

Recognising Geometric Patterns - Example 3

Peter Fletcher, 6th July 2007.

The problem

Figure 1 shows an image containing three overlapping hexagonal tessellations. The task of the program is to distinguish three tessellations and to identify the parts of each tessellation.

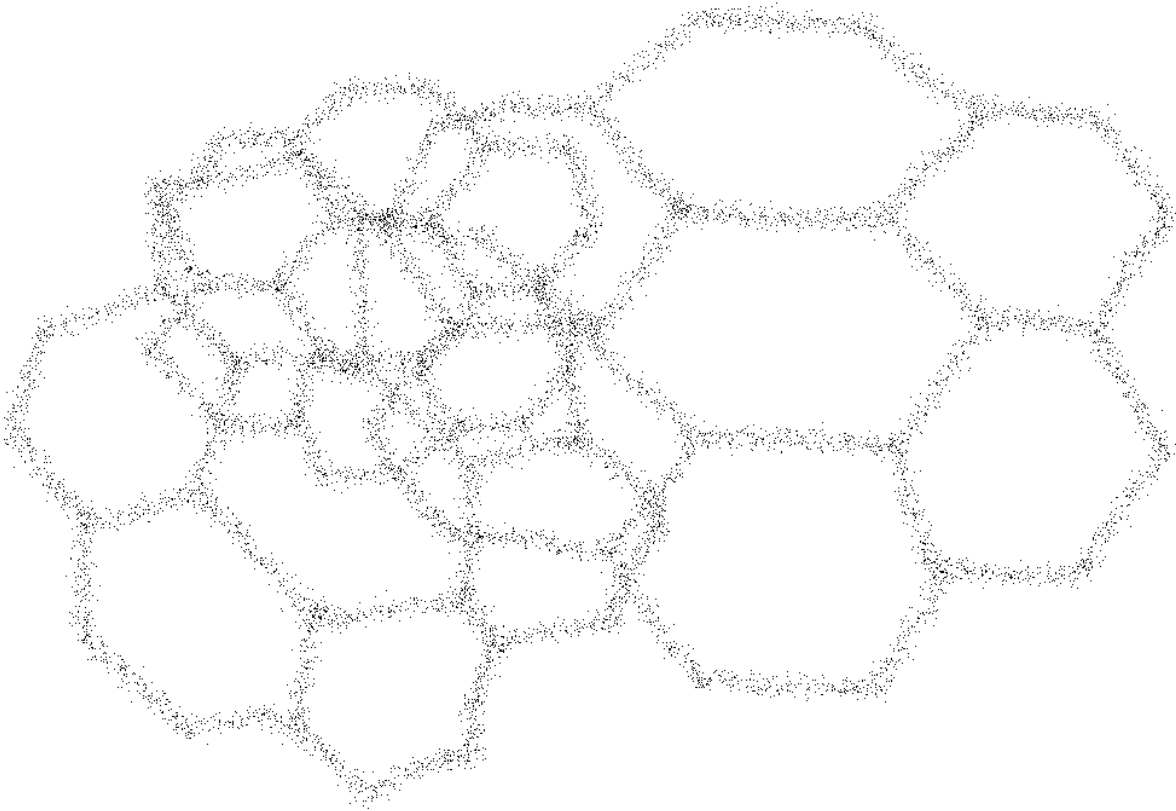


Figure 1: the original image.

The following two pages show the results of the program.

The results of the program

The program successfully finds the three tessellations. Figure 2 shows the result of the program, with one of the tessellations highlighted.

The red and blue rectangles show the lines identified by the program. The orange rectangles show the positions of the hexagons. The mauve rectangles show the bounding boxes of the tessellations. The green squares show 'dummies', marking the boundaries of the tessellations.

(Note that the program is using a slightly different grammar than in example 1. A tessellation is considered as composed of hexagons, lines and dummies. In example 1, a tessellation was considered as composed of lines and dummies.)

The black arrows mark the lines, hexagons and dummies that are parts of one tessellation. The black discs indicate the connections between the parts (as specified by the grammar).

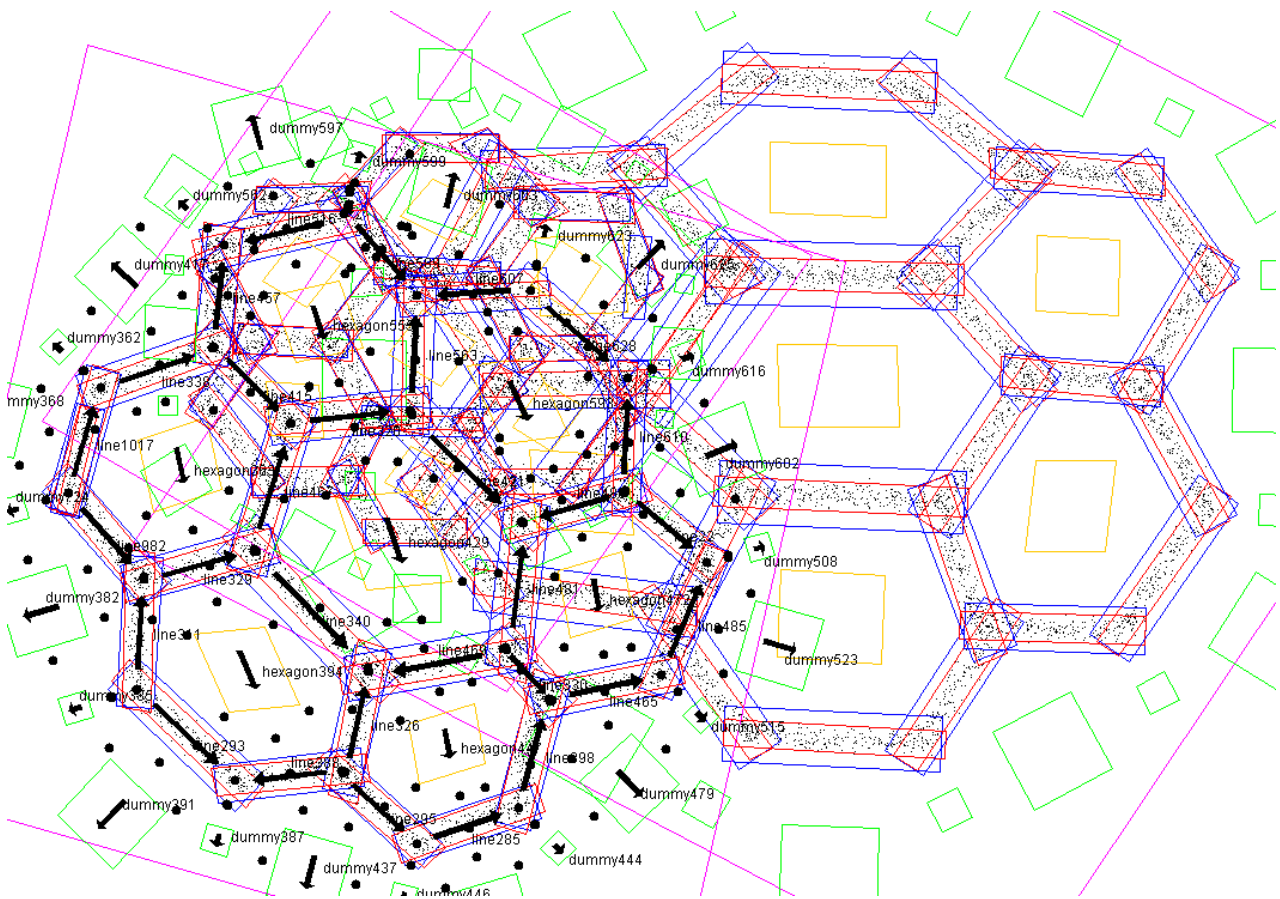


Figure 2: one of the hexagonal tessellations found by the program.

Figures 3 and 4 show the result of the same run of the program, but with the other two tessellations highlighted.

