

A Model Dialogue

by Benjamin Gianni

I've worked with **form•Z** for more than two decades – having been introduced to the program before it was officially released. My first attempt at building a model in **form•Z** (or Archimodos as it was then called) resulted in an immediate and fundamental empathy for the tool. I recall sensing that I discovered the instrument I had been waiting for -- both a complement to my design sensibilities and a mechanism for exploring design processes in a studio setting.

My enthusiasm for the tool was no doubt related to the fact that **form•Z** was developed in an academic environment. The development team solicited feedback from the teaching staff as it considered ways in which designers might use the software to explore and manipulate form. Competing programs were geared to production and/or presentation drawings -- supporting the dialogue between architects and their consultants and clients. By contrast, even the earliest versions of **form•Z** incorporated 'esoteric' functionality that permitted designers to explore (among other things) iterative transformations and to trace the effect of processes over successive generations. From the outset, the program was strong in Boolean functions and enabled users to combine translation, rotation and scaling operations into aggregate, macro transformations. In this regard, the program supported the dialogue between the designer and the design. **form•Z** was conceived first and foremost as a design tool and only secondarily as a tool for production and/or presentation.

My predilection, both as a designer and a design teacher, is to treat design as a process of transformation – from an idealized form (type or primitive) to something that engages and reflects the myriad forces that inform it (site, program, orientation, budget, social context, geographic context/climate, symbolic function, etc.). It is enlightening for designers to track both where they began and how they got to where they gotten. The logic of this transformation informs the inherent logic of the building and is the basis of the dialogue between the designer and the design. Optimizing a solution is not only a question of altering the form to better accommodate various site, programmatic and aesthetic considerations, but engaging it in a dialogue, adjusting the logic behind its transformation, and modifying the rules of engagement.

Tools like **form•Z** help to make this process explicit. Tracing the path they've taken enables designers to better understand their predilections and, most importantly, the logic of their intuition. While all designers must take a stab at a solution based on informed intuition -- indeed, good designers are exceptionally good at this -- developing a proposal beyond its sui generis state requires an ability to deconstruct the logic of one's intuition and to engage the emerging design in a meaningful dialogue.

In the urban context, the design of a given building can tap into a larger, pre-existing set of transformations on the site and the city as a whole. Accordingly, I have found **form•Z**

especially useful for urban design projects. Students use simple massing models to explore urban sites as 3-dimensional palimpsests -- accumulations of settlement over time -- and to engage the larger urban context as a collage of discrete patterns and transformations. This, in turn, facilitates the exploration of transitions, thresholds, overlaps, and blurring -- both laterally (i.e., between different sizes and grains of fabric) and “vertically” (i.e., between different eras and scales of development on the same site). It also opens the possibility of discovering part-to-whole relationships, comparing, for example, the relationship between the site and the adjacent neighborhood to the relationship between the neighborhood and the city as a dynamic whole.

By way of example, I've asked students to use **form•Z** to track the migration of a business district from the center of a small town to the commercial strip that connects it to a nearby interstate. In this investigation buildings (commercial establishments) not only moved but changed scale and position both relative to each other and to the road. These morphological changes were, in turn, applied to a second generation of transformations in order to produce a speculative, third-generation business district (i.e., the transformation from past to present formed the basis of the transformation from present to future). I've also used **form•Z** to explore anamorphic variations on the suburban strip -- bending and distorting facades to better address drivers from key intersections. Here the ability to design in perspective and to manipulate cones of vision was extremely useful. More recently, my students have used **form•Z** to explore the redevelopment of Regent Park -- a 69-acre complex of public housing in downtown Toronto.

Whatever the nature of the design investigation, it is helpful to be able to move fluidly and iteratively between scales. Rather than working with several (physical) models at different scales, digital tools permit students to work with a

single model -- into and out of which they can zoom to assess various moves at multiple scales and from a range of viewpoints. The ability to jump scales (and therefore work at several scales simultaneously) permits students to detect similar patterns at different scales and, in so doing, to strengthen part-to-whole relationships. Similar connections can be made between various projected views (plans can be misread as elevations, etc.) to reinforce internalized references -- all in support of a higher degree of design integrity. In this line of thinking, buildings must not only talk to their sites but to themselves.

3D modeling programs extend and greatly enhance what is possible in the design studio; they are an invaluable complement to traditional modeling and representation tools. While the choice of 3D modelers is an important one, a school's criteria for supporting one program over another may be based on a variety of considerations (cost, functionality, availability of support, interoperability, usage in the profession, faculty champions, etc.). It's important to keep in mind, however, that modeling programs have steep learning curves; like languages, students can't be expected to learn too many or switch between programs too frequently without compromising their fluency.

As a long-time **form•Z** user, I can attest both to the program's staying power and to **AutoDesSys'** commitment to supporting and enhancing the program. Moreover, the developers have cultivated a long-term relationship with academic users through the Joint Study Program. While it's significant that **form•Z** is versatile and can do most of the things other programs can do (photorealistic rendering, animations, splines, meshes, etc.), the point of this short essay is to reinforce that **form•Z** is designed to do things other modeling programs do not, namely privilege design logic and promote design integrity by supporting a more meaningful dialogue between designer and design. This is invaluable in an academic environment.

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