

# Recognising Geometric Patterns - Example 5

Peter Fletcher, 14th December 2007.

## The problem

Figure 1 shows an image containing a hexagonal tessellations overlapping with five squares. The task of the program is to recognise the tessellation and the squares.

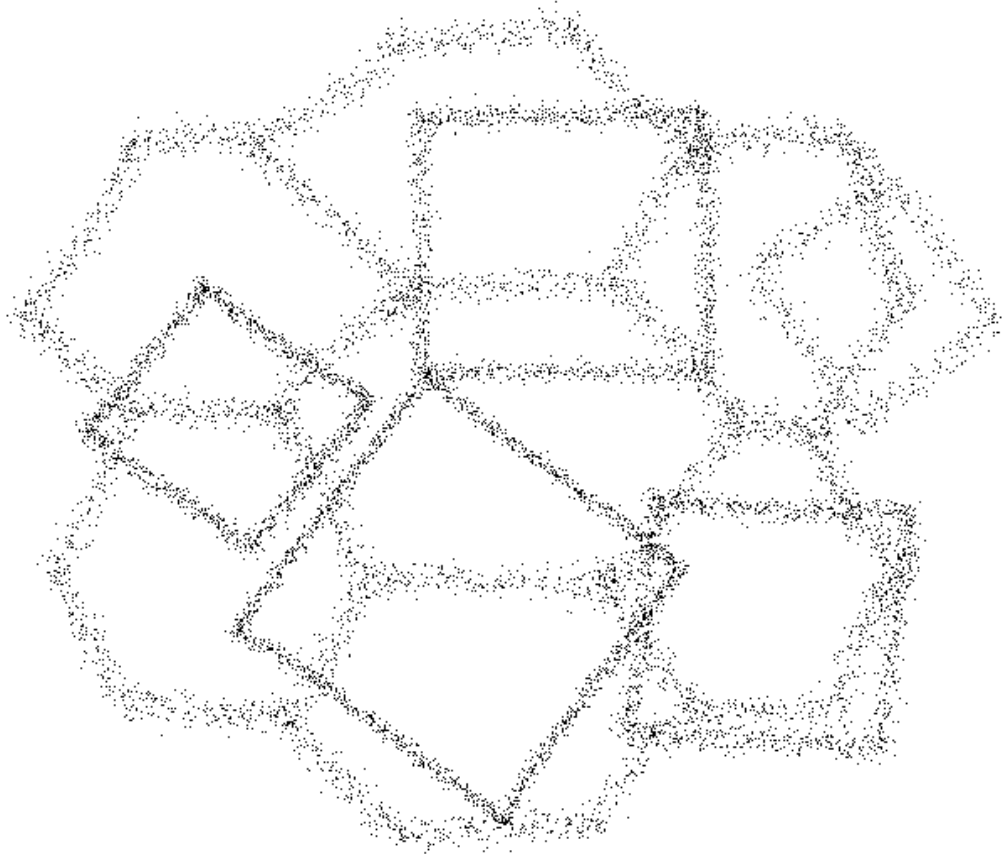


Figure 1: the original image.

The following pages show the results of the program.

## The results of the program

The program successfully finds the tessellation and the squares. Figure 2 shows the result of the program, with the tessellation highlighted.

The red and blue rectangles show the lines identified by the program. The orange rectangles show the positions of the hexagons. The mauve rectangle shows the bounding box of the tessellation. The green squares show 'dummies', marking the boundary of the tessellation. The light blue rectangles show the bounding boxes of the squares.

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

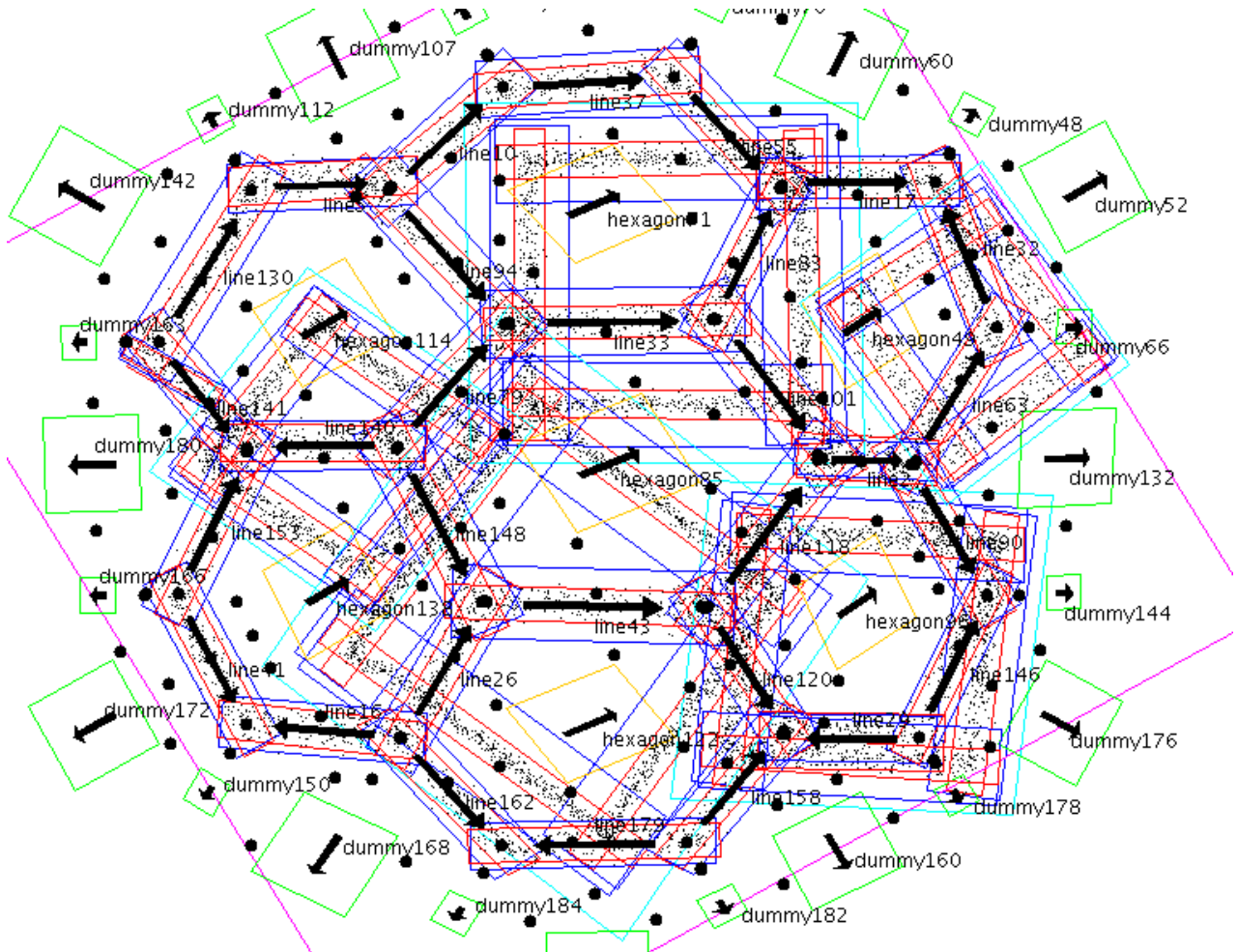


Figure 2: the hexagonal tessellation found by the program.

Figures 3, 4, 5, 6 and 7 show the result of the same run of the program, but with each of the squares highlighted.

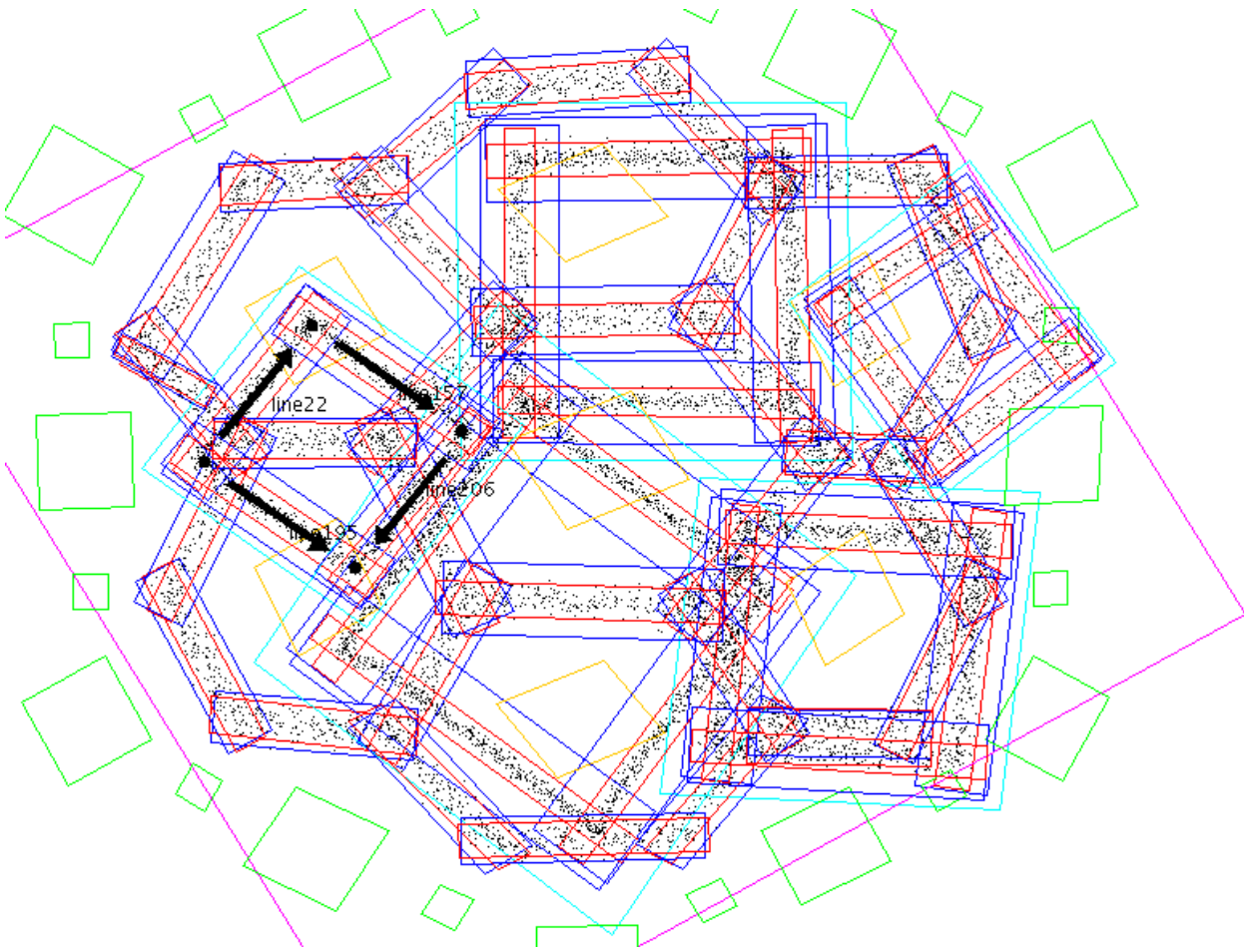


Figure 3: one square found by the program.

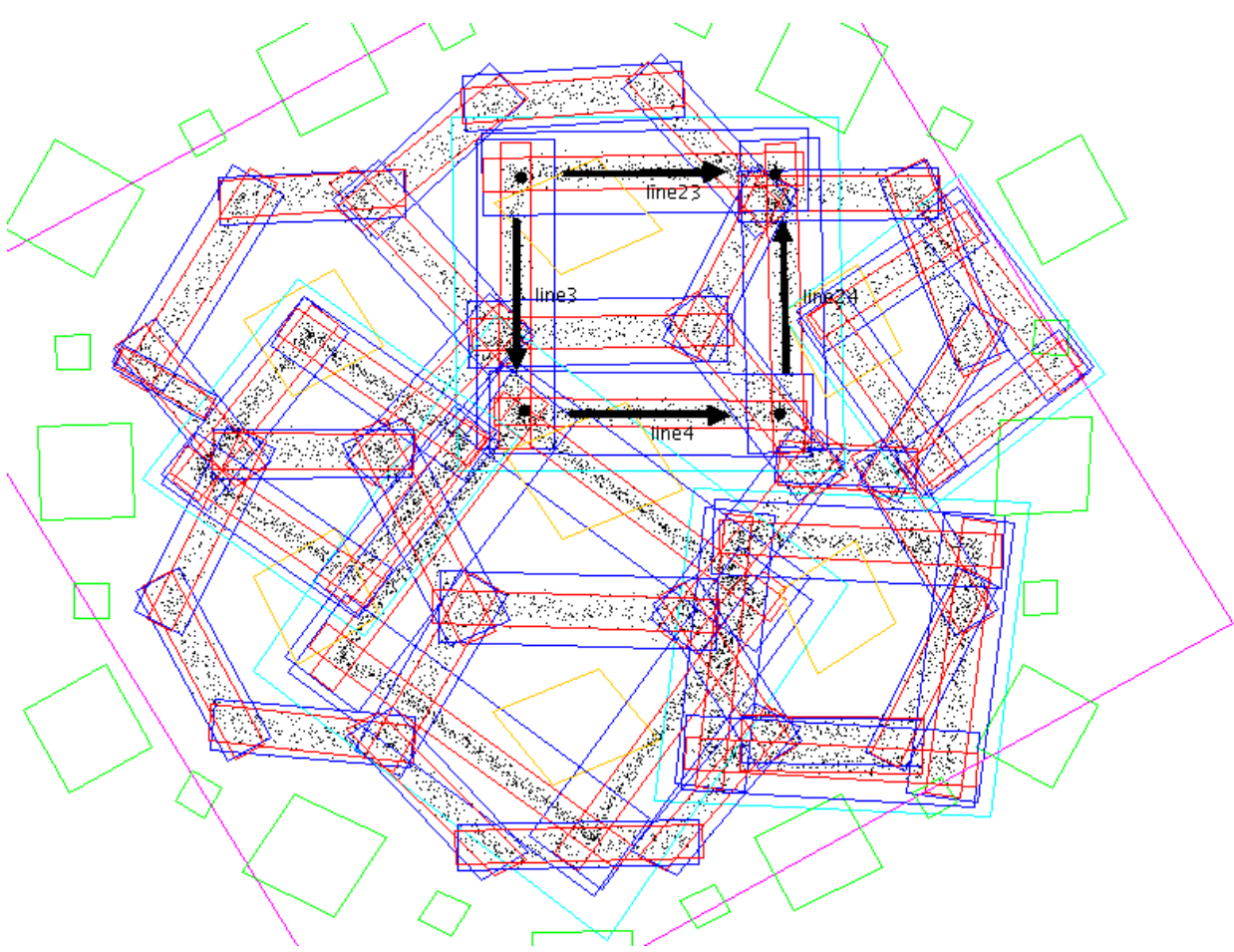


Figure 4: another square found by the program.

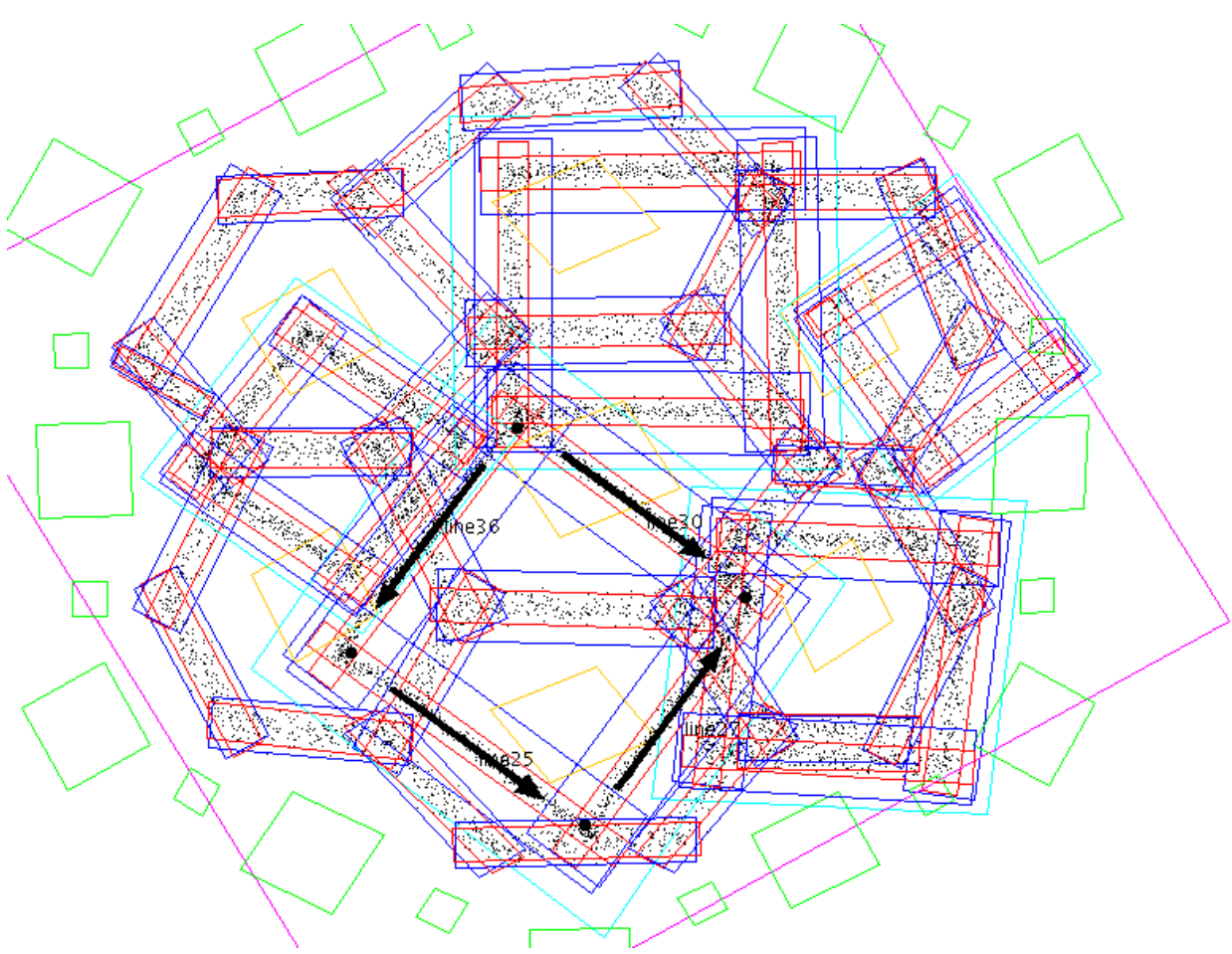


Figure 5: a third square found by the program.



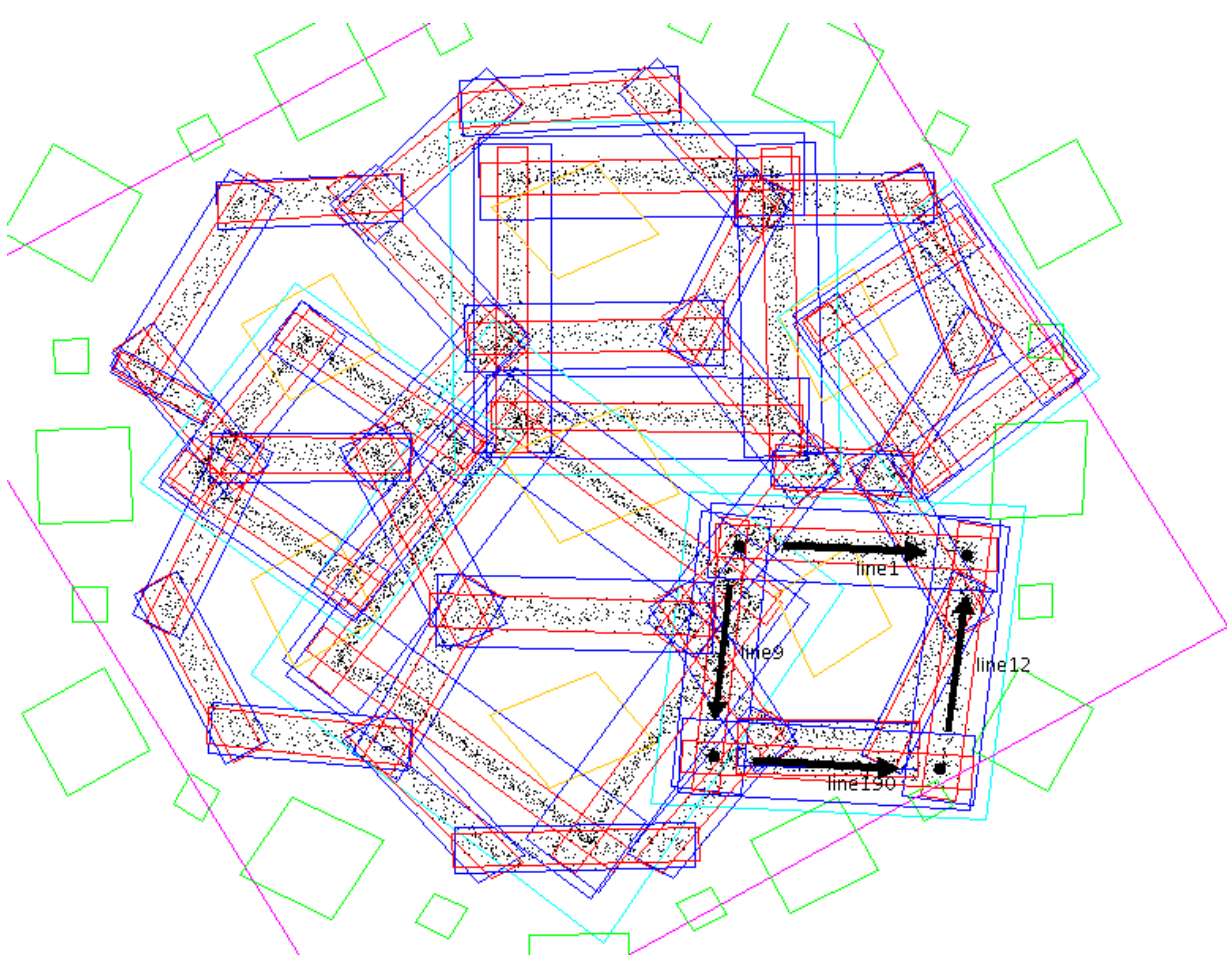


Figure 6: a fourth square found by the program.

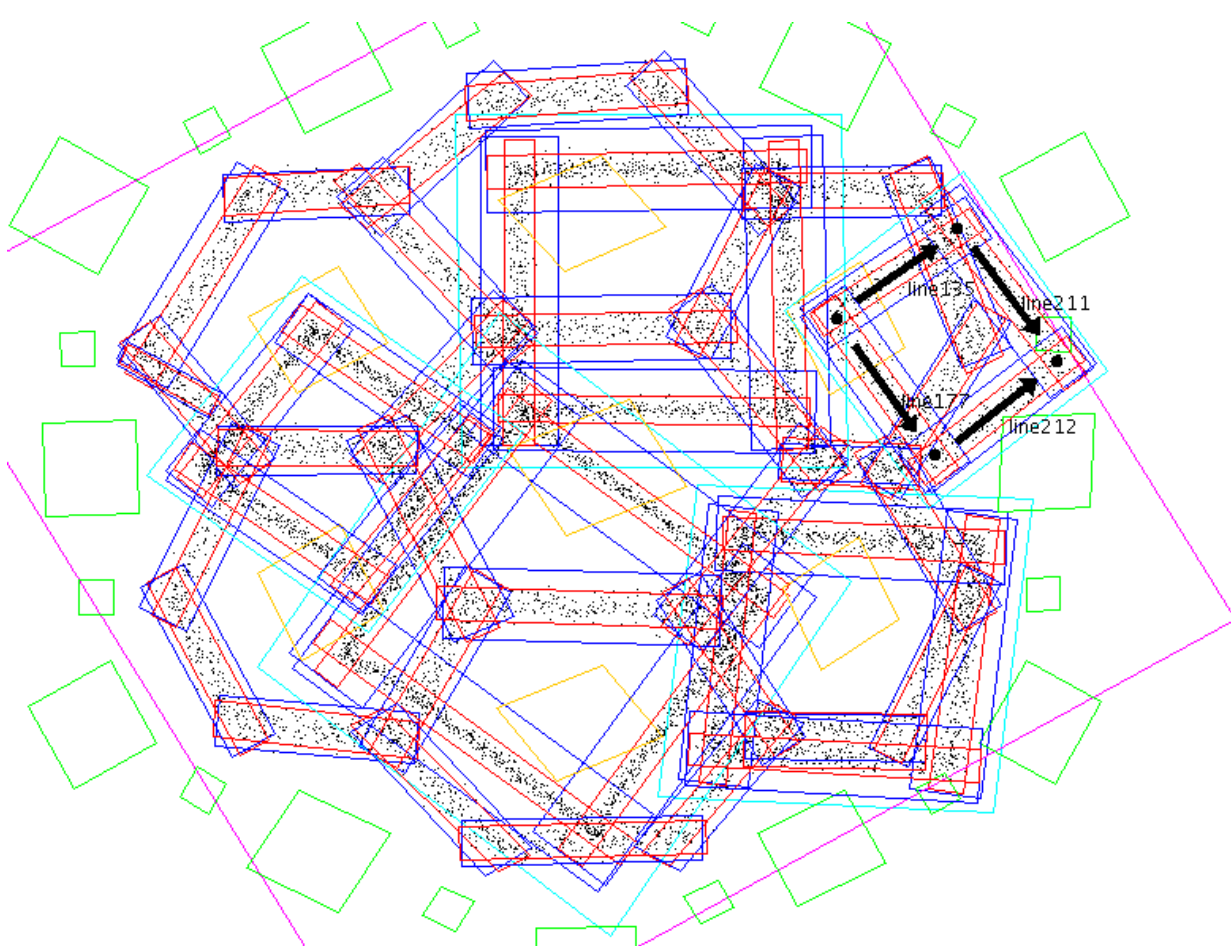


Figure 7: a fifth square found by the program.