

The architecture of tomorrow

Aesthetics, beauty, harmony and form

The language, rules, symbols and the axiom

Architecture is the entire built design of matter in space. According to Vitruvius, a Roman architectural theorist, the architect is an experienced technologist, artist, theoretician and practitioner who undertakes the entire planning and execution of this task. In addition to the realization of functional requirements, the implementation of artistic aspects such as aesthetics and beauty is expected of him as well.

Does the architecture meet these demands? If we walk through the cities, it is noticeable that the "old" buildings are very different from the "modern" ones. What do we like to see on an Art Nouveau facade, on Gründerzeit buildings, on classical, Gothic or Romanesque cathedrals, on Roman, Greek, Osmanic or Egyptian buildings? What aesthetics and beauty appeals to us sensually?

The difference becomes clear when we compare classic buildings with post-war buildings, especially in German cities, where the war has often torn deep wounds in the streets. If we ask for a walk - even Bauhaus educated - friends, to evaluate the houses only with nice or ugly, always win the "old buildings". The reason is obvious. The classical buildings consist of a functional part, the plastic, and an artistic part, the sculpture (ornaments, friezes and decorations). The artistic part portrays the philosophy or worldview of the style epoch.

By plastic (P) we mean something that arises from the accumulation (+) of material in space. Under accumulation we can imagine an additive process. A hut, a house or a building is a plastic.

Under a sculpture (S) we understand something that results from the removal (-) of material. Under the subduction we can imagine a subtractive process. A cave is a sculpture or the David by Michelangelo as well.

Plastic and sculpture are made of different, one can even say of opposing qualities, plus and minus. Most modern buildings consist of the same, serial elements. These are expressions of their function. The aesthetic design principles, as they were expressed in classical sculpture and ornamentation, have disappeared. Already in 1896 the architect Louis Sullivan demanded that the form should follow the function and the architect Adolf Loos stated in 1910 that ornamentation was a crime. Most of the architects followed these rules and modern architecture took their course. Functionality and seriality is the basis of our modern economic systems: it is depicted in this architecture. In addition to the purely functional buildings, architects in the modern age create buildings that reflect a contemporary worldview or a trend. Modern architecture is changeable in its "trend buildings" and is therefore not sustainable. From ancient times to today, architecture in its form is a mirror or an illustration of the respective worldview

In the modern age, various trends are piling up and what is missing is the sculptural part.

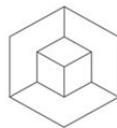
We have been following plastic and sculpture for 40,000 years, from the Paleolithic to modern times, in art and technological construction. Almost throughout the history of the

Homo sapiens we see sculptures as habitable caves and artistic artefacts, plastics as huts, houses, roads, paths and bridges. Are the plastics and sculptures a universal basic pattern, especially when we take into account that the whole worldview or philosophy is encoded in its arrangements?

The criticism of the current architecture is becoming stronger and more sustainable. Some urge: "In order to build humane, you have to stop thinking about architecture", the others demand - just the opposite, to rethink the architecture, so that it is more philanthropic.

Throughout the critique, it's always the same demand that gets loud: more aesthetics and beauty. But what is that? In what form does it find the expression? Is an illustration of contemporary styles or trends sufficient, or does it require a form that is independent of philosophies and trends? The more you ask in the architectural or art system what aesthetics, beauty or form is, the more answers we get. We want to clarify the concepts here and consider them holistically.

The interrelations of plastic, sculpture, aesthetics, harmony and beauty can be seen on the ambiguous cube and derived from it. In this we use our human ability to see the same as ambivalent or bivalent. Therein lies the core of all artistic perceptions. These require a new language and logic. To do that, we need to change our habitual view and get away from the classic idea of a cube, where the surrounding space does not matter. Because with the ambiguous cube, the surrounding space is decisive. To learn the new perspective, we have to learn to see the ambiguous cube three-dimensionally and two-dimensionally.

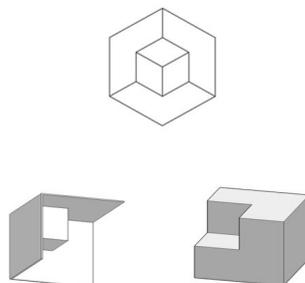


The ambiguous cube

Normally we see the drawing of the ambiguous cube three-dimensionally as a cube in a corner of a room - a plastic or a cube cut out of a big one - a sculpture. The reason for this is that our perception system, as we live in a three-dimensional world, mostly interprets forms and colors in three dimensions.

To see the cube in two dimensions, it helps to think of two hexagons. If we are able to do so for a short moment, we can objectively see what is displayed on our retina.

The two-dimensional representation of the ambiguous cube triggers two three-dimensional perceptions, plastic and sculpture, at different times. At one point we only perceive 50% of the total information. So to get all the information, we need two time points.



Plastic and sculpture in time

The bottom line is that we are able to see the same thing alternative, or ambiguous, at different times. It has always been said that artists and architects are able to see the world differently. We can now clarify this and state that this ability is to see the "same" as ambivalent. By ambivalence we mean the bivalent, bipolar, complementary, that is, two opposites in the same.

Now it is necessary to take a closer look at the three-dimensional, subjective interpretations of the ambiguous cube. In ancient times aesthetics was a change of sensory perception. In terms of plastic and sculpture on a building, the aesthetic experience consists in changing the view between the two and thereby receiving a different perception at different times. This is a quantitative emotion-free change, plastic and sculpture do not change.

In the ambiguous cube, on the other hand, the subjective change in shape between plastic and sculpture is a qualitative one - a change that causes something: what an object is becomes space and vice versa. The whole shape changes. We perceive this change in a surprise, it takes time and changes our sensory perception one after the other, sequentially: we call this experience an aesthetic event.

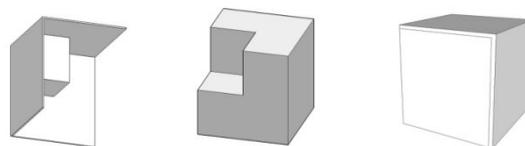
If we observe the ambiguous cube on the drawing, the two perceptions begin to oscillate. We see P, S, P, S ... when we start with the plastic - or S, P, S, P ... - when we start with the sculpture.

This oscillation can be stopped by changing the dimension and go to the real world recreating plastic and sculpture.

So far, we have considered two-dimensional drawings and their two- and three-dimensional perceptions.

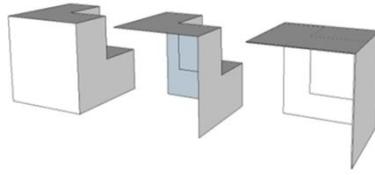
It is also possible to see three-dimensional objects two-dimensionally and to transfer this view to an image. As a helping tool, the painter may use grids and the constructive perspective, a method for the representation of three-dimensional objects on a two-dimensional surface.

In the real world, it becomes clear that plastic and sculpture are complementary to each other and that we can put them together into a single entity. Each of the plastic and the sculpture is assigned to a point in time where we can see both times and their opposites in one unit. We refer to this union of opposites in time as harmonious, in the style of Heraclitus, who *mutatis mutandis* stated that the union of opposites is harmony.



Plastic, sculpture the unity of opposite

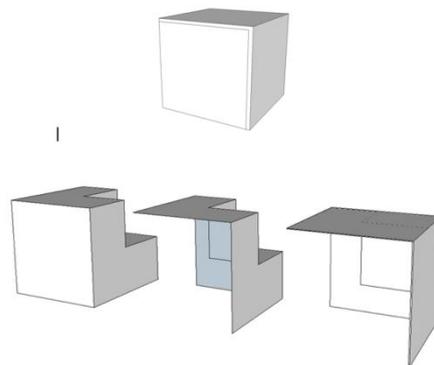
We recognize that the two opposites in the interior of the cube meet at a boundary and show this "inner form" as an "interface".



Sculpture, boundary and plastic

The three elements sculpture, boundary and plastic can be combined to form a whole again. The whole is the unity of opposites and the boundary. The whole is the form. The common thing that we can see in all the elements is the two-dimensional shape of the ambiguous cube which we can observe in the plastic, on the sculpture and on both sides of the boundary. The boundary is a two-sided boundary, it contains on one side the shape of the opposing figure.

Looking at the process in terms of the temporal dimension, you see the plastic at first, and the sculpture at the second. The change between both requires a period of time. We perceive the change, the duration of time, as a sensually perceivable visual experience. It is the illustrated boundary, the interface between the plastic and the sculpture. It is the state of the present in which our attention changes, the last perception is already past and the future perception is not yet present. In short, when we survey the process, we see the past (plastic), the present-boundary (our experience) and the future (sculpture). We get a time logic. The forms of time: past, present, future get their expression in the wholeness, the beauty. This is the union of opposites or contradictions in time that enables us to grasp the past, present and future in one glance.



Sculpture, boundary and plastic as a whole in time, the beauty and the form

To visualize this wholeness: Imagine that you are a sculptor standing in front of a cubic marble block. To create a beautiful sculpture, you must uncover the boundary from it. How difficult it is to see the interior of this marble block or imagine this, you can certainly guess. In practice, the implementation is an iterative process - the sculptor is able to see the boundary in the whole. This corresponds to the oscillatory change of plastic and sculpture, the figurative sculptures are a testimony of it. In order to extract a sculpture from the block of stone, the negation of the sculpture, the plastic, has to be removed. Before the hammer blow the sculpture is seen, in the blow the plastic is removed. It is an oscillating activity between the theory of seeing and the practice, the blow to the chisel, which always demands the sculptor to be present and focused in order to see and do the "right thing" at the decisive moment.

Michelangelo is said to have said once, when he was asked about his method of working: he simply cut off the superfluous marble to free the figures from the marble! Leonardo da Vinci, painter and theoretician, describes in his "treatise on painting" the sculptor as someone who with armpower and hammer blows has to destroy the marble, or other superfluous stone, which over the figure that is included in it, protrudes.

In order to give expression to these experiences of seeing, we need a new visual language of architecture and art. This builds on the two-dimensional cube, the plastic and the sculpture.

We need the language to communicate and to understand each other. In order to speak it is essential to know their axiom, their symbols and their rules.

Their axiom, the principle, and the first symbol we refer to, is the two-dimensional ambiguous cube.

Their symbols are the ambiguous two-dimensional cube, the plastic and the sculpture.

The rules indicate how one symbol is converted into another. The transformations are performed by our visual system, which we can directly influence. The four most important transformations we can perform with our visual system are:

1. The transformation of a two-dimensional perception into a three-dimensional, either plastic or sculpture ($2D \rightarrow 3D$).
2. The inversion, the transformation of a three-dimensional perception into a two-dimensional ($3D \rightarrow 2D$).
3. The transformation of a three-dimensional plastic perception into a sculptural one ($P \rightarrow S$).
4. The inversion, the transformation of a three-dimensional sculptural perception into a plastic one ($S \rightarrow P$).

Now we can combine these arbitrarily, e.g. with the change from the two-dimensional representation to the plastic or sculpture. Conversely, we can change from the two three-dimensional representations of plastic or sculpture into two-dimensional representation. The conversion process is temporal one, which we depict as a pair, the first place always indicates the first time point and the second place the follow-up time. Visual language is a subjective formal language of sensory visual perception. This allows us to communicate clearly when and how we perceive ambiguity.

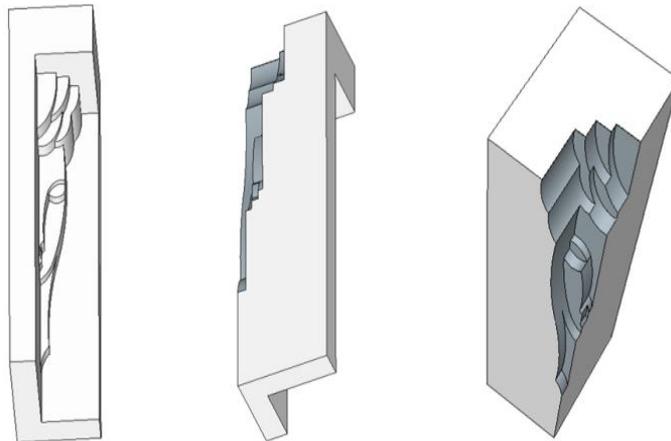
We can use these perceptions in the architectural practice as a basis for the design and construction. The painting Interface 134 is our basis and an example of a buildable architecture of tomorrow



Interface 134

From the painting we design the basic architectural structures of plastic, boundary and sculpture. We have expanded the plastic of the ambiguous cube with staircase-shaped cubes and shaped it into a human face, it is a kind of geometrical formsystem. Once we have set the plastic, boundary and sculpture emerge by themselves. If we put everything together, we again got a cube, our starting point, the inner form would not be visible then.

In contrast to conventional architecture, we do not show the cube, but its internal shape, which is represented by the boundary. We also call the boundary an interface or intermediate face, because it lies between the plastic and the sculpture. We build this interface, giving it a habitable wall thickness. On both sides the plastic and the sculpture are visible. The boundary also allows the view of both from each side. The architecture becomes a sensual experience and thus human.



Interface 134 as as a constructable architecture, plastic, boundary, sculpture

An example of a future architecture is shown in the following view, in a built environment, visible from one side. The reverse shows the negation of the front.



Interface 134 as an architectural vision

The ambiguous cube also plays a special role from a logical perspective. We can see him primarily as plastic or sculpture. Through this ambivalence we can not say exactly what he actually represents. He is thus, so to speak, the visual form of the paradox of Epimenides the Cretan, who said: "All Cretans are liars" and thus presents us with the difficulty of not knowing whether he is lying or telling the truth. The problem is undecidable or ambiguous, as is the ambiguous cube, whether it is a plastic or a sculpture.

The undecidability or ambiguity is the basis of our new formal visual language of architecture and art. It begins where the classical formal languages of the word and number have found their limit. Their axioms are the logical laws that have been valid since Plato and Aristotle. They are based on the identity, no contradiction or a middle one is allowed. We overcome this by observing the ambiguous cube, the axiom of our new language, on the basis of a temporal logic, in which, as already mentioned, we designate the change from one perception to the other as the aesthetic event. We cancel the oscillation between the perceptions by leaving the theoretical two-dimensional plane in which we represented the ambiguous cube and putting ourselves into the threedimensional practice. There we reconstruct the contradictions of the plastic and the sculpture, allocate a separate point in time for plastic and sculpture and join them together in one unit. We call this, following Heraclitus, the unity of opposites, or simply harmony. Once we have assembled the opposites into a unity, we discover the boundary as the time that was necessary in the visual cognition process for the transition from plastic to sculpture. We also build the boundary and insert it between the opposites. We receive the whole, the form or beauty. The whole thing is based on the artistic ability to see the same thing as an alternative. This ambiguous logic follows the clear formal logic of word and number.

We see a universal form in the ambiguous cube. Translated into architecture, it represents a form in which an observer can decide for himself how, what and how long he wants to see something. With our new language, we now have an instrument that respects this freedom of the other. Contradictory views become verifiable in practice. The architecture for tomorrow is free of worldviews and trends, but it becomes a sensual event and therefore human. It changes your view from space to time

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