

Geometric Intersection

B0 Algorithm: Strategy

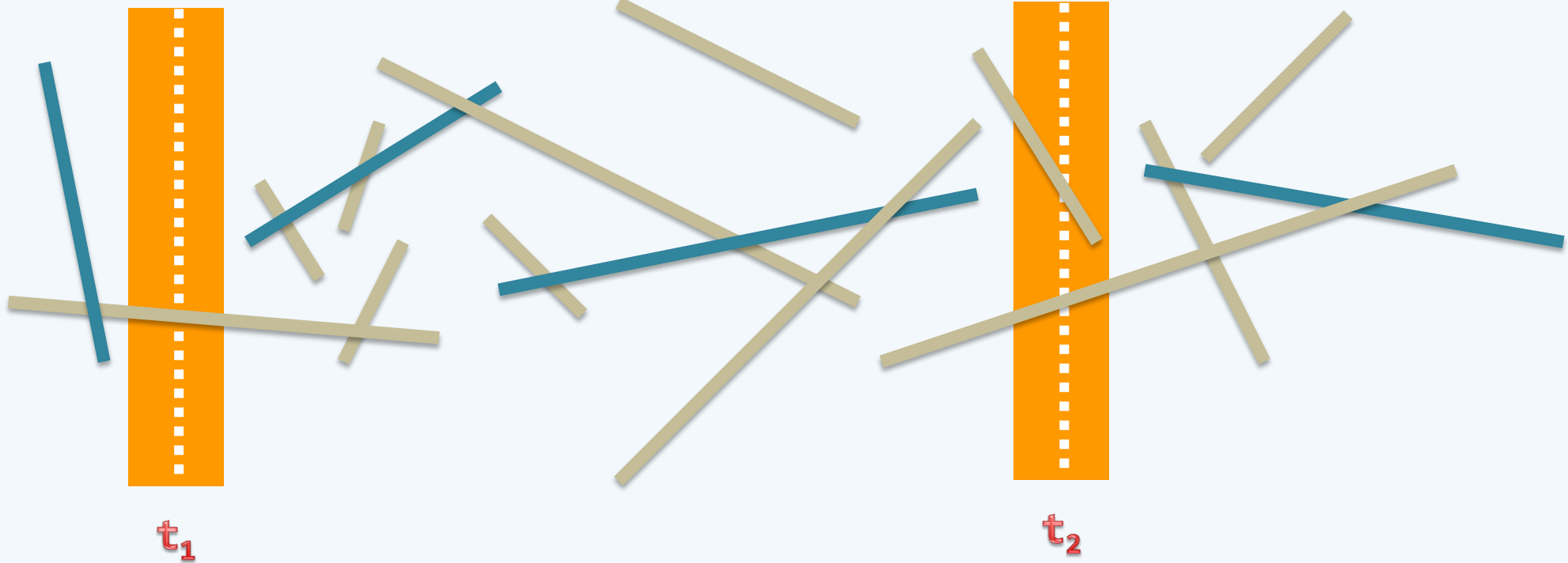
- Proximity & Separability

Junhui DENG

deng@tsinghua.edu.cn

Separability

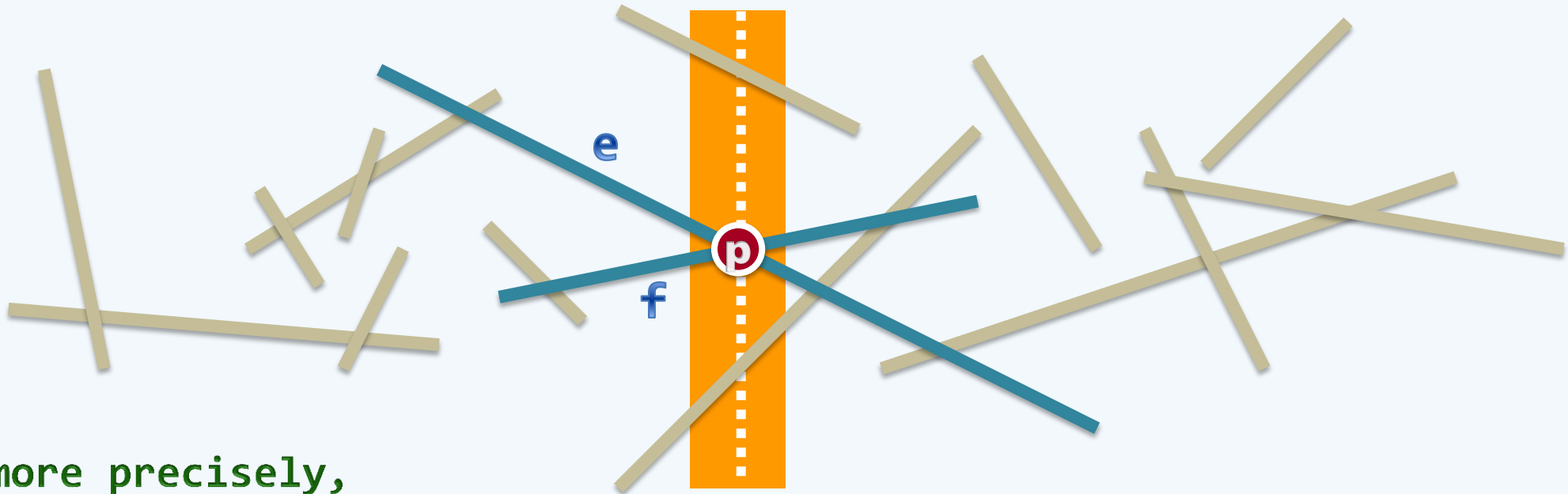
- ❖ Observe that if two segments are **vertically separable**, then they can't intersect with each other



- ❖ So, instead of testing all the segment pairs, we can now check a smaller subset ...

Proximity

❖ Only segments that are **close together** are the candidates for intersection



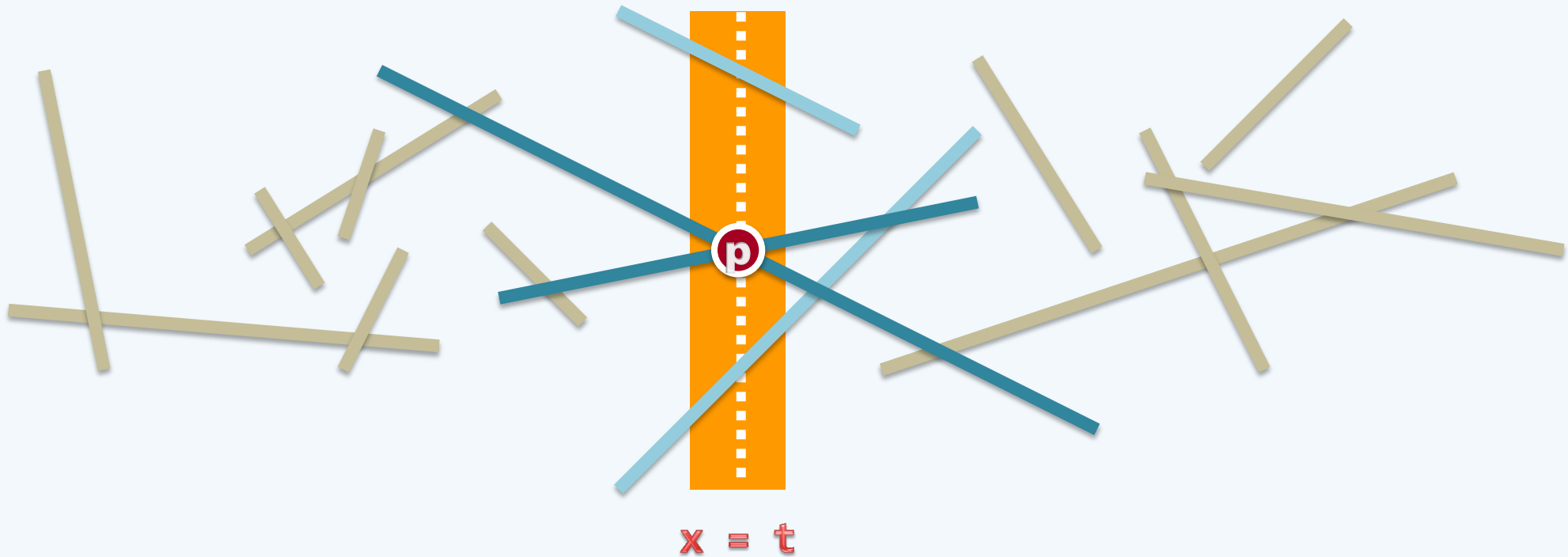
❖ Or, more precisely,

two segments intersect **only if** $x = t$

a **vertical line** intersects both them simultaneously

Plane Sweep

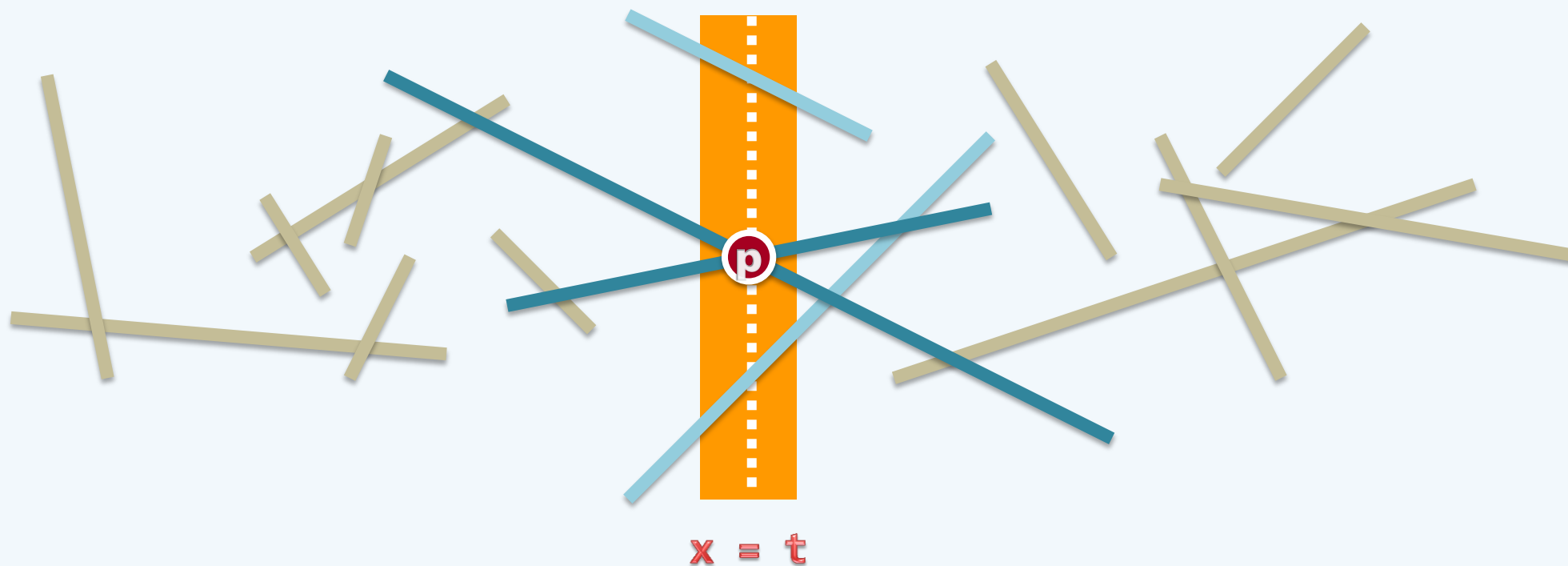
- ❖ An **imaginary** vertical line **L** sweeps across the plane



- ❖ **Only** those segments intersected with **L** should be tested for potential intersections

Plane Sweep

❖ Of course, we can't afford to do this for every vertical line



❖ The key here is that we could stop at only $O(n + I)$ positions ...