

## Triangles and the Digital Veil

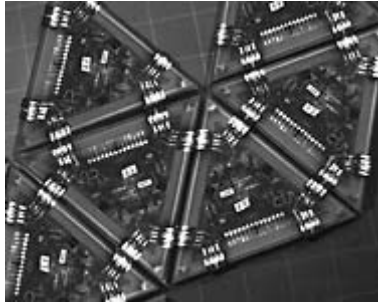
Matt Gorbet/Maggie Orth

"That," she said...

... "is a cyhnk, isn't it?" She nodded toward the carved stone medusoid ...

"When did you learn," Alsrod asked, "that the meaning of the cyhnk was not the same everywhere in the universe?"

Samuel Delaney, *Stars in my Pockets like Grains of Sand*



From scattered beliefs and beginnings, each of us brings to every artifact that fills our external world an internal world, filling objects with mutable meaning and function. In their practical use, tools simply have a one-to-one relationship with cause and effect. The hammer drives the nail. Place a computer between the hammer and the nail and the relationship recedes, a software veil is created, and when the hammer strikes, music may play. Yet objects like the hammer also have a symbolic or magical function and meaning. This symbolic meaning already possesses such a veil. Place a symbol before the world and one person feels adoration, another irony. Place a computer between a symbol and the world and what is the role of the layer of software, the digital veil?

Microcontrollers [tiny programmable computer chips] are migrating out of our computers and into thousands of artifacts in our everyday lives, giving them a digital veil. All around us are digitally empowered objects whose function can be changed with a string of bits. Objects like remote controls and pagers possess, like a Byzantine church, a strangely absent exterior, seemingly irrelevant to their job. Hagia Sophia is nearly invisible from the streets of Istanbul. To suit the changing religions of the empire, it has been given new meaning time and time again by the redesign of its internal code, its mosaics. And so can a string of digital bits change an object's meaning by changing the information the object contains, controls or displays. This digital DNA can react to and reflect an individual or group. It can externalize through material output, light, sound, motion, the personal meaning we all attribute to artifacts. It can also draw into question and redefine an artifact's magical function.

Our array of triangles is a structured mound of programmable matter, with programmable meaning that can be mutated with a single string of bits. Each triangle is a microcontrolled individual, with its own identity. Each can communicate with the others, recognize individuals among them, respond to the presence of the others and place itself in space and time relevant to the others. A computer mediates this information, and as the system is rearranged, its exact topology and history is inferred, stored and updated in the computer. But the mimetic storage of the state of the triangle system is not the goal; rather it is a tool. Because each triangle is a blank sheet, a recipient for images or signs, rearranging the triangles rearranges the meaning of the system. Like a string of hieroglyphics, when the triangles are connected together by a player, the context of each image and its relationship to its neighbors creates new meaning within the system, generating new output. Mimetic

knowledge of the system is used by higher level software to interpret arrangements and events within the system.

The triangles depart from our visual history and reflect the possibilities of digital information by departing from the square. Simply understood, three sides imply a branching structure with one output and two inputs, or two outputs and one input. Triangles do not follow gravity; they don't create a simple line of text. Instead they create loops, inverted images and branches. The possible unique configurations of a set of triangles is daunting and demanding. Four triangles can create over 1600 unique states, and six triangles over 500,000 unique states. The connected pieces also create objects with form and shape, the surface or context for the images or symbols. The pieces are tesseri that both depict a story and construct their own physical context. And just as the shape of an altarpiece, a palette or a rectangular painting contributes to the meaning of the symbols on it, so can the shapes of the objects built with the triangular pieces contribute to the meaning of the combined symbols.

It is thought that language developed in Sumeria from clay contracts consisting of tiny clay figures [representing the traded goods] encased in clay wrappers. Eventually, the merchants began pressing a symbol for each figure onto the exterior of the tablet. These signs became letters, and over time, a language. A new language, with new modes of interpretation and syntax is demanded by objects with self-knowledge and programmable meaning. Moreover, the software that can interpret connections or relationships between such objects, and drive content, demands development of mutable content we do not yet possess.

Most technology interface has relied on the past, using familiar models of information organization as metaphors for understanding digital information. Physically, the keyboard and the monitor are vestiges of televisions and typewriters, past technologies. Virtually, the desktop metaphor reflects past information organization systems, files and folders.

These systems help "users" adapt to technology by grounding it in a familiar past. Systems like the triangles are not metaphors of the past, but fantastic propositions for the future. The triangle pieces are deeply embedded in this fantasy — a longing for transcendence through technology — and in the formal abstraction of digital information. Yet at the same time they do not posit an ideal, but a means of exploration. They are a tool for understanding and developing a new language of programmable meaning that is possible in objects that possess the digital veil.

