Allan McCollum — *The Shapes Project*

How I did it and how I am still doing it.

One day I decided I wanted to create a system for making a unique "shape" for every person on the planet. This idea was similar to some of my other projects I'd done over the last 40 years, but I had never aimed to create such a huge quantity of anything.

I was thinking about how people often create some sort of "emblem" to represent a "group," and learn to identify with this emblem as a sign of their belonging to the group: family crests, religious icons, corporate logos, and things like that. I had always wondered why someone hadn't designed a system that gave us all an "individual" emblem as well.

So I began to design the *Shapes* project.

As my thinking progressed, I decided that I should plan to make enough *Shapes* not only for the all the people on the planet who are alive today, but enough for all the people living on the planet when the population reached a peak. I did a little research and found that there were a number of different predictions made by a number of different studies, some saying that the world population would "peak" at 20 billion people, some predictions for a lower amount. The most often quoted statistic was from a United Nations study which predicted the world population would rise from what it is today (around 6 billion) to about 9.1 billion in the middle of the 21st century, and then it would begin to decline. This is because while our population is increasing in numbers, the "rate" of birth is slowly declining, as people around the world are deciding to have less and less children. In the end, I decided that I would play it safe, and design a system that could result in the creation of around 30 billion *Shapes*.

After some figuring, I determined that I should start with the number 144 as a key number, and make *Shapes* that needed four "*Shapes* parts" to be complete: an "upper left" part, an "upper right" part, a "lower left" part and a "lower right" part.

Using the computer program Adobe Illustrator, I made 144 top parts that each fit within a square that is 2-1/2" by 2-1/2". The bottom horizontal and right vertical edges of the square remained straight. This made an "upper left" part.


etc.

I copied these 144 top parts and flipped them over horizontally, so that the bottom horizontal and left vertical edges of the squares are the edges that are straight. This made 144 "upper right" parts.


etc.

I decided the "bottom" parts should be twice as tall as the top parts. That way, when they were all four put together, they would have a similar proportion to a person, or a person's face. Longer at the bottom, shorter at the top.

I made 144 bottom parts that each fit within a rectangle that is 2-1/2" by 5". The top horizontal and right vertical edges of the rectangle remained straight. This made a "lower left" part.


etc.

I copied these 144 bottom parts and flipped them over horizontally, so that the top horizontal and left vertical edges of the square are the edges that are straight. This makes an "lower right" part.


etc.

So, if you should you slide all the parts together and join them at all their straight edges, they would fit together and make a *Shape*.

etc.

Then I created a system to use when I combined the *Shapes* parts. First, I combined all the top *Shapes* into all the possible unique combinations, to get 20,736 different top *Shapes* that measured 2-1/2 inches by 5 inches, as there were two squares at 2-1/2 by 2-1/2 inches side by side, bound together.

After that, I combined all the bottom *Shapes* into all the possible unique combinations, to get 20,736 different bottom *Shapes* that measured 5 inches by 5 inches, as there were two rectangles at 2-1/2 by 5 inches side by side, bound together.

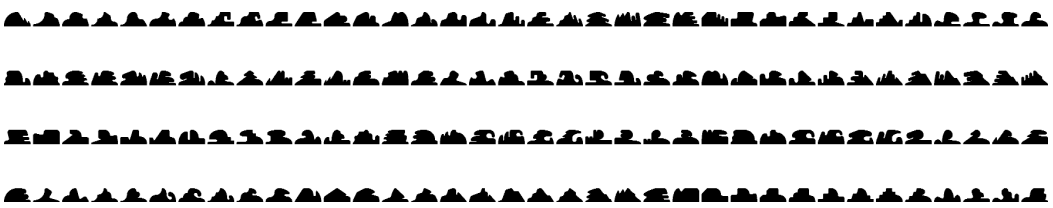
To do both of these things, I needed to follow a specific order and sequence, so as to never attach the same parts together twice: every "top part" had to be different, and every "bottom part" had to be different.
So I took 144 "upper left" parts and joined them to 144 "upper right parts, starting by joining part 1(left) with part 1(right), then part 2 (left) with part 2 (right), part 3 (left) with part 3 (right), and so on, until I joined part 144 (left) with part 144 (right), the last part in the sequence. Then, next, I started with another set of 144 "top left" parts and another 144 "top right" parts, and put them together slightly differently. I joined part 1(left) and joined it with part 2 (right), skipping "upper left" part 1; then part 2 (left) with part 3 (right), then part 2 (left) with part 4 (right), up to 144 (right) again, and then took the "upper left" part 1 that I skipped in the beginning, and joined it to "upper right" part 144. Or, to put the system more simply, think of it this way. I kept setting out long horizontal lines of 144 "top right" parts next to 144 "top left" parts, but each time I'd do it, I'd shift all the "top left" parts to the left once, thereby displacing the first "top right" part in the row, and moving it back down to the other end of the line, and placing it there.

You can do this 144 times before you start repeating yourself, and you stop there; and then you join them all together with their mates, creating 20,736 unique combinations.

Then, of course, you do the same with all the "bottom parts," and wind up with 20,736 joined "bottoms."

Then, finally, I needed to think up another similar system to use in joining all these "tops" and "bottoms" together, to create all the possible completed *Shapes*: 429,981,696 unique *Shapes* are possible. But right away I realized that if I created all of the 429,981,696 possible *Shapes*, that 1/2 of them would be "mirrors" of the others. Different and unique, yes, but if you cut them out of paper and then "flipped" half of them, they would have a double somewhere else in the system. I didn't like that, so I solved the problem by simply removing the half of the "tops" that were mirrors of the other half, leaving only 10,368 "tops" to combine with the 20,736 "bottoms." So the sum total of finished *Shapes* that could now be made became 214,990,848, not 429,981,696.

Next I organized all the 10,368 tops into "arrays" of 144 "tops" each, in grids of 4 x 36, in a single Illustrator document, creating 72 documents. I did the same with the 20,736 bottoms, arranged them into a related grid, 4 x 36 on each sheet, to create 144 documents with 144 "bottoms" each. That way, I could copy 144 "bottoms" from a certain array at one time, and paste them underneath the 144 "tops" of a certain array, and join them all at once, to create 144 full *Shapes* at a time. However, to insure that each new combination created 144 unique *Shapes* that never repeat, each array of 144 "bottoms" needs to either have never been joined to that particular array of "tops" -- or, at least, never in the same order.


etc.

So, the final job or pre-organization is creating 20,736 "bottom arrays," each array with the 144 "bottoms" in a unique order, so that each of the 20,736 "bottom" arrays can be combined with each of the 72 "top" arrays without creating a duplicate. This involves a very similar process as was described above. I need to open each "bottom" array document one at a time, shift each "bottom" to the left one step in it's row, and remove the displaced "bottom" at the beginning of the first row back to the end of the bottom row, and save it as a new document. This can be done to any one of the 144

"bottom' arrays 144 times, before it would begin to repeat. And since each of the 144 arrays may be shifted this way (I call it "progressing" the arrays) 144 times, then the final amount of arrays will be 20,736. In the end, 1,492,992 arrays of completely unique collections of 144 unique *Shapes* are possible, creating the total of 214,990,848 individual unique *Shapes*. This will take me a few years to complete.


etc.

Each final *Shape* winds up to be 7-1/2 inches high by 5 inches wide; but because they are formed as "vector" files in my computer, they can be enlarged or shrunk to any size desired.

I also have 12 "middle left" "neck parts" and 12 "middle right" "neck parts" that can be put together to create 144 "necks."


etc.

If I use these "necks" to go between the "tops" and the "bottoms" of the *Shapes*, in all possible ways, the sum total of the unique *Shapes* that can be made with the system rises to 30,958,682,112.


etc.

I figure I'll be working on the *Shapes* for a long time, and I'm trying to organize the project so that it can be continued, long after I'm dead and gone!