

Recognising Geometric Patterns - Example 1

The problem

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

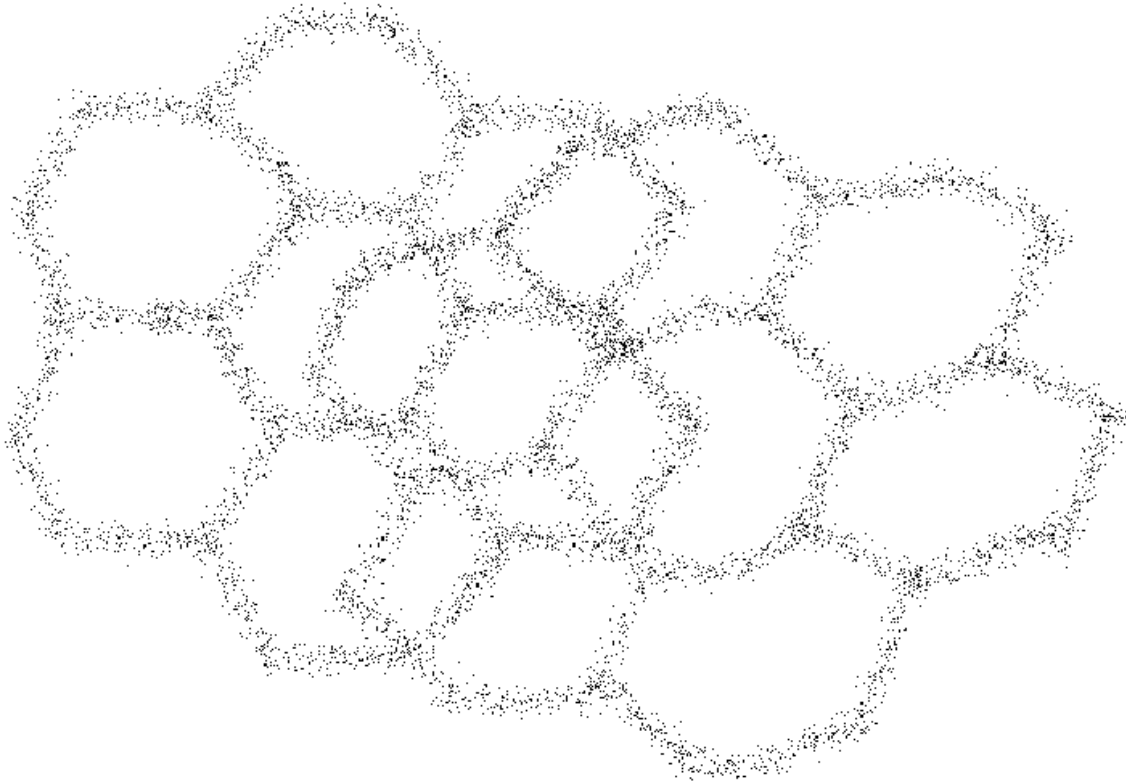


Figure 1: the original image.

The following two pages show the results of the program.

The results of the program

The program successfully finds the two 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 bounding boxes of the two tessellations. The green squares show 'dummies', marking the boundaries of the tessellations.

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

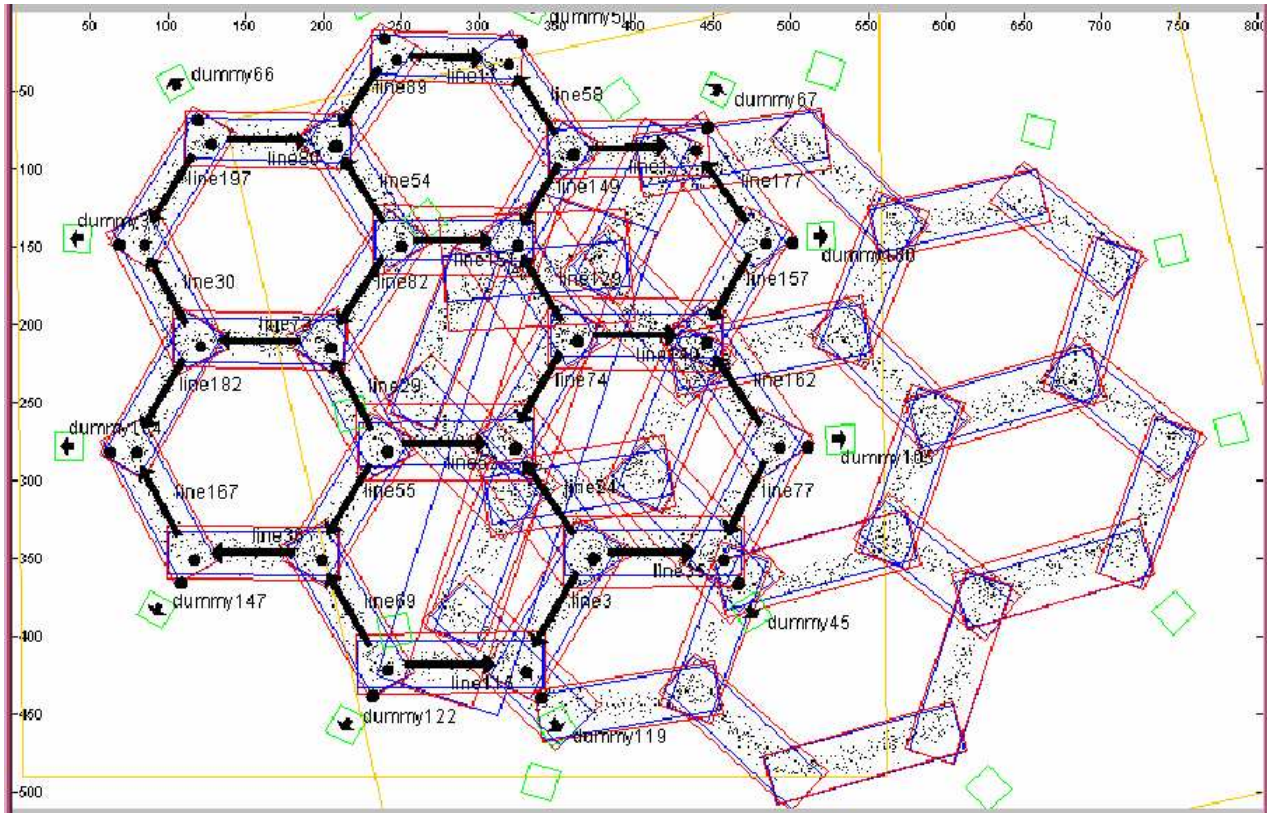


Figure 2: one of the hexagonal tessellations found by the program.

See the next page for the other tessellation.

Figure 3 shows the result of the same run of the program, but with the other tessellation highlighted. The figure is identical to figure 2 except that the black arrows mark the parts of the other tessellation, and the black discs indicate the connections between the parts.

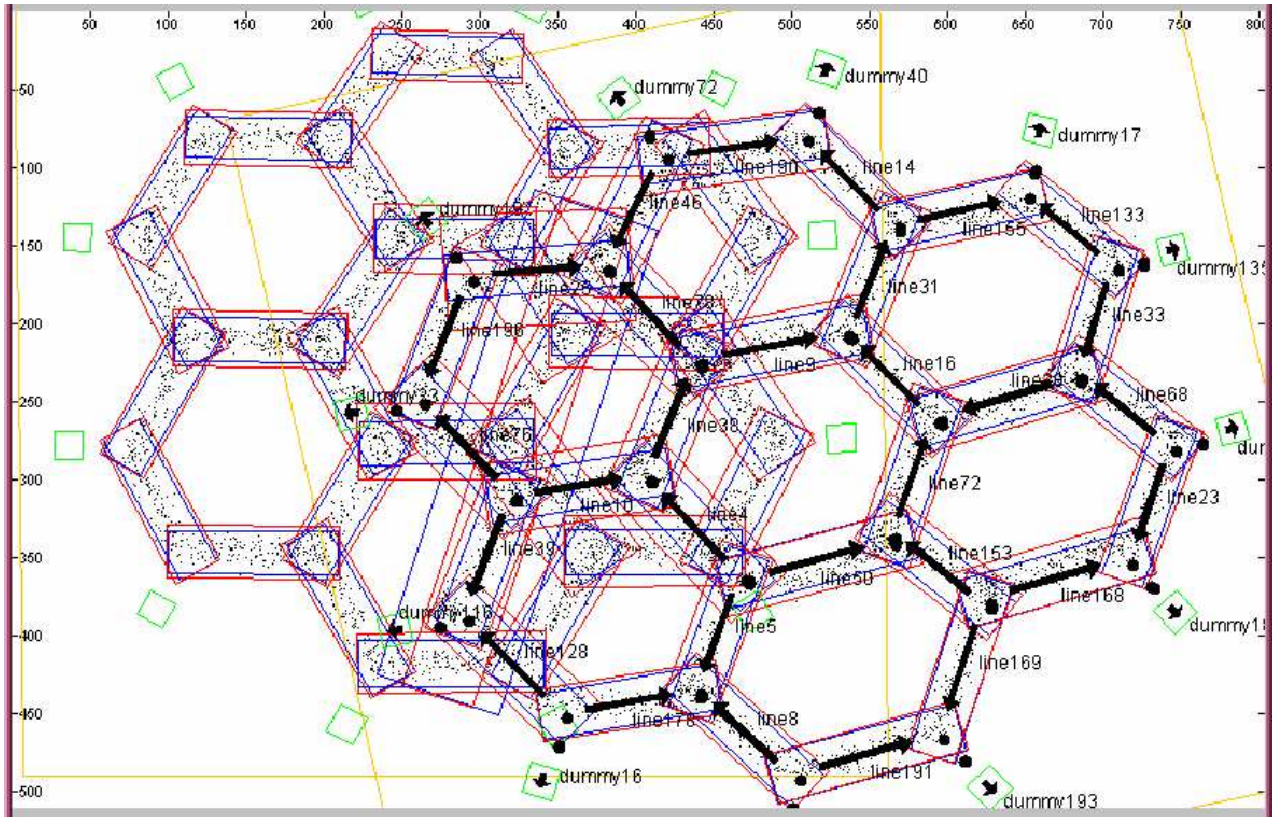


Figure 3: the other hexagonal tessellation found by the program.

Peter Fletcher, 23rd March 2006.