

Archi-Types and Archi-Codes

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Architects today are confronted with an increasing amount of information. Both the architectural object and the architectural subject (the "consumers") are in a rapid period of change. The architectural program of Buildings has to deal with increasing complex demands. Computation transforms traditional building elements, appliances and materials to "hyper" realms loaded with information and able to communicate. The building as a machine is no longer a metaphor but an every day reality.

Accordingly, changes in the way the society "consumes" spaces are slowly taking effect. Computer networks communication redefines the modern working space. Our leisure spaces are confronted with an increasing dominance of displays and communication devices and our private domains program is challenged by the possibility of communication between our home appliances and the appearance of new functions as the home video space.

In terms of the design process, an on going evolution from computer aided design (CAD) to computer oriented design (COD) points towards a tendency of moving away from treating the computer as a tool towards a design companion. This move brings about a certain loss of control over the design process by architects and calls for developing new collaborative "hybrid" design processes. Consequently, Eisenman's 1992 prediction of the decline in the anthropocentric control of human visionⁱ in design and the increasing collaboration with computer in a network based design process is becoming a reality.

Research in T_CODEⁱⁱ focuses on the connection between these two parallel processes. It uses computer based design to develop new formal solutions for emerging social changes. Thus, it aspires to develop new design methods while questioning the changes in a given architectural program. The developed design methods are based on new digital tools for generation, simulation, optimization and manufacturing of architectural forms/spaces. Hence, an implementation of digital tools to conceive architecture necessarily influences the features of the end product. Moreover, the end product would reflect digital culture in a way that it would be clear that the design was conceived and developed with digital tools and could not be designed otherwiseⁱⁱⁱ.

Each academic year, T_CODE proposes a central theme. During 2004-2005, it researched digital formalism beyond morphogenesis. On 2005-2006, it is exploring the concept of typology in a digital era.

A traditional type in architecture is defined by formal/geometric relations between different architectural elements that present a solution for certain programmatic demands. The introduction of digital tools to architecture and new abilities to generate forms using algorithms enables the translation of the type information to a computer code. Accordingly, different types of programmatic information which defines different architectural functions could be translated into a "genetic" computer code which could be later used to generate new

architectural form. It is clear, however, that creating a genetic code for the design of even a small complete architectural project as a private house is yet too complex. The main difficulties has to do with amount information it embeds, the complexity in decoding perceptual data and the possibility of assigning fitness criteria to deal with the different demands^{iv}. Nonetheless, decoding parts of the diagrammatic system (DNA) of the programmatic organization in an architectural project can be used to generate innovative design solutions.

In this sense the Kings Road House and Schindler's designs presents a good example for a rationalization of design. Employing and decoding Rowe's analytic methods that was presented in "The Mathematics of the Ideal Villa"^v can produce innovative understanding of the tropes that guided Schindler in the design of the house. The new code could then be used to generate new elements or an entire new house that represent an new phenotype for the same genetic code . The importance of experiencing this type of design process is much more than analytical. Insights from the implementation of the new code could be used to develop the code further in an endless evolutionary process that will lead to deeper understanding of possible solutions to the given architectural problem and in a broader sense to an increase in the amount of information architects have on any given programmatic problem.

As apposed to the biological genome project it is probably impossible to decipher the entire architectural genome (archi-genome). Nonetheless, as in any attempt to deal with infinite solutions type of problem decoding pieces of the archi-genome seems to be the next task of architecture.

ⁱ Peter Eisenman. Visions Unfolding: Architecture in the age of electronic media. Domus #734, 1992. pp17-21.

ⁱⁱ Technion's computer oriented design (T_CODE) is an experimental design research laboratory led by Yasha Grobman and Eran Neuman. It is based at the Faculty of Architecture and Town Planning at the Technion – Israel Institute of Technology. For more information see: <http://tx.technion.ac.il/~tcode>

ⁱⁱⁱ See introduction text by Yasha Grobman and Eran Neuman at: <http://tx.technion.ac.il/~tcode/info.html>

^{iv} See also: Evolutionary Design by Computers. Ed. Peter J. Bentley. Morgan Kaufmann Press. 1999 and Architects New Media. Ed. Yehuda E. Kalay. MIT Press. 2004.

^v Colin Rowe., *The Mathematics of the Ideal Villa and Other Essays* (Cambridge: The MIT Press, 1976), 1-27.