Architectonic design as method of visualizing hypotheses

A direct translation from verbal into visual architecture

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Introduction

Visualizing hypotheses is a claim that answers the needs of the expert community – as well as the general public – for exchanging and understanding the complexity of historical research in a visual way. As manifold as the demands of either side are, as manifold are the possible – and partly well established – methods for visualizing.

Apart from traditional archaeological drawing techniques – as for example found in the volumes „Altertümer von Pergamon“ – that visualize both findings and hypotheses – well distinguishable by dotted lines for example – archaeologists originally and primarily used computer aided design techniques for cataloguing both remains and hypotheses in a visually unambiguous way by using color schemes and diagrams in 2D and increasingly also in 3D. On the other hand and at the same time computer graphic designer have been proceeding in simulating architecture up to the actual state of art where a visual distinction between reality and virtuality in not possible any more.

Both computer aided approaches diverge and aim for very specific tasks, none of which is combining scientific knowledge and immersive spatial experience at the same time. The gap that our approach fills, is their combination with several targets. The first is a visual communication base for scientific exchange and mediation, the second is the valuation of architectural design, concepts and ideas as such.

Uncertainty

A common feature though of any attempt to describe or visualize lost architecture is its inherent uncertainty in knowledge. Uncertainty in knowledge does not mean the fragility of scientific thinking as such. On the contrary, what we and our cooperating scientists of the fields archaeology and building archaeology have been calling uncertain knowledge is the adding up of certain knowledge e.g. of findings, obvious completions e.g. of walls upon foundations, very probable assumptions e.g. of roofs above enclosed spaced, and last but not least analogies e.g. of shapes of buildings or building parts that may be derived from other and just better preserved cases, the latter being potentially ambiguous or even contradictory depending on its respective and evenly potentially ambiguous underlying assumption, both being equally strictly scientific and well founded.

Still there are many approaches for as many demands in visualizing hypotheses. In probably most cases, the preference lies on showing the hypothetic content of buildings or building parts unambiguously, meaning that the spectator understands uncertainty immediately and without a doubt. This fulfills the general demand for unambiguity that is equivalent with a general hesitance against subtlety and complexity. As clear this approach of obvious declaration of uncertainty is, at the same time this means to exclude many other features that can be mediated by a visualized hypothesis. A single visualisation cannot fulfill any possible and contradictory demand at the same time. There are and there will presumably always be as many methods and designs for visualizing hypotheses as there are demands. These demands we consider as the main factors that influence the different methods of the visualisation of hypotheses. And we consider this as a need for the further development of the multiple states of the art. One of those methods we intend to present in this paper in the following.

The method that we have been calling the „visualisation of uncertainty“ meaning visualizing hypotheses for more than ten years is our approach that we have been positioning against the so-called reconstruction of

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architecture since our first projects of mediating cultural heritage, Pergamon (Fig. 1) and Cologne Cathedral (Fig. 2). We introduced the term „visualisation of hypothese“ some years later when we realized that „uncertainty“ is not always regarded as positive or even a neutral description of scientific knowledge.

Fig. 1. Sanctuary of Traian in Pergamon (© Chair for Architecture and Visualisation).

The reason for the distinction of visualisation against reconstruction has been that in scientific communication, be it amongst scientists, between archaeologists and us architects, or by those museums and institution that go along with our approach towards the general public, the term reconstruction means to construct architecture a second time. Not only amongst building conservators, a real reconstruction, that rebuilds lost architecture a second time, is neither intended nor acknowledged. On the contrary, all participating sides are convinced that architecture that has been lost can never be reconstructed – and this not as a matter of exactitude but as a matter of professional ethos, both of archaeology and of architecture, since every building and every construction is always a product of its time, depending on building traditions, building rules and regulations and material issues. From this point of view, a reconstruction is neither desirable nor possible, see Rheidt (2017).

Design

But other than usual and broadly expected, this does not have to lead to unambiguous color schemes. On the contrary, we and our cooperation partners from archaeology and building archaeology are convinced that the visualisation of hypotheses can preserve its character of being an architectural visualisation by the way of the most important traditional architectural representation technique, that is abstraction. So after the focusing from „visualisation of uncertainty“ on „visualisation of hypotheses“ we established a third way of describing our approach of visualizing hypotheses „design of abstraction“.

The reason for changing the focus is that terminology is not only necessary for exchanging and establishing ideas, but also that information technology is a rather recent field of science and the junction of information technology, architecture, archaeology and building archaeology is even younger. The terms visualisation, simulation and animation are often used simultaneously and without distinction, especially when it comes to the exchange with exhibition designers, curators or even museum representatives. This might be a vision for the future, that at least in terminology the visualisation of hypotheses is clearly defined.

Fig. 2. Cologne Cathedral around 1320 AD (© Lengyel Toulouse Architects Berlin).

For our demand to primarily visualize architecture, that by term includes architectonic structures but also architectonic planning and thinking, the design of abstraction is our way of including the visualisation of hypotheses and the visualisation of the architectural design, that is its original idea. The reason for this is analogue to the conviction that a reconstruction is neither desirable nor possible. It will presumably always remain impossible to discover the exact and detailed shape of a lost building. But there can always be a differentiated and scientifically well founded hypotheses about the intended appearance, that is the idea behind the building, its design and conception. And as every conception consists different degrees of abstraction, its visualisation means to give the abstract ideas – in most cases verbal descriptions – a concrete shape, an abstract formal, three-dimensional shape that needs to be designed, see also Schwarzmaier, Scholl and Maischberger (2012), Stehkämper and Dietmar (2016) and Hauser and Loch (2012).

Designing abstract representations of ideas means to create symbolic forms and shapes that suggest meaning other than their original appearance would in other contexts. This means that the overall composition of forms leads to the desired and intended interpretation. The decoding of the abstract forms depends on the skills in imagination, nevertheless the task is to find and use the most general and generic forms. The design of abstraction is a spatial version of the semiotics as described by Pierce (1986).

Conclusion

There are many approaches for visualizing hypotheses that can be answered by an evenly large set of methods that one by one will develop itself in the future. For the demand to emphasize the architectural character of a hypotheses, the design of abstraction is our proposal of a direct translation of verbal hypotheses, see also Deuring (2016).

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