

# Geometric Intersection

Detecting Intersection Between Convex Polygons

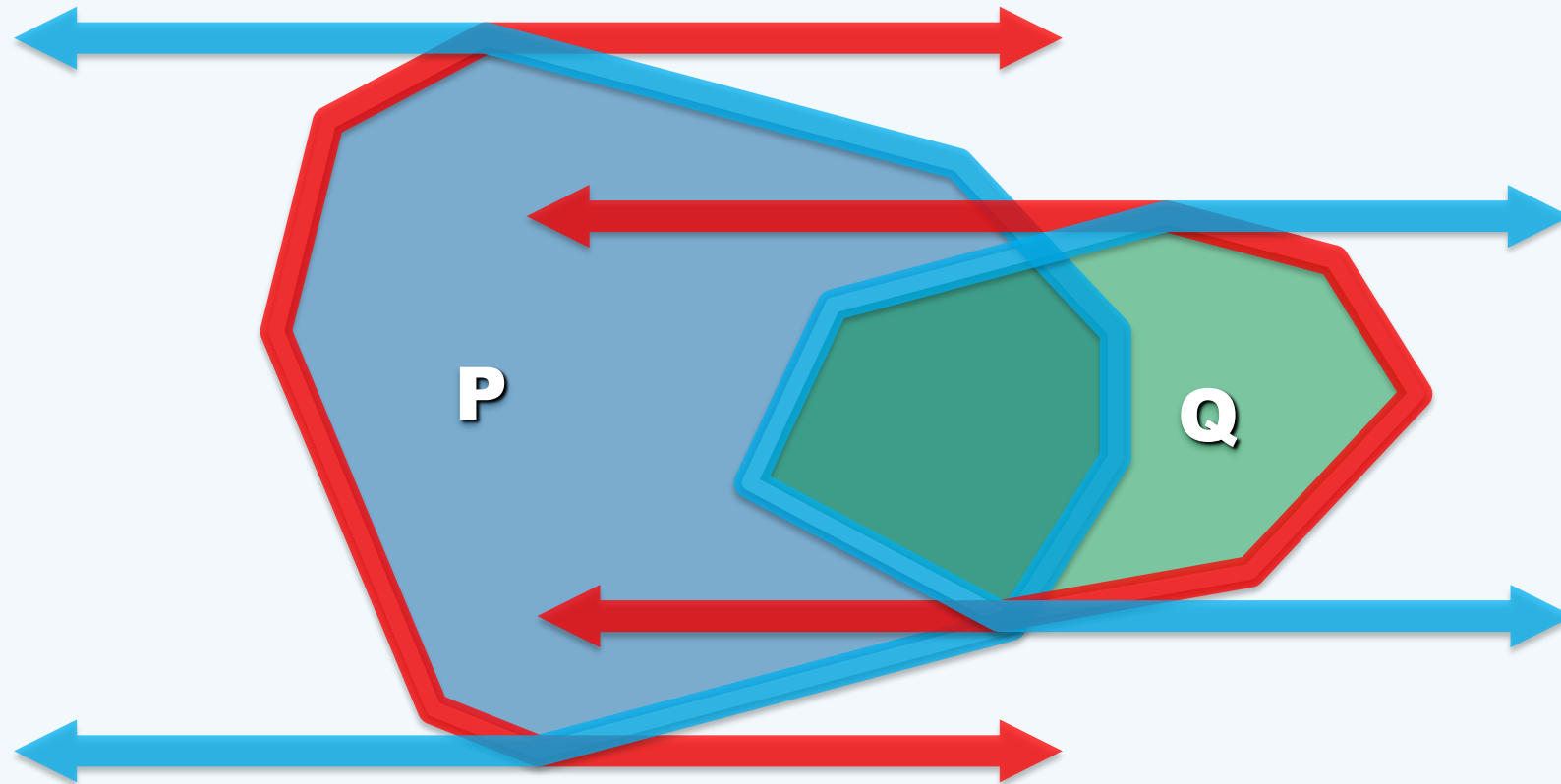
- Decrease-And-Conquer

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## Data Structure

- ❖ To apply a (variant of) **binary search** on the chains,  
we store each semi-infinite convex chain in a **sorted array**



## Detect\_Intersection\_Between( $P_L$ , $Q_R$ )

❖ If  $\max(|P_L|, |Q_R|) < 2$

return Trivial\_Intersection(  $P_L$ ,  $Q_R$  ) //base

Let  $e_p$  /  $e_q$  = the median edge of  $P_L$  /  $Q_R$  //O(1) time

Let  $v$  = intersection of the 2 lines coinciding with  $e_p$  and  $e_q$  resp.

Determine either //by the relative positions of  $e_p$ ,  $e_q$  and  $v$

- that the polygons intersect, or //O(1) time

- that half of  $P_L$  or/and  $P_Q$  can be eliminated

from further considerations (recursion) //O(1) time