Computing with Form and Meaning in Architecture

Our intuitive way of thinking leads us to establish a connection between form and meaning. Relationships between designs and their descriptions have also provided architectural thinking much stimulus. Procedures consist of rules that apply to manipulate abstract representations of things. The procedures assist in carrying out computations. Diverse lines arrangement and categories for describing designs establish different languages of design. The procedure that describes these is referred to as shape grammars and interpreted by procedures called description functions. Together, a shape grammar and a description function determine the relationship between designs and their descriptions. To guide the description of design derivations are used; they act as the link between form and meaning.

There are two types of shapes of grammars: the standard and parametric. In the standard grammars, each rule is defined explicitly by a pair of shapes separated by an arrow. For example, the rules defined in a particular scenario calls for creating a square, the next rule forces repetitive squares in squares, and the last rule calls to erase the diamond-shaped symbol labeling the side of the smallest square in a design. The parametric grammars rules are defined implicitly. In the parametric grammar the rules are more flexible or implicit, for example the lengths and the angles between the lines may vary in shape to ultimately create the inter-connected squares.

I personally find the process and the design method fascinating. The potentials for this is unlimited, although, we might often end up with a symmetrical or semi-symmetrical design; which may be viewed by some as less than exciting. Nonetheless, the market and economic trends are clearly pointing towards a less expensive design process, practical, and less labor-intensive. I am sure a great deal of transformation and improvement has transpired since fall of 1985 (article’s date), but it would be interesting to get exposure to the developments that have taken place since then.
The Logic of Architecture

Operators used in computer-aided design systems are tools for manipulating shapes in a design world, and are often invoked by clicking on icons that depicts more traditional tools. Operators substitute traditional tools such as paper, knife, and glue.

A state-action tree for a specific world may be established if an initial state of design world, plus a set of operators defined.

**Instantiation of Shape Primitives**

The most basic of design actions is the instantiation of shapes. Straight lines, arcs, splines, circles and so on are examples of basic. But other specifics such as location (with respect to the X and Y axis) and dimension must also be defined in order to create the shape. This process is commonly referred to as ‘adding parameters.’

**Instantiation of Abstract Shape Types**

Combining shape primitives may meet the criteria as instances of abstract shape type; such as combining straight line to form a square.

**Transformation**

Transformation entails the operation that change in some way. Transformation may be viewed as destructive or preservative. The destructive transformation may include smashing, burning, or dismantling. In destructive transformation, the original material may survive but the shape is fully destroyed. Conversely, in preservative transformation the object is simply altered and remains a thing of its kind.

**Combination**

Simply put, in this operation two things are put together to get a third. The union of two shapes is the shape consisting of all the pixels in the first shape or the second shape.

Since I have high level of desire or process improvement and automation, I particularly find this article interesting and of value. I am sure when it comes to
software design, the material found in this article could be used as the foundational cornerstone to designing and programming. I do however, wished that we could try working on some of the software and programs that we have read about. I am sure that will facilitate for higher learning and a much more in-depth understanding of the technology.