Elements of parametric design

Welcome!

Design is change. Parametric modeling represents change. It is an old idea, indeed one of the very first ideas in computer-aided design. In his 1963 PhD thesis, Ivan Sutherland was right in putting parametric change at the centre of the Sketchpad system, the first computer aided design (CAD) system. His invention of a representation that could adapt to changing context both created and foresaw one of the chief features of the CAD systems to come. The devices of the day prevented Sutherland from fully expressing what he might well have seen, that parametric representations could deeply transform design work itself. I believe that, today, the key to both using and making these systems lies in another, older idea.

People do design. Planning and implementing change in the world around us is one of the key things that make us human. Language is what we say; design and making is what we do. Computers are simply a new medium for this ancient enterprise. True, they are the first truly active medium. They are general symbol processors, almost limitless in the kind of tool that they can present. With much craft and care, we can program them to do much of what we call design. But not all. Designers continue to amaze us in with new function and form. Sometimes new work embodies wisdom, a precious commodity in a finite world. To the human enterprise of design, parametric systems bring fresh and needed new capabilities in adapting to context and contingency and exploring the possibilities inherent in an idea.

What is the new knowledge and skill designers need to master the parametric? How can we learn and use it? That is what this book is about. It aims to help designers realize the potential of the parameter in their work. It does so by combining basic ideas of parametric systems themselves with equally basic ideas from both geometry and computer programming.

This book explains many computer programs, but does not include them. Programs are best seen online, where they can be copied for your use. The book's programs are online at http://www.elementsofparametricdesign.com/.

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What is parametric design? 3D software lets designers easily manipulate building models, a process that may revolutionize house designs of the future. Schumacher says that "all elements of architecture are becoming parametrically malleable and thus adaptive to each other and to the context." " Instead of aggregating a few platonic solids (cubes, cylinders etc.) into simple compositions — like all other architectural styles did for 5000 years — we are now working with inherently variable, adaptive forms that aggregate into continuously differentiated fields or systems. Multiple systems are correlated with each other and with the environment....Parametricism is the most potent movement and avant-garde style in architecture today Category Archives: Parametric design. ← Older posts. Seminar + Workshop "Design through Systems Thinking Informed by Materials" . 01. Posted on 11/21/2012 | 2 comments. Students should explore design through material systems in a holistic manner. By integrating systems thinking to the design process, in which the rules and relationship among system elements are defined at the beginning of the design process, most efficient solutions are generated by the system itself. Students are asked to test this method on a façade solution. Image Credit: Gabriele Macri (Ootheca of trunculariopsis trunculus).