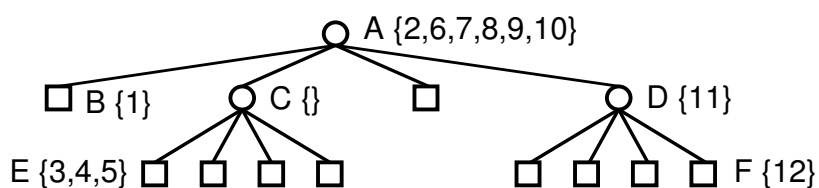
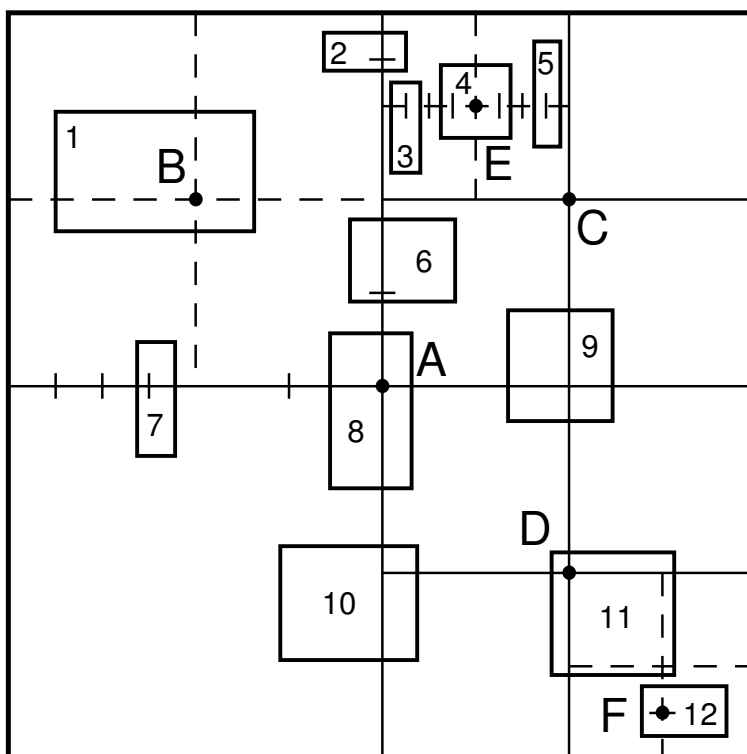


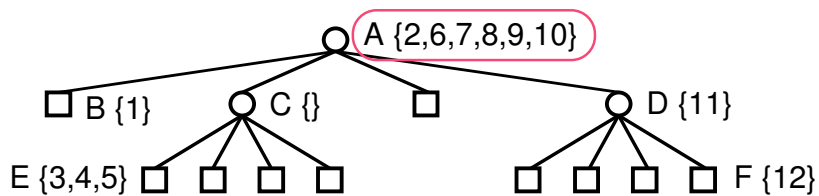
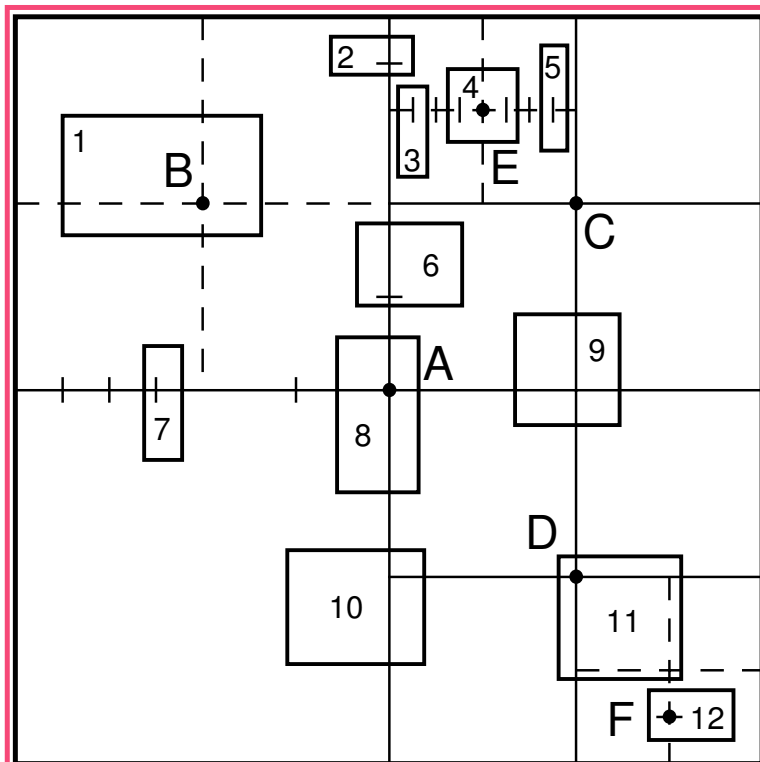
○ MX-CIF QUADTREE (Kedem)

1. Collections of small rectangles for VLSI applications
2. Each rectangle is associated with its minimum enclosing quadtree block
3. Like hashing: quadtree blocks serve as hash buckets



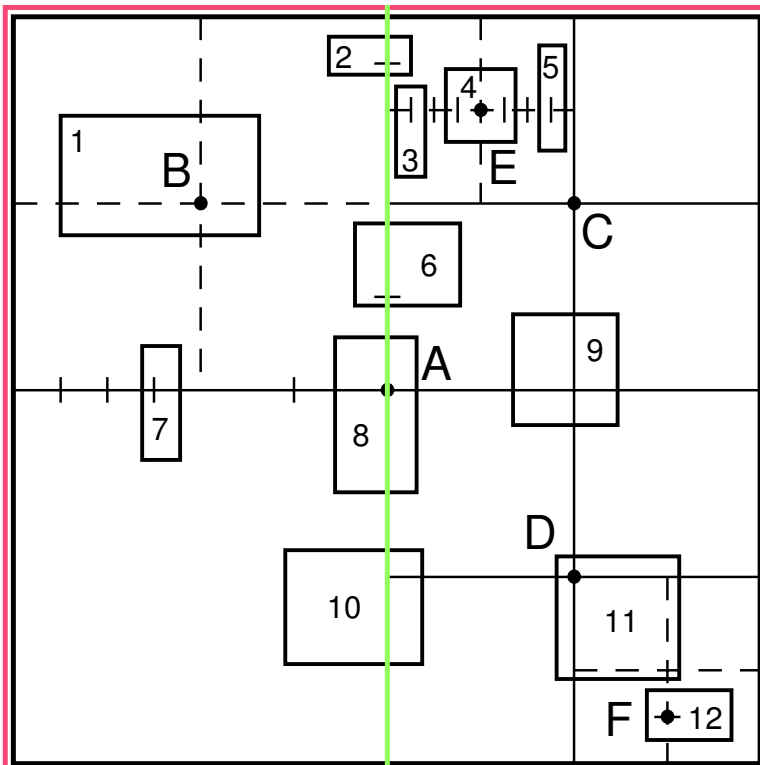
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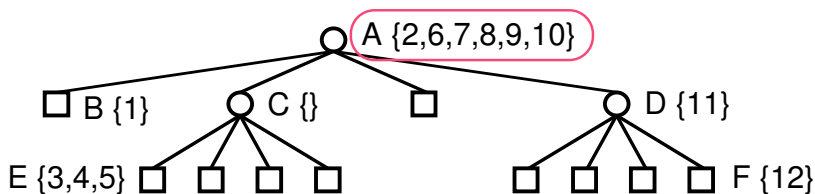
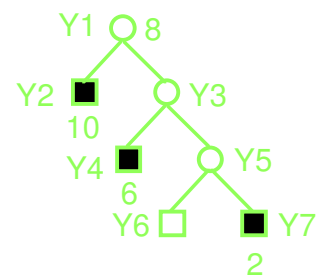


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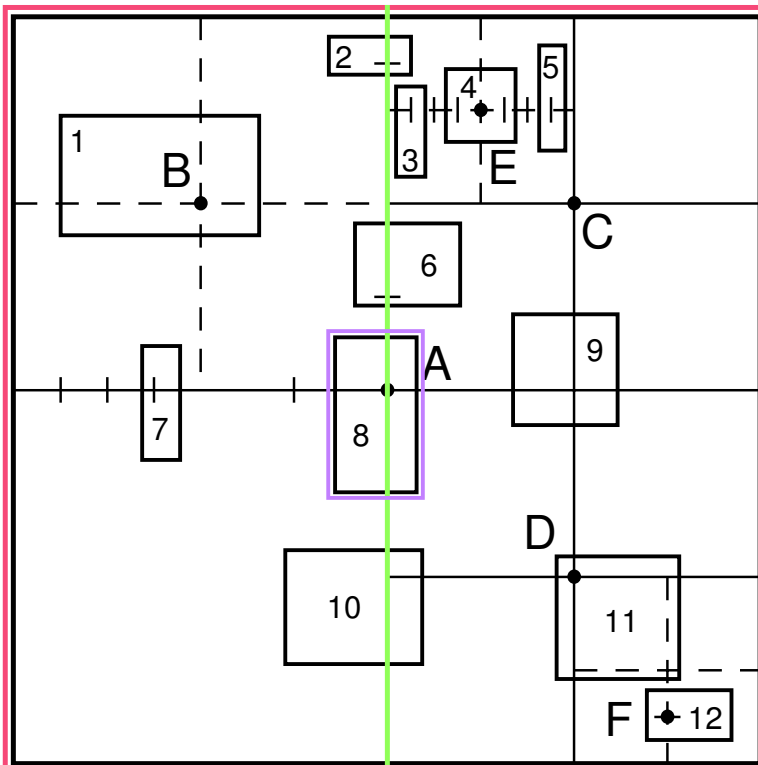


Binary tree for y-axis through A

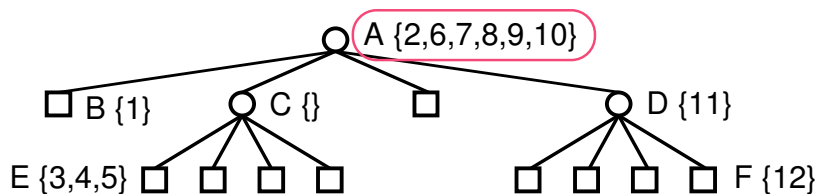
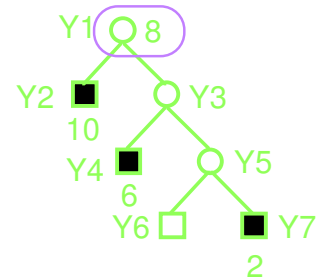


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  - if a rectangle intersects both x and y axes, then associate it with the y axis

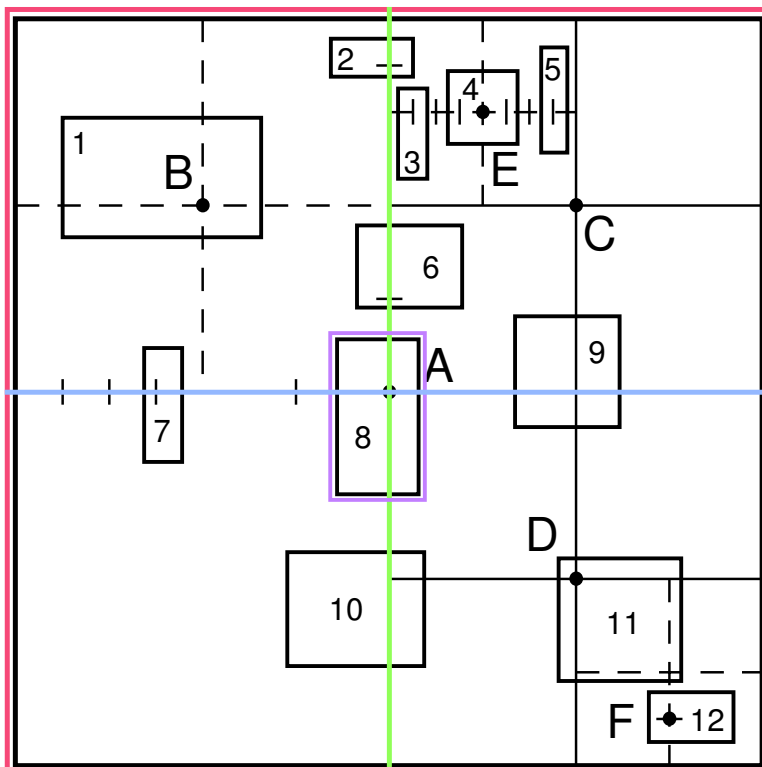


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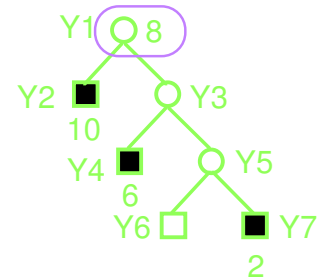


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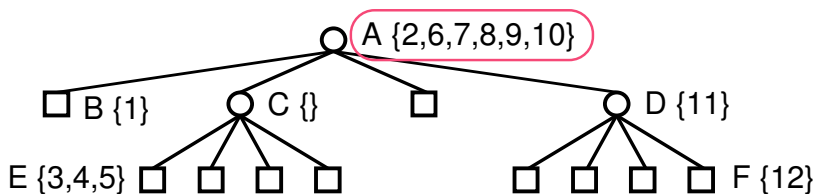
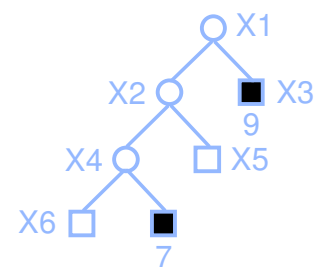
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Binary tree for y-axis through A

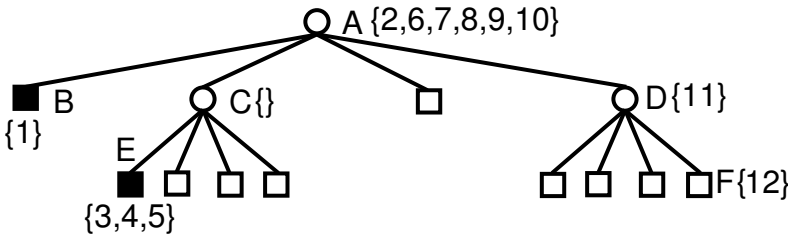
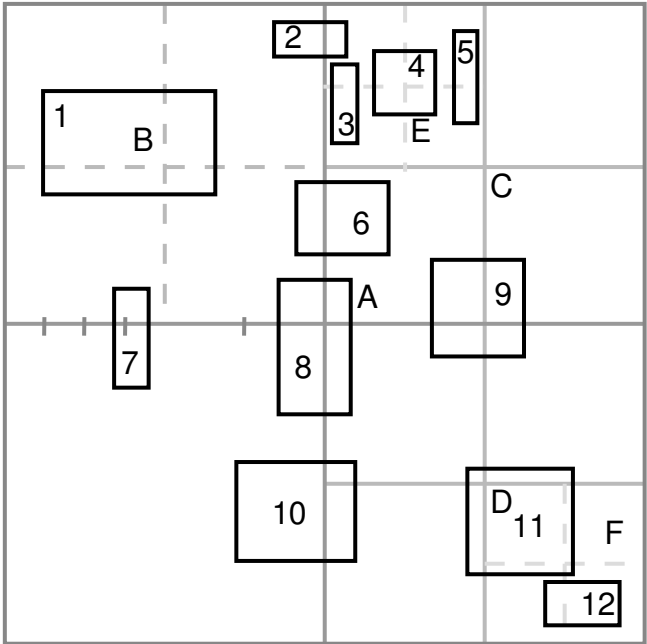


Binary tree for x-axis through A



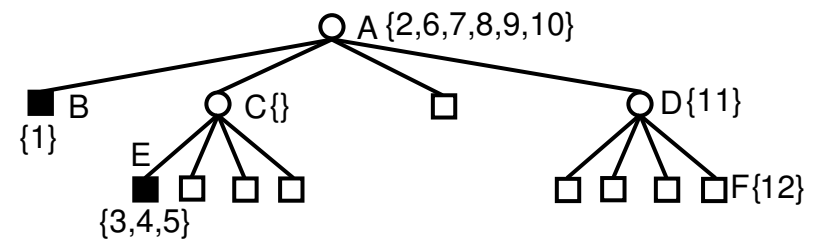
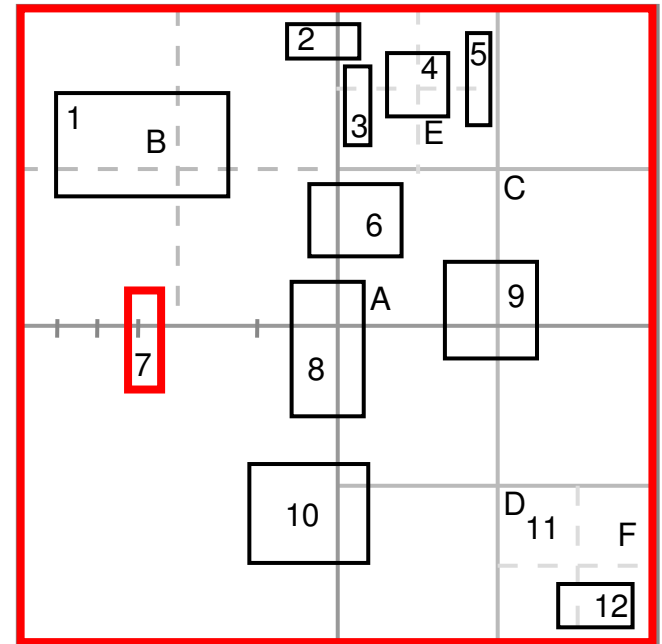
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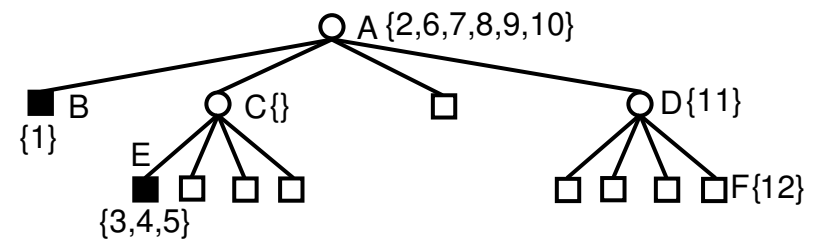
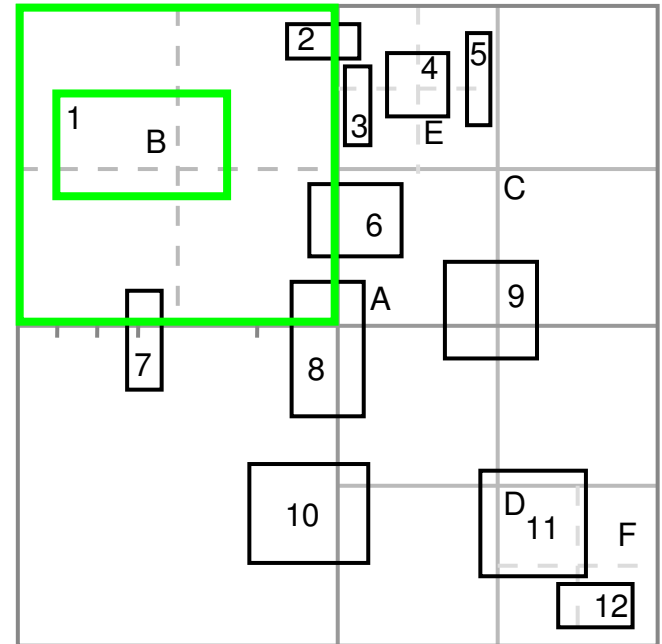
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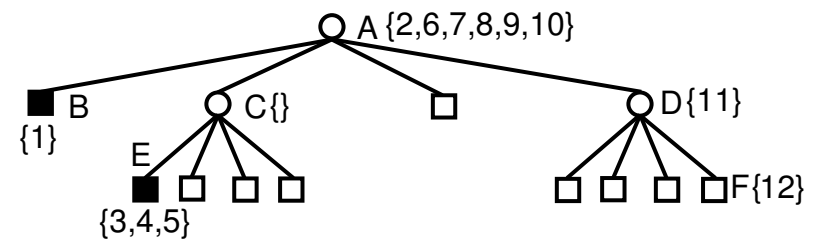
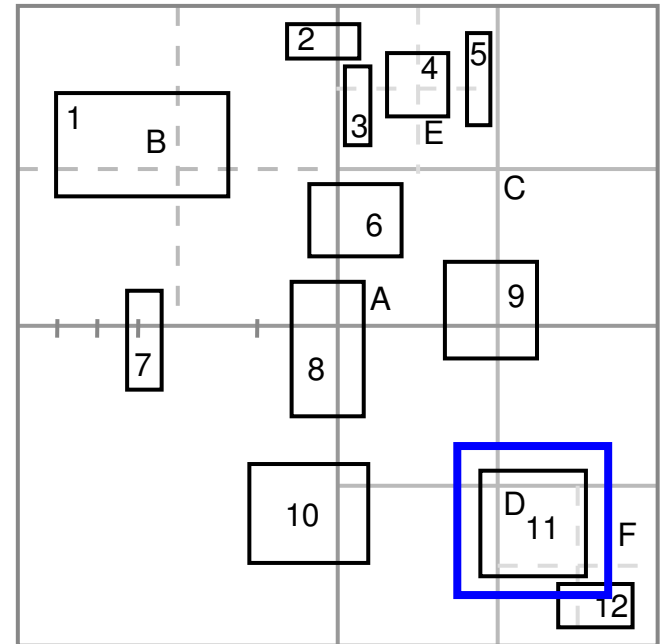
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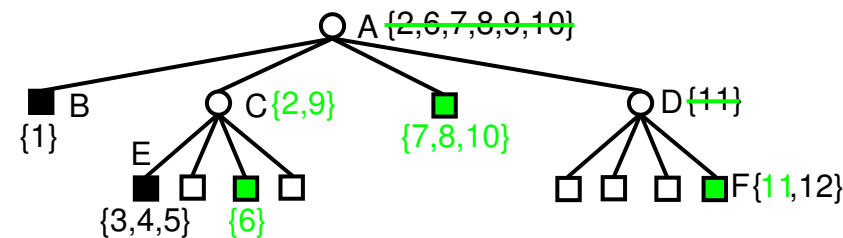
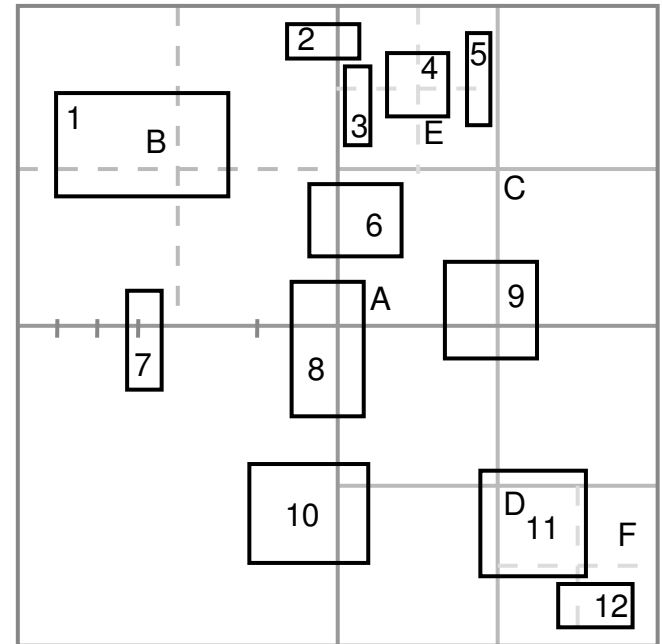
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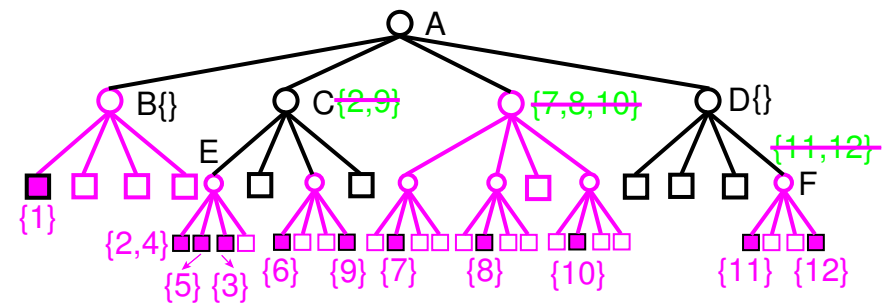
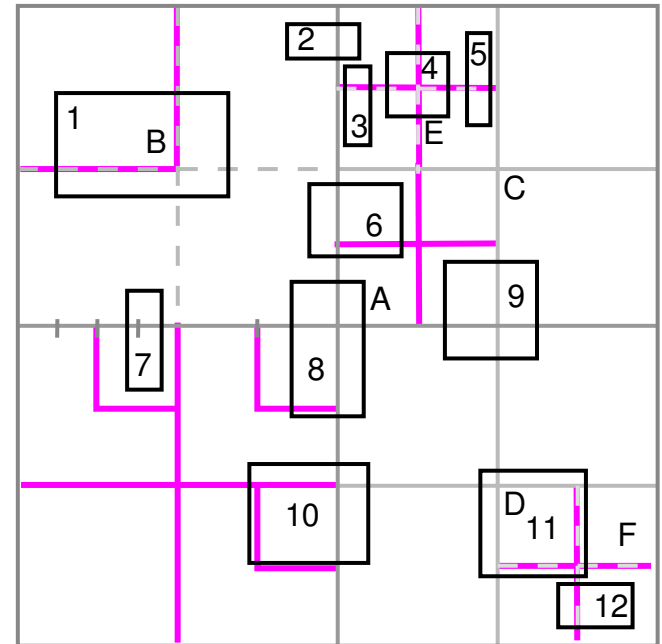
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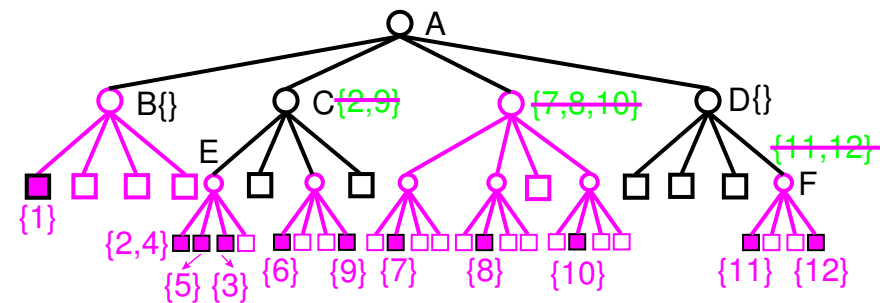
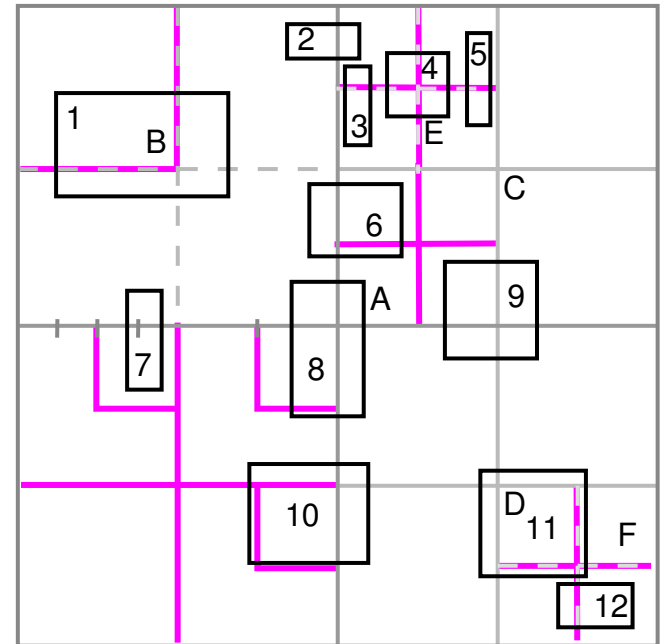
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- $p = 0.3$
- $p = 1.0$

- Maximum  $w$  (i.e., minimum depth of minimum enclosing quadtree block) is a function of  $p$  and radius  $r$  of  $o$  and independent of position of centroid of  $o$

- Range of possible ratios  $w/2r$  :  $1/(1 + p) \cdot w/2r < 2/p$
- For  $p \geq 1$ , restricting  $w$  and  $r$  to powers of 2,  $w/2r$  takes on at most 2 values and usually just 1



# Partition Fieldtree

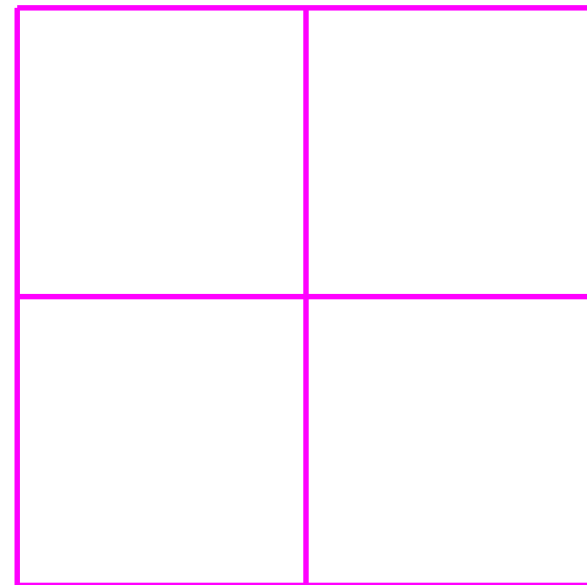
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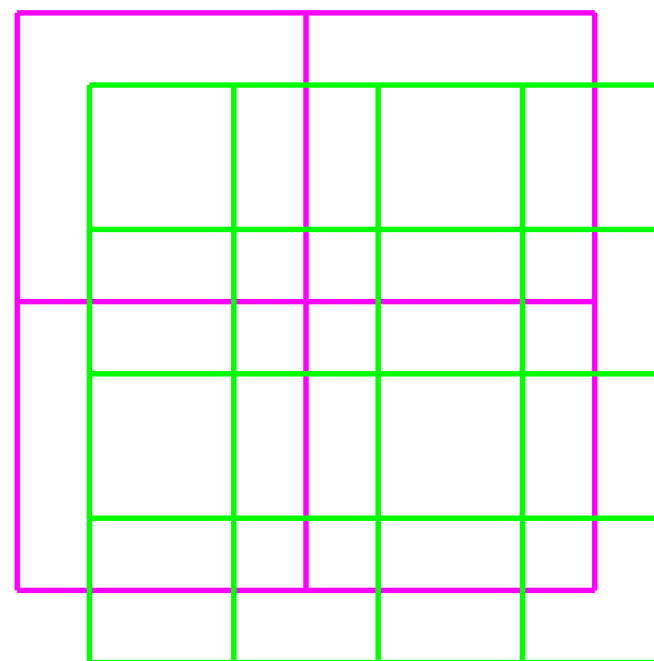
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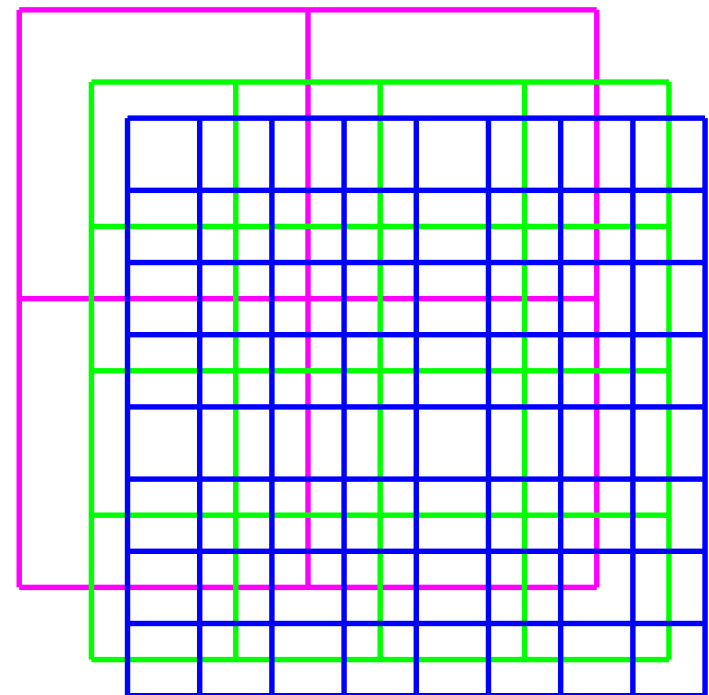
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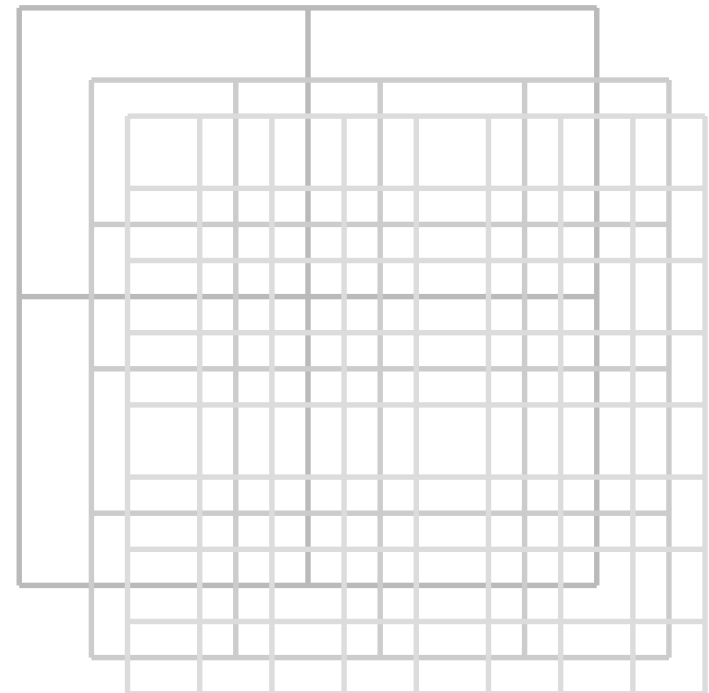
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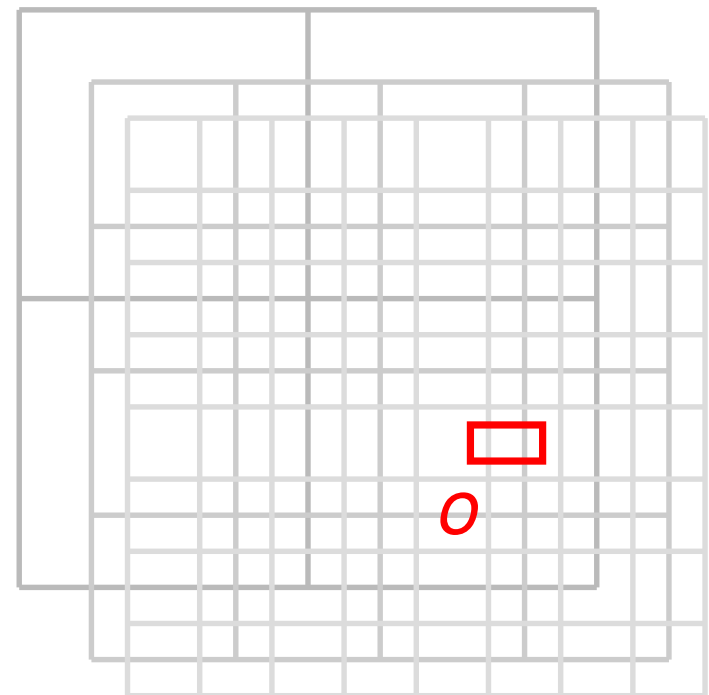
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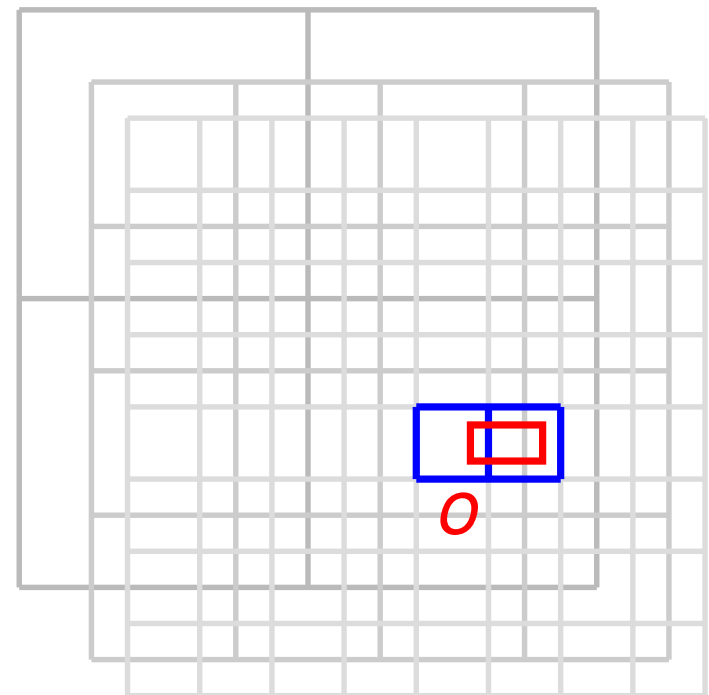
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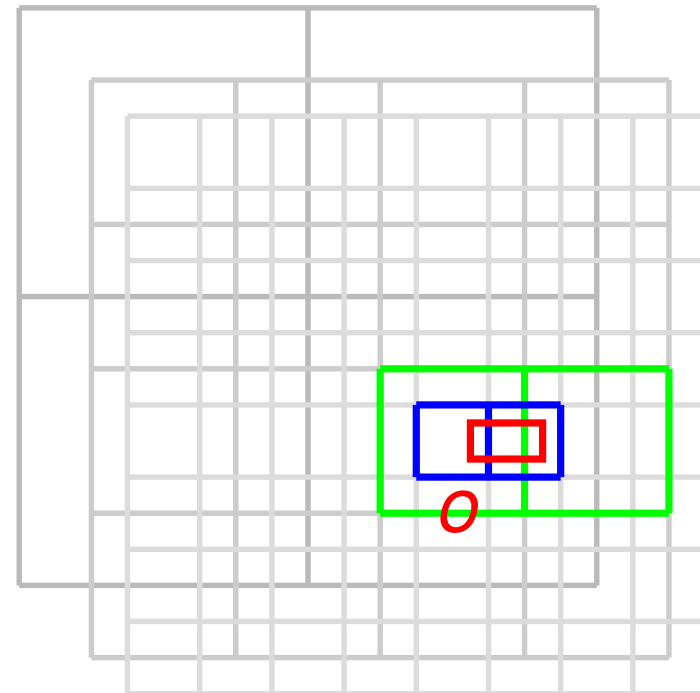
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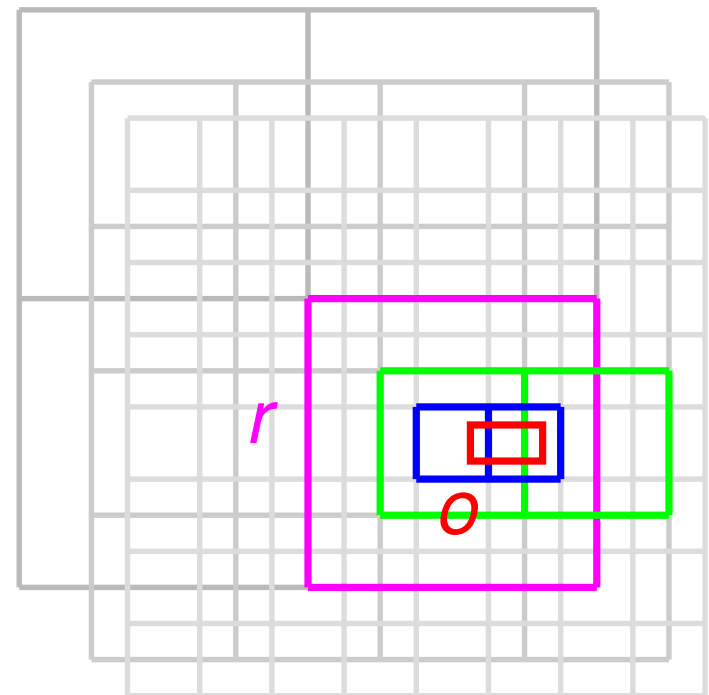
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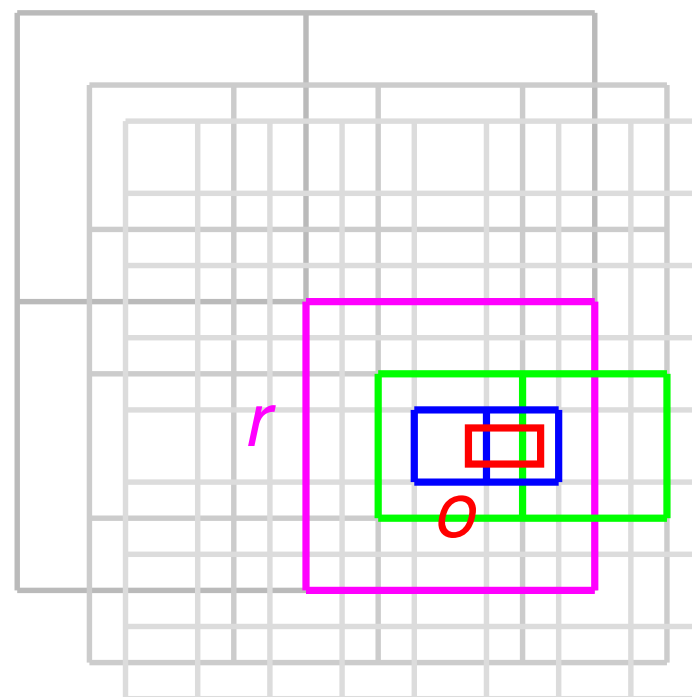
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- Summary: cover fieldtree expands the width of the quadtree blocks while the partition fieldtree shifts the positions of their centroids

