

Introduction

Meaning is one of the most important forces in our lives. It arises from understanding and is what we emphasize when we communicate. We all have an idea of what it is, but to explain it is another matter. So it is hardly surprising that meaning is one of the most addressed yet unresolved and controversial issues in philosophy. But often even long texts on meaning do not ponder its very nature, evidently assuming that this is unnecessary. Sometimes it is thought to be the sense of utterance in a language. At other times it is thought to be the sense of a nonlinguistic sign. But these explanations do not bring us much further, especially when we get to the specifics of a particular endeavor. In architecture, few attempts have been made to explain in detail what it is and how it comes about.

Years ago, walking to the University of Stuttgart, where I taught as a guest in the design studio of Peter Faller, I was wondering why, with basically the same program requirements, so many rather different solutions emerged. Where does expression in architecture come from? I did, what sometimes helps, think about the opposite: impression. Are expression and impression really opposites? Is there a link of the two which may be of interest? In a preliminary way, we may say that they are opposites but not in the sense of equivalents. In the flow of events, there is no expression to be had without an impression. We cannot express anything but on the basis of a previous impression or impressions. Now, where does impression come from? From expression. This sounds rather circular. It is not so, however, because there is progress and change between them. In architectural design, as with anything we do, we are involved with chains of cause and effect over time. To become informed, we break the chains of events for contemplation at crucial points. In a present project, the given conditions of the world are the background for impressive and expressive potential. Our minds cause impressions from existing expressions to develop new expressions. At the center of the process is understanding translated into design. What we select then as a particular understanding from often many possible ones is meaning – to be given in the form of design.

The discussion of meaning in architecture has been concerned mainly with the analysis of it as artifacts. It is the view of architecture as history. While this is important here as well, it is not my aim to add to such work to any large extent. I address meaning primarily as process rather than as product.

The present text may be considered a sequence of discussions toward grasping what meaning is in architectural design. Much of it is in contrast to meaning in language. My preliminary view in a nutshell: meaning is understanding perceived or conceived. How and what I experience is obviously quite similar to how and what we all experience, which indicates that our ways of thinking are similar, a wondrous capacity given to us for communication. But similar does not mean being same. I believe that there is no understanding ever the same as another, as subtle as the differences may be. This is how individuality finds itself within universality and where the semantics of variety have part of their fertile ground.

To look at the subtle elegance of a wildflower with its tenderness outlined on a rock by the sun cannot but evoke a positive experience in each of us, though individually variant (see 1.1). It is similar with the plain but powerful massing of a well built barn where not only nature but human minds and hands have been at work (1.2). The flower grows out of its seed because soil, water, air and light nourish it. We may name it, describe its color and shape, may even know its genetic makeup. This is what it means to us in addition to its gracious beauty, which is pleasure – a meaning as well. The materials for the barn are taken from nature, put together by purpose to fulfill need and desire. Different from the flower, we grasp its practicality and how it turned into form, here represented by roofs, walls, the embracing structural cable around the silo, etc. Again, the farm's beauty is our pleasure.



1.1 In the Albion Basin, Utah



1.2 Near Ellsworth, Michigan

To enlighten meaning as understanding in architectural design is at the center of my interest. Therefore, the emphasis on comprehending it as such takes us in quite different directions than earlier work by Charles Jencks and George Baird, ed., *Meaning in Architecture*; Christian Norberg-Schulz, *Meaning in Western Architecture*; Amos Rapoport, *The Meaning of the Built Environment* and Linda Groat, ed., *Giving Places Meaning*; among others. My efforts are theoretical in their search for a working model of understanding and they are practical in their concentration on architectural design with emphasis on the understanding of understanding. I accept and document help from philosophical and other inquiries wherever I can find it.

We usually grasp meaning best when we understand how we and others relate to present environments, outside or inside. Walking through the contrasts of Louis Kahn’s Salk Institute, from sun shine into shadows and back again, or looking around the undulated forms of Frank Gehry’s Weatherhead School, from below and from above, brings this point home vividly (1.3 and 1.4) and (1.5 and 1.6).

Salk Institute for Biological Studies
La Jolla, CA



1.3 Courtyard toward west and ocean



1.4 West end of courtyard



1.5 From below

Weatherhead School of Management
Case Western University, Cleveland, OH



1.6 From above

In architecture and all other physical environments, meaning develops in two ways: as outcome of perception or as premise of conception – perception being instrumental for impression and

conception being instrumental for expression. We *mean* in these two ways, observing architecture and designing it. Therefore, my approach will begin, in Chapter 2, with a hypothesis of meaning as presently considered understanding either *from* impression or *for* expression. Much of the rest of my enterprise is to underpin this contention.

It is our consciousness which allows us to gain understanding in general and meaning in particular. Thereby, it lets us negotiate between ourselves and other people as well as things. I will elaborate on how we do understand physical and nonphysical things, that is, by means of mental representations. Involved are our sensation and perception of them, leading to their appearance in our mind and to conceptualization by means of our judgment. In fact, what we call conceptualization is usually reconceptualization. I do not believe that we are born with concepts, but with instincts. From infancy on we develop with every experience concepts and accumulate them in memory. What we encounter are properties of objects. What we understand, however, are attributes which we associate with these objects by means of our memory. Still, by convention, we call them properties. My explanations will be carried out with the help of some who have made thinking about the relationship of mind and matter the work of their lives, though I may or may not agree with their views: Descartes, Locke, Hume, especially Kant, then Peirce and James, Wittgenstein, Heidegger, Rescher, Searle, Edelman and Damasio, to name a few. Where I feel that quoting them is most appropriate, I see no reason not to do so.

We think about what we sense which leads to understanding. For reasons of practicality, I differentiate what we can directly sense from objects and what we infer from these sensations indirectly: observable and relational properties. Relational properties are secondary, not in importance, but in the sequence of conceptualization. They are what observable properties represent beyond their own being. When encountering an unpainted concrete column, we see its shape and color as observable properties. Its load-bearing ability we infer as relational property. That it contains steel reinforcement we also infer as relational property. But we may have seen the reinforcement as an observable property before the concrete was poured and now remember it. We may consider the observable properties as more objective than the relational ones as they are what we directly encounter and experience physically in one way or another.

The world is full of complexity, including architecture. Therefore, to end Chapter 2, I address complexity and function as I believe that sorting out functions of what exists and of what we develop is the precondition of well-founded understanding. Functions are relationships which we infer from the behavior of the physical properties of things. For design we may view them as meanings how building systems and components relate to each other. As reality is complex, even in quite limited frames of reference, these relationships are generally also complex. Constraints and conflicts arise which demand resolution in the arrangement of the physical components – one of the central and most difficult tasks in the design process. Every building has functions, internal and external. Only a rather few can find emphasis in expression. Which are given preference is crucial decision making and has an important impact on the overall identity of the building and on many details, such as in spatial organization and facade arrangement. Properties of things and their relationships become through intentions and motivations what I call design factors – the factors which bring architecture about.

To view objects and their properties as signs, especially for communication, has long been found to be extremely helpful. But since the turn of philosophy toward examining language thoroughly as a system of signs early in the last century an important but still insufficiently explained opposition developed of words as signs and objects as signs. This problem leads us, in Chapter 3, to explore semiotics as a field of inquiry and to touch in a preliminary way on meaning *with*

words versus meaning *without* words. The characterization of signs as iconic, symbolic and indexical proves very helpful, especially in the comparison of linguistic and nonlinguistic application. Language as such is symbolic, although it is obviously used in constructing text which may describe and refer to the content of all three kinds of signs. Architecture and its design is iconic, often also symbolic or indexical, sometimes all three. Resemblance plays a role. Icons refer to their referents by means of some similarity. Symbols and indexes do not. Another triad, called semantics, pragmatics and syntactics, enlightens how the sign nature of icons, symbols and indexes applies in the practice of communication.

Our mental representations of objects require interpretation which is often helped by thinking in metaphors. We use them to explain what we observe and what we want to communicate. Three concepts are involved: a basic, a declarative and an ensuing one, the latter arising from the association of the other two. The basic concept connects to the declarative concept by means of some similarity in such a way that we infer the ensuing concept. In this roundabout way, metaphors add to our understanding and knowledge of concepts which cannot be or which are not desired to be explicitly given. Metaphors to succeed require that the recipient knows, at least in general, what the meanings of the three components are which the speaker or writer had in mind. So far about language.

In architectural design metaphors arise and are used somewhat differently. Language presupposes thinking, here toward metaphors. Design presupposes thinking as well, but here instead of metaphors embedded in words we consider and think about metaphors embedded in physical objects. Other than with language, the basic and the declarative concepts collapse into the unity of the architectural expression. The metaphor 'the roof is a hat' collapses into whatever expression we give to the cover of the building with the metaphoric connotation being, for example, 'protection from rain and snow'. Observers, here again, must have the capacity to understand what the constituent concepts of the metaphor mean and must, at least to some extent, be able to infer the meaning of the ensuing concept. We may view this concept as a reference, a relational property of the others, the connected ones. Metaphors are very helpful by fostering inspiration and imagination which results in creativity, perhaps otherwise not experienced.

Out of these discussions emerges the view that understanding can only be grasped as mental representation of the object. On the other hand, we can perceive what we want to understand, the content, only by means of its form which is the realization of the object and thus its existence accessible to our senses and thoughts. Content and form are in unity. They are inseparably linked. Our only way to get at their origins is a 'despite-of-their-unity' effort to sort out the impressions which the underlying properties and the relationships among them evoke in us. In *impression from observation* we infer from form toward content. In *expression for design* we infer from content toward form. This view is instrumental for everything else which follows.

Perhaps most difficult to grasp and widely controversial is the role which emotion and feeling play in understanding. There is rather general agreement that all understanding originally comes from experience which begins with sensation. It is also increasingly clear, not only for philosophers and psychologists, but many other researchers of the interdependence of body and mind, like biologists and neurologists, and obviously artists, that feeling influences experience before we come to understanding in any depth. Before we are in a state of reasoning we are in a state of emotion and perhaps feeling because of sensation. In turn, however, when concepts have developed and inspire us they influence our emotions and feelings accordingly. This dual view is the basis for developing Chapter 4. The two foundations for emotion and feeling originate, like conceptualization, from our exposure to the presence of worldly reality and from representation in

our memory. As conceptualization needs to be viewed as more or less enhanced by the powers of emotion, there is no understanding which is not in association with feeling. Even dreaming comes to us via emotion, a kind of inner re-sensation from memory. There is also never, for the fully conscious and conceptually rich mind, feeling which is not influenced by reason.

Out of this line of thinking it is only natural that we are prompted to address what we call aesthetic aspects. Simply from common sense, few of us would doubt that emotion and feeling play a crucial role in it. The concept of 'aesthetic', in ancient Greece associated with perception in general, has crucially changed during the eighteenth century by direct association with beauty. What is aesthetic and what constitutes it is controversial to this day. In this discussion I will clearly differentiate between aesthetics as the field of studies toward enlightening us about what is commonly called the beauty of objects and the aesthetic as the state of mind of pleasure or displeasure. I will back up my belief that there are no aesthetic properties in objects but only properties which we call aesthetic because of our judgment on pleasure or displeasure about them. Everything we perceive lets arise in us an aesthetic whether we are particularly aware of this resulting component of our cognitive processes or not.

As judgment is subjective there can be no generally valid rules on the aesthetic of properties but only collective, sometimes long lasting agreements about it, as for example was the case with the Golden Section. In the design of objects we have to a certain extent freedom of choice to emphasize or even especially embed properties which we judge to be pleasant and which others then for themselves judge to be pleasant (or perhaps not so). The aesthetic is not equal to beauty. The former is our state of mind with regard to pleasure or displeasure of anything experienced. The latter is our linguistic characterization which we give to objects which evoke pleasantness in us. The aesthetic is in architectural design, as in all other projecting enterprises, part of our state of meaning in our mind. It is inevitably a component of all of our understanding. We come to understanding as emotional, aesthetically experiencing beings.

Type, style and ornament are the focus of Chapter 5. In many respects it is a continuation of the discussion about aesthetics. Types arise from resemblances of objects which provides the basis for conceptualization and classification. They are also fundamental for how we put things together, how we order our world, in our case architectural design. There is repetitiveness of parts but also much variety among them and in the ways we can put them together for larger assemblies. Types have histories of utility. They are objects of cultural, social and formal preference. In architectural design, more than in other artistic endeavors, we think in terms of prototypes and how we can adapt them to particular purposes and environments. In the ways we combine types, which have partial meaning, overall meaning emerges.

Styles are derived from typologies to create repetitively particular themes. They combine types in variation though with recognizable patterns, that is, stylistic resemblances, based on personal choice or, in the wider framework of cultures, based on tradition which is the manifestation of collective choices over time. Styles are the physical answer, the particular formation, individuals or societies give in response to their needs and desires in given environments. Strong styles of individuals eventually determine the societies of which they are part.

With the advent of the industrial revolution and its emerging technologies, especially with the opportunities which mass production offered, the question of style led to answers never possible before. Long before Louis Sullivan arrived at his dictum on form and function, "purposiveness" and its consideration in design had been demanded. It figured prominently in the discussions about styles of neogothic and neoclassical genres throughout the 19th century and is helpful for explaining what has become known as the Modern Movement. I believe that this movement is not

finished at all because of the ever more daring possibilities of realization which, however, will be increasingly subject to limitation forced by ecological sustainability.

Freedoms and constraints in style are reflected in ornament, that is, configuration beyond fundamental purposiveness. From this point of view, I see in ornamentation a much more basic function of how forms of architecture come about. In one sense, I consider ornament to be variation as amplification of form beyond pure necessity to facilitate favorable design solutions. In the other, I consider it to be embellishment as decoration, solely added to enhance sensual appeal and sometimes narrative enrichment beyond that which the building itself provides.

Causation, the subject of Chapter 6, is a fundamental condition of understanding and prediction. We consider everything we encounter to be an effect of a cause. When we look for an explanation of meaning, it being effect, we search for properties in objects, they being cause. These properties are effects of even earlier causes. Everything is part of chains of causes and effects. So, overall we have causes that produce effects and, in turn, these effects become causes for further effects. Causation is relational. We cannot observe cause and effect directly, only observe changes in chains of events. We observe cause and effect through the occurrence of difference from what was before.

Strictly viewed, there is only world-to-world causation as we can draw understanding from physical manifestations only. But mentality is involved. Therefore, a fourfold conceptualization of causation is very practical: world-to-world, world-to-mind, mind-to-world and mind-to-mind. When we view aspects of the world as physical and aspects of the mind as nonphysical, it is purely a thought construct and must not be considered to indicate a dualism of body and mind in any Cartesian sense.

World-to-world causation indicates the cause-effect relationship among physical objects or properties. World-to-mind causation indicates the relationship from physical causes to mental effects, producing impressions. Mind-to-world causation indicates the relationship from mental causes to physical effects, producing expressions. Unless one believes in telepathy, pure mind-to-mind causation is not conceivable, which means that it requires intermediate physical cause and effect occurrences. World and mind in these four aspectual arrangements point in a general way to the beginning and end points of partial chains of events.

Architectural design is a teleological process. We start with present impressions of what is given, then simulate future expressions on which, in turn, we make judgments on impressions from them. If we are satisfied, we stop. If not we look back for additional properties which provide, in combination with those already influencing us, further impressions for expressions. These many properties and their highly diverse combinations represent in effect the factors which cause architectural design to move forward. The process is like a spiral movement of a changing target with eventual resolution.

When we ask for causes we ask for physical and relational properties which have influence as design factors. That implies questions about their origins. I believe we can associate them best with the three categories of purpose, context and realization. All three consist of object properties and their functional relationships, and let design factors arise. Purposive design factors arise from programmatic needs or desires of the project, such as social and psychological criteria, organizational and operational guidelines, stylistic and other aesthetic preferences, but also financial targets. Contextual design factors arise from the setting in which the project finds itself, such as historical, cultural and economic conditions, freedoms and limitations of site, adjacent building and neighborhood characteristics, climatic conditions and solar access, even availability of construction labor and local materials. Design factors of realization arise from choices for

building the project, such as construction systems and material selection, mechanical and electrical services, project complexity, but also building codes and other regulations.

Design factors from all three categories are constitutive in each architectural project. They are highly interdependent. Because of their nearly infinite variety they usually demand but also allow great flexibility in finding design solutions. All design factors contribute aspects of meaning and with them aesthetic evocation. Combined in whatever way, they should be considered the content in the content-form unity of particular projects. In its entirety, we may hold that the design and building process is the realization of purpose in the given context.

Description of architecture through language is one way of representation. Depiction of architecture through design is another by very different means. Both have architectural reality as reference for understanding. The purpose of Chapter 7 is to suggest a practical framework for how we may acquire meaning from and for specific designs. It builds on what I discussed in the previous elaborations on the sign natures of language and reality.

The linguistic turns of philosophy during the past century brought an enormous increase of our understanding about the structure and utilization of language, and its great impact on nearly everything we undertake. But language does not constitute reality nor does it determine thinking as some of the strongest 'linguistic turners' advocate. It is only referential. It is, however, the most common medium to order our thinking, communicate what we think and understand in highly effective abstraction. In this capacity it compliments visual representation, our main way of communication through physical things, including architecture. Both, language and architecture, allow by their particular capacities and efficiencies to improve on incapacities and inefficiencies the other has. As result, overall thinking is enhanced.

For grasping these differences, I elaborate first on the concepts of language thinking and design thinking. The referential nature of language provides its greatest value in architectural design through the description of purposive and contextual conditions, and that of conceptual developments, derived from these factors in combination with those from memory – all in the process from impressions to expressions, from analysis to synthesis. Language is an excellent 'prompter'. The revelation and clarification process takes place with the progress of design iteration from forms of what exists (with content) to new forms of what may become (with additional content).

While content and form are intimately unified, we may view content as the semantic component and form as the syntactic component. This view provides my foundation for design narratives: descriptions that observe form for content analysis and content for form synthesis. We look for what we want to understand – all described depending on the object or project – as existing properties or wanted properties. The general outline of design narratives is



Design narratives represent the unique process of design thinking as meaning in dialectical action. In every instance of a project the design narrative always pertains to one design factor or a combination of them in a wide or narrow frame of reference. The narratives follow our process of inspiration and decision making in design. They help to document why and how we, as designers, change existing states of affairs to produce new results. They are useful as memorized understanding for future projects. Their descriptions are usually less elaborate on the content side than the form side, as what now exists is easier accessible than what we remember from where it came. This difference decreases with doing such documentation often and systematically,

especially when we make it routinely during design development, while content leading to form is still fresh in our mind.

Analysis aspects tend to be especially prominent when design narratives of existing buildings are done by laypersons rather than designers. Form description by clients and the general public, which is strongly influenced by related practical aspects of operation, gives designers much understanding of the thoughts of laypersons about architectural design issues. Professional design narratives foster through their structure design thinking in an organized way. They leave a trace of what happened during the synthesis of a particular project and help us to make design factors and their effects explicit and understood.

What architecture means to us and what we mean through it depends on the time of our involvement. Therefore, my account ends in Chapter 8 with thoughts about meaning in architectural design as part of the broader realm of *Zeitgeist* – our present understanding of being and culture. Post-structuralist tendencies have given rise to a great diversity in views about content and form in architectural design. With all the individuality in positions we can observe two main camps. On the one side are those who attempt to carve out a strongly independent role of architectural form in relation to a priori constraints of purpose and context, taking advantage of ever bolder virtual design approaches and high-technology realizations. On the other side are those who stay with more conventional approaches of giving purpose and context a role which is as explicit as possible when influencing the design process and its result. For whatever attitude one may assume on this issue, there should be no doubt about the fact that all architecture eventually has to play functional roles for which we must care in design. Some of these roles usually change over the life cycle of buildings. The more design can facilitate such change the better.

Architecture operates in an ever more integrated global environment of design, manufacturing and construction. On one side, we have highly consumption oriented, largely democratic societies, driven by free market and profit thinking, with tensions between common need and individual desire. On the other, we have a rising challenge by the dynamics of developing nations with large population increases and associated demands. Signs of stress because of enormous wealth in contrast to enormous poverty are evident.

A powerful shift of the architectural design and engineering processes from largely parallel to more integrated is ongoing, made possible through the enormous advances in computerized representation and exchange of information, which also influences profoundly manufacturing and construction. That these procedures allow to design and build ever more daring objects presents not only great opportunities but great dangers. ‘Everything-goes’ excesses can be observed worldwide with little disguise of ‘form follows ego’. When deconstruction is not, as Heidegger saw it, a careful method of analysis to build upon because of better understanding, but is deemed a result, then it breeds confusion rather than avoids it. I claim here that reasoned philosophical discourse and reasoned architectural design have more in common than justification of the indeterminacy of an undefined “other”. Together they can go far to understand what exists in order to better understand what may become. Simulacrum cannot serve as a comprehensive design paradigm.

On a very different but not separated level a long overdue trend of responsibility is taking hold toward sustainability in all life-cycle phases of architecture from inception to demolition. Except for the enduring input of solar energy, our earth has only finite material resources. A major part of them is consumed by the built environment for construction, operation and disposal. If mankind is to survive, sustainability close to an absolute condition must be achieved in the not too distant future, which means that close to zero sum resource maintenance must be our central concern.

The only way to succeed is to make ecological efficiency and sustainability also in design the central principle.

To conclude this discussion, recent examples are given which indicate various paths architecture can take to reinforce the now inevitable shift towards a culture of sustainability. We have entered a new modernity or, if you will in Habermasian terms, another chapter in the never ending project of modernity. The very fundamentals of human being do not change and, therefore, the fundamental role of architecture does not change, that is, to help provide the best of possible environmental conditions for life to flourish. What sustainability means to us in this sense of critical understanding and which consequences we draw for architectural design will determine how history will look at what we contributed to our time. Today and then, meaning in architectural design needs to be responsive understanding of content in its form.