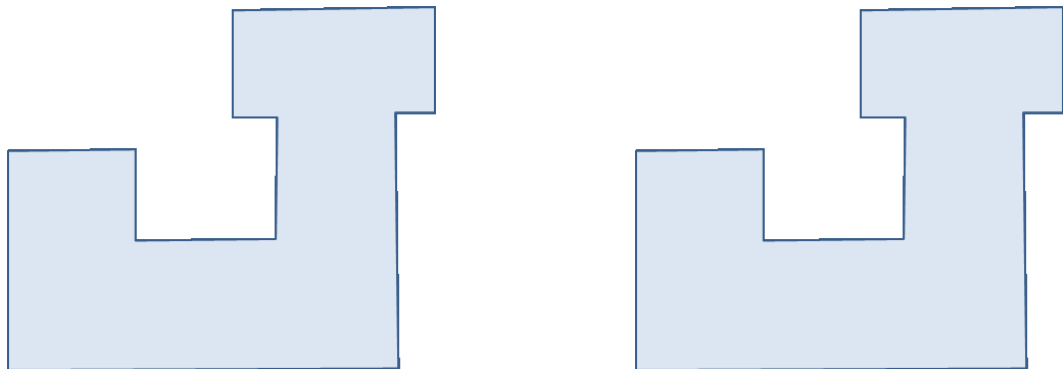


## Exercises for Spatial Databases and GIS

### Sheet 4 (until 02.12.2011)

#### Exercise 1 (Label Placement within Polygons)

1. Try to determine a baseline for label placement within the given polygon using
  - a) the Schoppmeyer/Heisser procedure
  - b) the Petzold/Plümer procedure



2. What problems arise? How could you change the algorithms so that you will find an appropriate baseline?

#### Exercise 2 (Spatial Queries and Core SQL)

Give one SQL-Statement that retrieves the point having the shortest distance to the straight line with id 1 given the relations below:

POINT( id : integer, x : double, y : double)

LINE( id : integer, xStart : double, yStart : double, m : double, b : double, xEnd : double, yEnd : double)

m and b are the values for the equation:  $y = mx + b$

### Exercise 3 (Overlay Operations)

Which geometry type(s) does the result of the following operations have?

1. Intersection of two lines
2. Intersection of a point and a polygon
3. Subtraction of a line from a polygon
4. Subtraction of a point from a line
5. Union of two polygons
6. Union of a polygon and a line