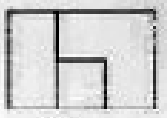


Fig 1

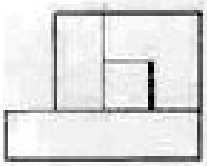


Fig 2

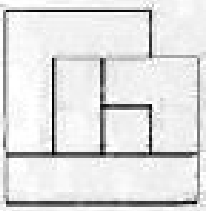


Fig 3

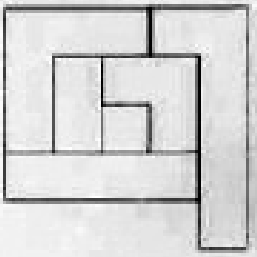


Fig 4

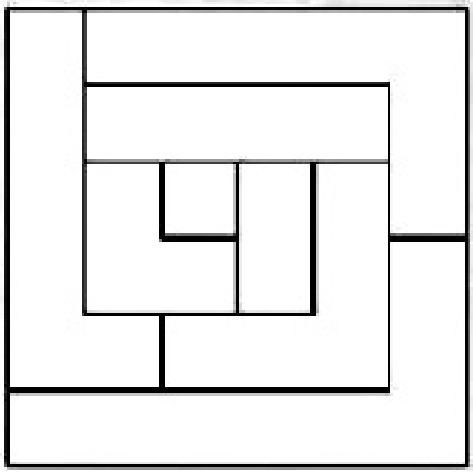


Fig 1 represents a fragment of a design. There is a sense in which it can be thought of as logical. As evidence it also represents premises from which a law can be asserted which could be predict its future and even its final states.

The implication of Fig 2 is that there is the beginning of a spiral form. We believe this because we have gone through a mental process of enumerative induction or generalisation. This is a form of argument in which it is inferred that what is true of a number of observed individuals is true of all such individuals.

The first rectangles increase by a ratio of 1: 2: 3. Therefore possibly the fourth shape will conform to that series.

By the time Fig 3 is reached, the argument in favour of that hypothesis is stronger still.

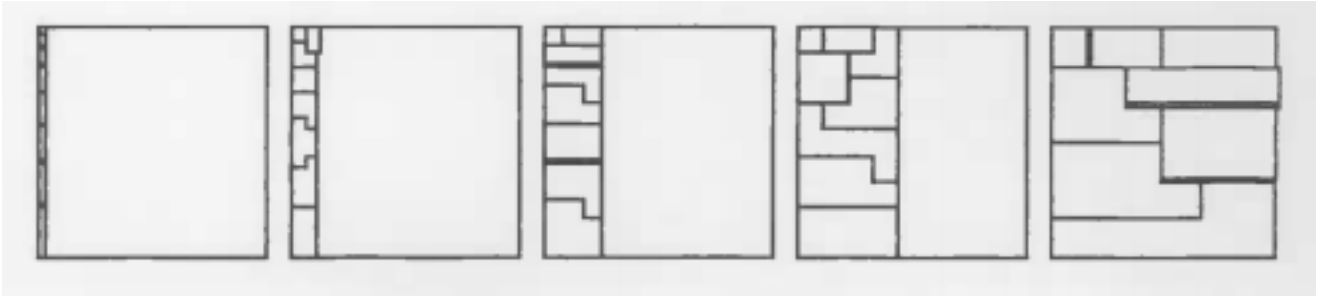
It becomes abundantly clear what is going on by the time Fig 4 is shown.

Moreover at this point we might already wonder how far we should go with this process, and it may be that we intuitively feel that it would be agreeable if we could complete the square by adding more parts.

If that is the case then there may be grounds for supposing that there is an aesthetic principle involved, not just an intellectual one.

This may not be art, and if it is, it may not be good art, but it invites a logical as well as an aesthetic appraisal. It is also a diagram, but let's not be snobbish about that because if diagrams fulfil an aesthetic purpose they can be art as well. The visual game that went on was a shared game, a publicly verifiable enterprise, not a private fantasy. Like a joke or story, it had a beginning, a middle and an end.

"There is no point in doing with more what can be done with less," said William of Occam. But the temptation to see what the next square number spirals would be was irresistible. Chris Frith kindly worked out the problems for me on a computer at the Maudsley Hospital in the late 1970s, so the drawings were done on the National Heath so to speak! (John Law's quip.)



The spiral drawing suggested another drawing based on the fact that the consecutive integers 1 + 2 + 3 + 4 ... + 8 = 36. This gave rise to a five-part series which begins with the areas 1: 2: 3 deployed in a meandering path inside a square. The meandering path is allowed to increase in width until it fills the square.

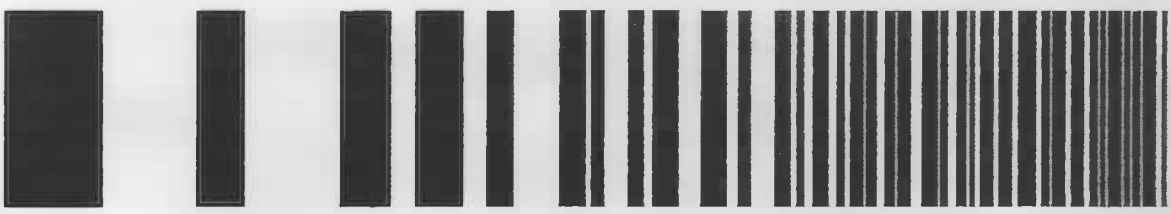
This drawing, according to Professor van der Blij (University of Utrecht) is based upon a Diophantine equation from which he calculated the number of elements for the next possible drawing in the series (*Mathematiklehren*, August 1987).

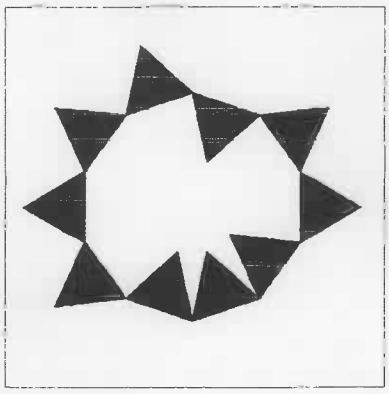
Just as things in a narrative take place in a chronological sequence, my drawings are in a logical sequence.

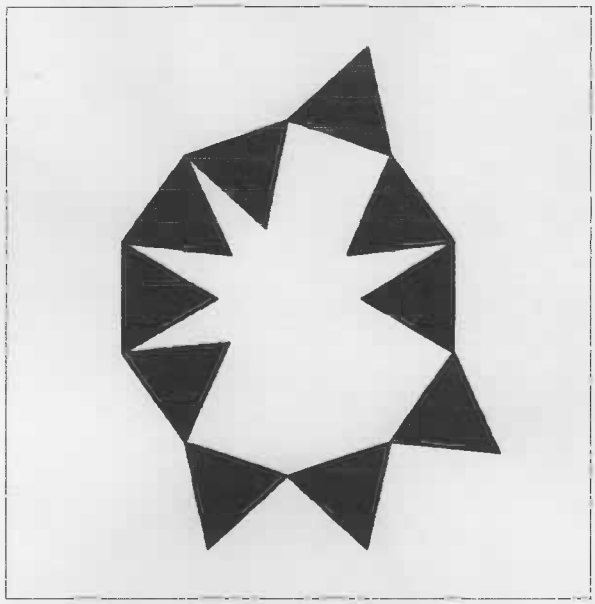
A well formed formula or 'WFF' in the notation devised by Jan Lukasiewicz requires that it be either a sentence variable such as a 'p' or a 'q' etc or a two unit expression in which the first unit is an N which stands for negation, e.g. Np. The third possible WFF is a three unit expression in which the first unit is a 'C', 'A', 'K' or an 'E'. These letters stand for sentence connectives and are roughly equivalent to the conditional; 'if then', the disjunctive 'or', the conjuntive 'and' the bi-conditional 'if and only if' respectively. It is convenient to use this notation because it is formed from standard keyboard letters.. The use of logic may seem like useing a sledgehammer to crack a nut in this example but as the number of variables is increased it may be more appropriate. I began this work by stating a rule as follows: 'If black then white and black. If white then black and white. Substituting 'p' for black and 'q' for white. this could be restated as CpKqp and
CqKpq or KCpKqpCqKpq. This is a conditional statement but it is not an argument because no premise and no conclusion has been given. A truth table for this sentence only confirms what our intuition tells us; namely that the sentence is true only when p and q are both true.

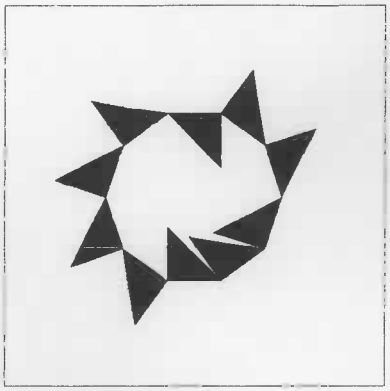
p	q	K	C	p	K	q	p	C	q	K	p	q
1	1	1	1	1	1	1	1	1	1	1	1	1
1	0	0	0	1	0	0	1	1	0	0	1	0
0	1	0	1	0	0	1	0	0	1	0	0	1
0	0	0	1	0	0	0	0	0	0	0	0	0

So what can logic tell us about that trial and error could not? If three colours are used there are three different structures possible within the same format. If there are four colours then there are six.



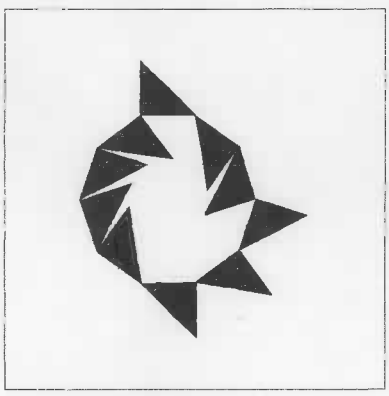


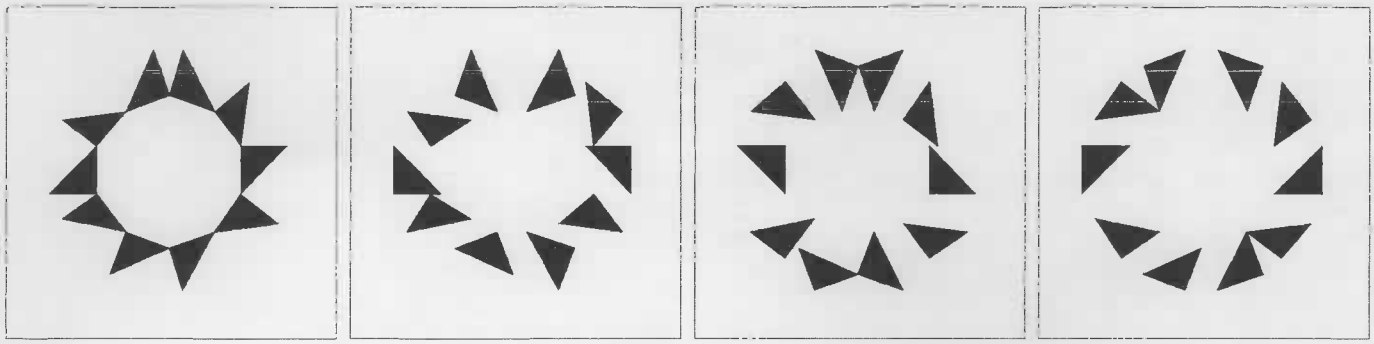


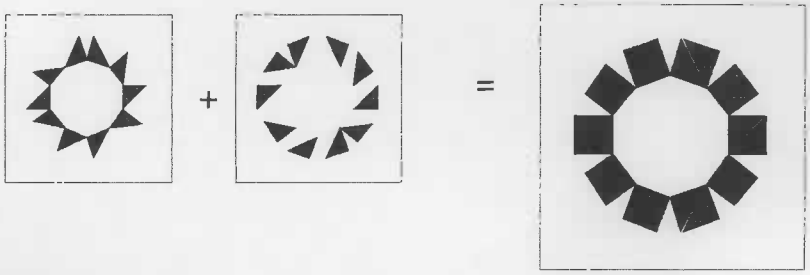


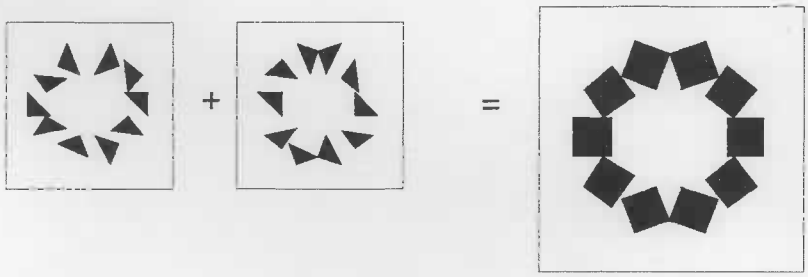
Equilateral triangles are placed around a decagon in a sequence 1, 2, 3, 4. In fig x the even numbered triangles face inward and the odd numbered triangles face outward. In figure y the positions are reversed.

In the second version, right-angled triangles are placed around a decagon. The even numbered groups are turned inwards facing clockwise and the odd numbered groups are turned inwards facing anti-clockwise. This is reversed in version B.









The ten triangles (fig 25) are arranged facing clockwise or anti -clockwise according to if they form an odd or an even group. Horizontal and vertical flips produce four and only four configurations. (fig 27) The overlaying of fig 25 and fig 26 produces ten squares. (fig 29).