A Thought Experiment

What can simple rules achieve?

Within a Turing State Machine there are very simple rules that create a range of outcomes, every outcome. Can we create a thought experiment with a single rule that allows for infinite variation?

Let us have a go…

The Setup

Consider this…

Imagine a blank space, devoid of any rules (close your eyes).

Imagine two distinct points (these are just relative reference points for us to anchor an idea), not actual physical nodes.

Label the two points - 0 and 1. Again, this is just for us to be able to reference the nodes (they could be A and B, left and right, + and -).

Draw a single monochromatic line between the two points.

This line has a single rule - the width never changes.

NOTE: This is a slight alteration to the typical description of a line (which is that it has zero width).

Move the line around, see how the rule behaves.

Join the two points 0 and 1, left and right, A and B (the two ends of the line) together and create a circle.

There is no join, the line appears to be a single line with two reference points 0 and 1 at the same location.

Gently rotate the line around the central point of the circle.

Open your eyes.

Close your eyes.

Questions:

Can you locate 0?

Can you locate 1?

Movement

Consider this…

Move at 50% light speed toward the shape.

Move at 99% light speed toward the shape.

Answer questions at bottom of page.

Move at 50% light speed away from the shape.

Move at 99% light speed away from the shape.

Answer questions at bottom of page.

Move at 50% light speed left and look toward the shape.

Move at 99% light speed left and look toward the shape.

Answer questions at bottom of page.

Move at 50% light speed right and look toward the shape.

Move at 99% light speed right and look toward the shape.

Answer questions at bottom of page.

Stop

Answer questions at bottom of page.

Questions:

Are you able to gain perspective on the line?

Are you moving?

Is the shape moving?

Can you locate 0?

Can you locate 1?

Dimensionality - Part 1

Consider this…

We take the shape, and we look at it from the side. Moving from a 3D structure into a 2D structure.

We can do this due to the line width being unchanging.

We know the circle is gently rotating.

Questions:

Are you able to gain perspective on the line?

Are you moving?

Is the shape moving?

Can you locate 0?

Can you locate 1?

Dimensionality - Part 2

Consider this…

We take the shape from the 2D, and we look at it from the side. Moving from a 2D structure into a 1D structure.

We can do this due to the line width being unchanging.

We know the circle is gently rotating.

Questions:

Are you able to gain perspective on the line?

Are you moving?

Is the shape moving?

Can you locate 0?

Can you locate 1?