## Week 6: Orthogonal segment intersection

The problem: Given a set S of n segments in the plane, find all their pairwise intersections.

## **Class work**

1. **Output size:** As usual, we denote by k the size of the output (in this case, the number of intersections). Give an upper bound and lower bound for k and draw examples that illustrate these bounds.

2. When is the naive algorithm efficient? When is the naive algorithm inneficient (on what sorts of inputs)?



## Consider the set S of 6 segments shown in the picture below.

Simulate the algorithm for finding the intersections of S: Show the events in order in which they are processed, the operations they trigger, and the active structure (AS). If the operation is a RangeSearch, list the intersections found.

Event	Operation triggered	AS
initially		\$
c.start	INSERT ( c )	{c}