Symmetry: Culture and Science
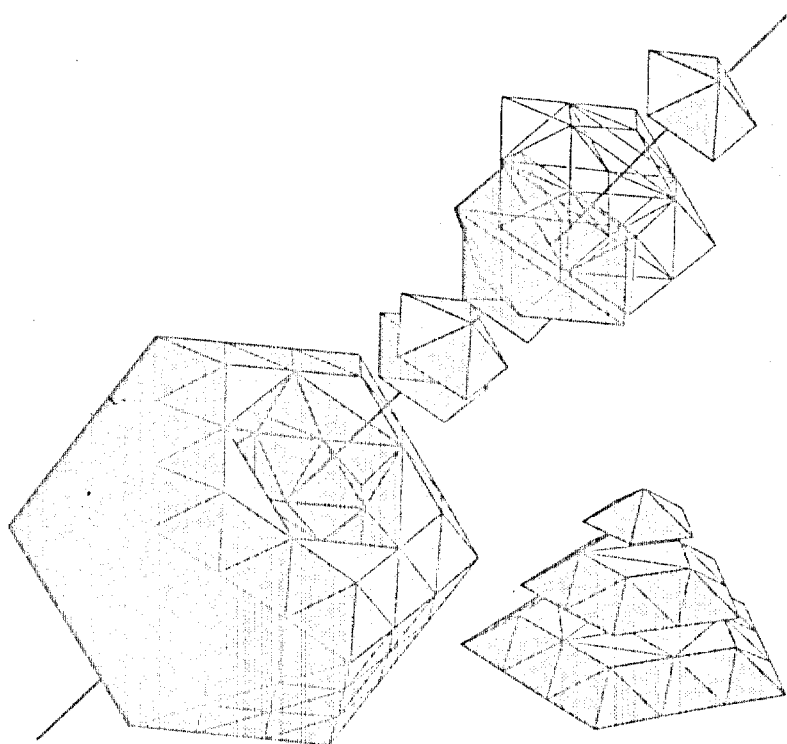
Symmetry of Patterns, 2

FORM: BY SCRIPT AND/OR IMAGE

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Preface

I am an artist who uses the computer as a tool or environment for expression. In preparation for creating with a computer, one must devise an order consisting of commands and data. What results are algorithms which are formed by the ideas and procedure involved, expressed in explicit detail. Combined, they comprise a script for creating graphic images. Because scripts require so much thinking about the steps involved, I have been prompted to rethink the process of creation.

Only the objects which can be translated into numbers are visible on the screen. At that moment, the image and its script are placed as a composition of symmetry.

1: Image and Script are in Symmetry

Since I first encountered computer graphics techniques in the early 80's, the prevailing interface with the computer has been the "command line interface." This approach requires a "command" (function) and a "target" (parameter) to define the purposes of the action. Both components are crafted into a textual script, which in the case of 3-dimensional images, defines the image. The user, the artist, must deal with numbers and commands in the context of such a script. Clarifying the image necessarily involves manipulating the script. If any part of the script changes, the resultant image will change.

My day-to-day experience with this process suggests that the script and the image are standing on alternative sides of a mirror. But the reflection is one-way only, from the script to the image.

(In the future the reflection may be more two-way, allowing more interesting metaphors of the world in the way the user sees the "script." Interactivity is may be a key to open two-way reflection. Already most 2- dimensional software allows the artist to interface with and manipulate the image interactively, directly on the screen. In fact the script is still there, but is hidden from the user for convenience. The numbers are still acting and running inside the computer.)

2: The Computer is a Type of Modeler

Computer programs are formed from our sequences of thinking and acting. The computer acts by following and tracing our process of thoughts through manipulat- ing programs and data. For example, algorithms included in computer-graphics programs are transformed from Newtonian models of physics, optics and geometry. It is a simulation of the model of our viewing-system in the 19th Century's style.

We can use computer technology as a modeler, and we can model a part of our world inside the computer. Then we can see our modeled world from the outside, in the image. The reflection of the world in the model re-attracts me to the notion of a symmetrical composition. It is important that this notion comes directly from daily experience with this process.
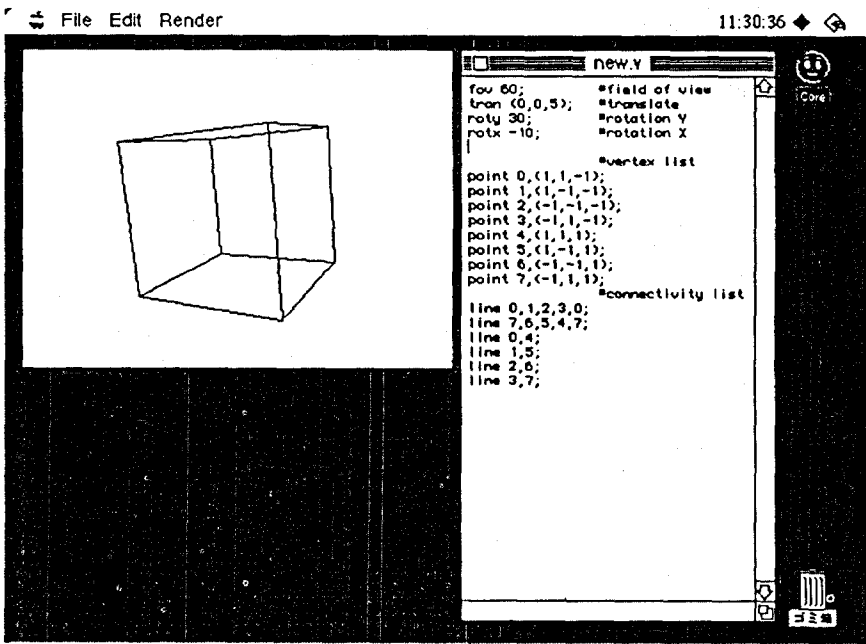
3: The Pre-formative stage

A fascinating element of the symmetrical reflection arises when one considers that the image produced is not physically realized and is an illusion. The "original" image exists only in the mind of the artist and needs to be transformed into a form in order to be expressed. Here, the real creation involves both the power of realization techniques and the power of imagination.

The poet uses words as elements for creating a poem to express his "form". When we read a good poem, we get the form in our minds. The painter uses pigments as elements, canvas and brush as tools for fixing an image of his "form". This painted 2- dimensional image projects the form into the viewer's mind. The viewer can understand the "form" and communicate his impressions, perhaps into words.

The point is simple that we, as expression-ists need to make the objects from our imagination.

4: A Conclusion?

Scripts for computer image generation and the final image are the same object. For the human, image is intuitively understandable, but scripts for computers are not. In the case of the computer, scripts are a poem forming the "form." Here we are standing in a strange
place. The modeling power of the computer gives us the ability to simulate on screen this strange environment. Thus, the reflection between scripts and images brings us to a place of "self-reflective-symmetry."

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 ⌘  File  Edit  Render                                    11:30:36 ◆ 🐱

                                    ▤▢▭▭▭▭ new.y ▭▭▭
                                    fov 60;           *field of view
                                    tran (0,0,5);     *translate
                                    roty 30;          *rotation Y
                                    rotx -10;         *rotation X
                                    [
                                                      *vertex list
                                    point 0,(1,1,-1);
                                    point 1,(1,-1,-1);
                                    point 2,(-1,-1,-1);
                                    point 3,(-1,1,-1);
                                    point 4,(1,1,1);
                                    point 5,(1,-1,1);
                                    point 6,(-1,-1,1);
                                    point 7,(-1,1,1);
                                                      *connectivity list
                                    line 0,1,2,3,0;
                                    line 7,6,5,4,7;
                                    line 0,4;
                                    line 1,5;
                                    line 2,6;
                                    line 3,7;
```

Bitmap dump from Macintosh DeskTop screen.
The image in the left window was drawn from the script in the right window.
This software was programmed by the auther, for the purpose of demonstration.