood – it became a crash course in architecture history, according to a retrospective text by Koolhaas.[88]

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Importantly, however, architecture is also a profession of complexity. Viollet-le-Duc notes that it is more difficult to see disharmony in a façade than to hear it in a musical chord.[89] The tension between art and science is played out in the field of architecture: after the progressive separation of architecture as the result of artistic inspiration in the Renaissance versus the structural expertise of the engineer, the 1970s also began to face a more hybrid construction of knowledge. No longer art or craft, engineering or architecture, the increased academic rigour of the 'minor professions' echoes the optimistic tones of Bauhaus education as the synthesis of many artistic endeavours. With the difference that in the Bauhaus there is a confidence in human intuition, and in the 1970s this shifts to scientific study. Perhaps what we are seeing today is the need for a convergence between what we believe is the rationality of Enlightenment thought, and the intuition that accompanies artistic practice.

To understand the undercurrent of architectural form that is embedded in the exploration of ideas (both urban and architectural), the work of Ungers is helpful, since he explicitly addresses many of the concerns that we can find implicitly present in the work of Koolhaas. Rather than obscuring these questions, Ungers addresses them directly and tries to explore them very specifically in both text and object. From investigating the City as a Work of Art in 1963 to his installation in the exhibition 'Man transForms' in 1976, Ungers reflected directly on the techniques and instruments of architecture itself.[90] In other words: exploring the work of Ungers and Koolhaas as complementary oeuvres, we can reveal a position that neither equates architecture with the political (as the more 'engaged' architecture of the 1960s did), nor denies any possibility of social impact for architecture (as the debates on 'autonomy' centring around the work of Eisenman did). Instead, both Ungers and Koolhaas are aware of the societal constraints that architecture operates within, and both demonstrate interests in social issues (such as the promise of the collective, the contemporary condition of the metropolis, the simply factual need for housing), yet they operate within the discipline of architecture and the tools that are available to it (which here I am, for the sake of argument, allowing to be encompassed under the larger category of 'form'). Regardless of personal ideas, they remain aware of the limits of architecture.[91]

And perhaps it is precisely a recalling of these types of convictions that is suggested by the Venice Biennale of 2014. With the challenges of the twenty-first century and the steady demise of the starchitect, it makes sense that

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Koolhaas emphasized 'architecture, not architects' in his introduction to the Biennale. While one must remain a little wary of his sweeping statements, given his penchant for some level of paradox (so this biennale was somehow also about architects), it does suggest some modesty entering the debate. Although the architecture of the twentieth century began to revolve around a personality cult, many current architects are turning towards 'architecture'. Quiet interventions, tolerant normality, and humble pragmatism – they are the defining features of the now celebrated Flemish and Belgian architecture.

In 2014, in the Venice Biennale, a wall of the Arsenale was reserved for photographs by Charlie Koolhaas. A little over the top, with gold leaf framing the many details and views of the Biblioteca Laurenziana, it drew you in to examine the wall *in extenso* – and then notice the quote on the floor by Koolhaas, where he indicates that the confrontation with the Laurenziana showed him that all the rules he had learned in school were inadequate. In a funny parallel to his reinterpretation of the Berlin Wall, the object of brute force versus the sublime elegance of Michelangelo's library, he draws attention to the inadequacy of systems, models and reductions. Even in our absolute need to systematize knowledge in order to transmit it, what architecture, art, music, dance, medicine, computer programming and many other fields that intervene in a stubborn reality have to teach us, is that there is always an unexpected, undefinable glitch. And it is how we deal with these glitches that we prove our expertise, our craftsmanship. In the finest examples, the idea combines with the material resistance of reality to make something new and unexpected.

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