Tromino Tiling

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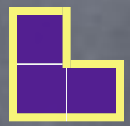

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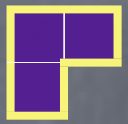

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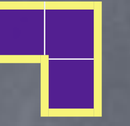

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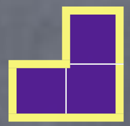

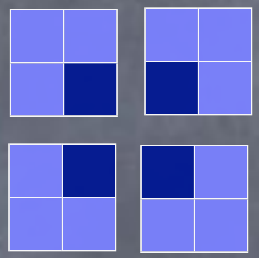

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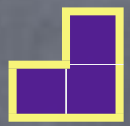

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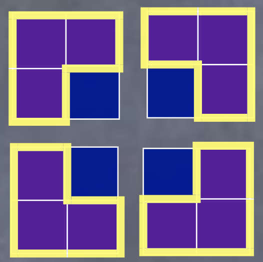

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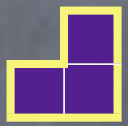

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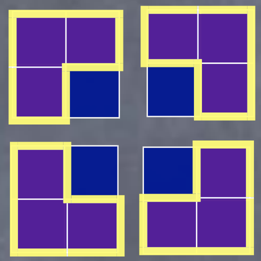

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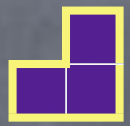

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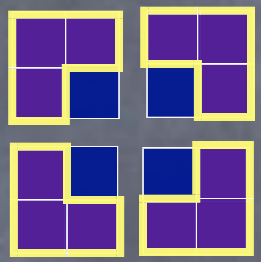

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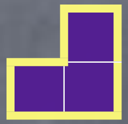

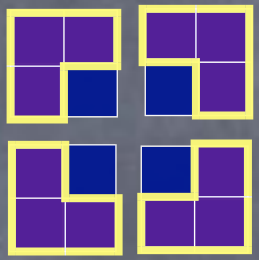

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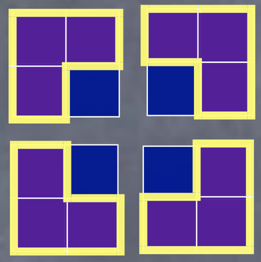

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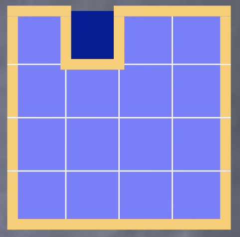

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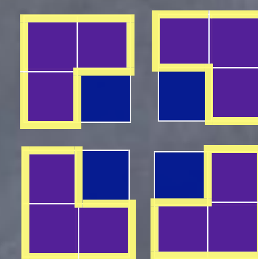

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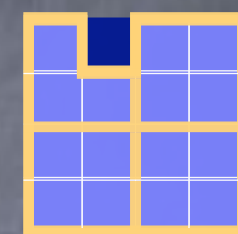

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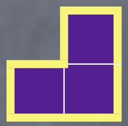

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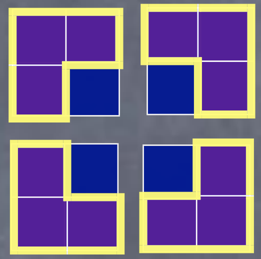

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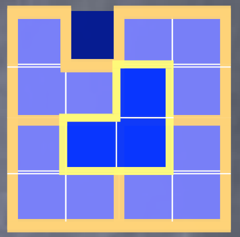

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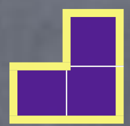

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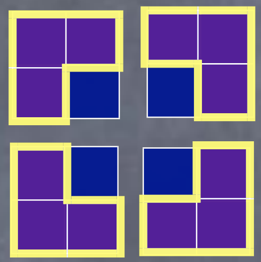

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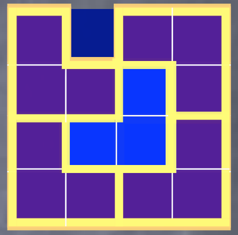

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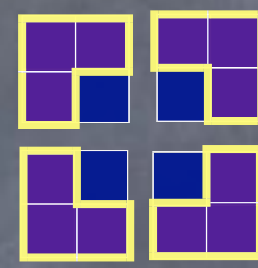

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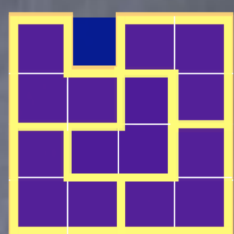

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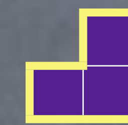

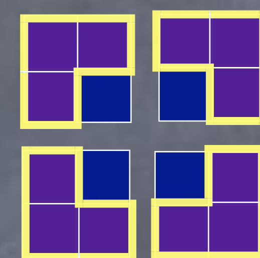

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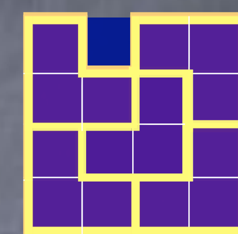

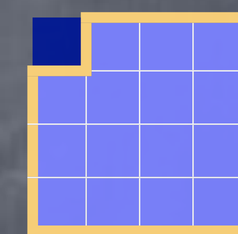

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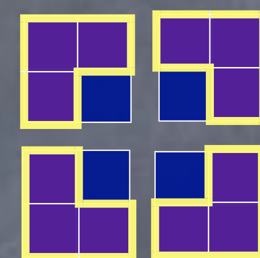

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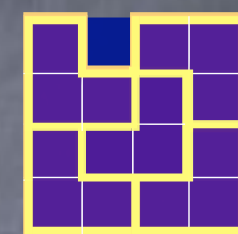

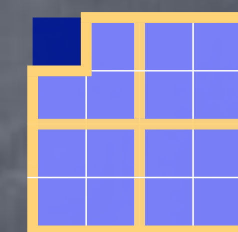

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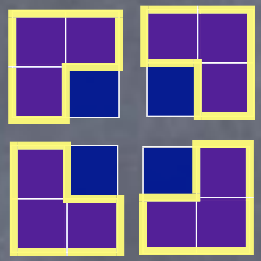

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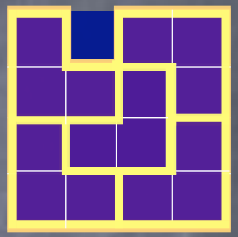

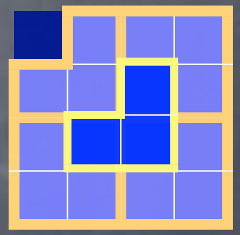

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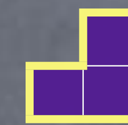

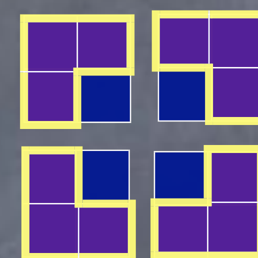

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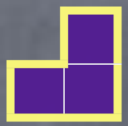

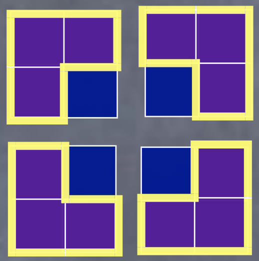

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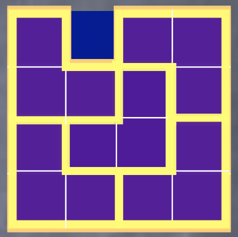

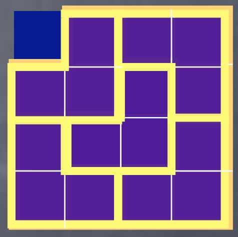

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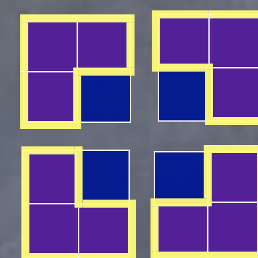

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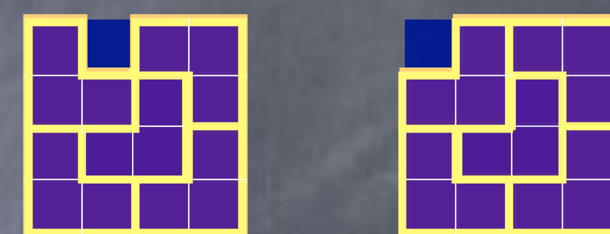

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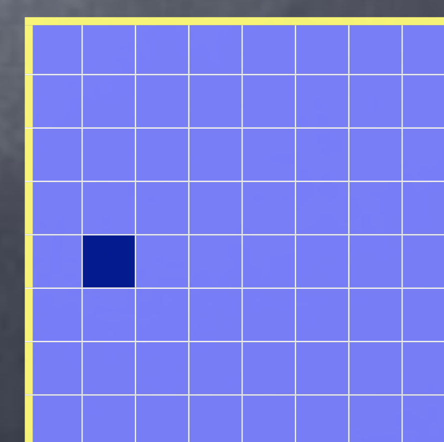

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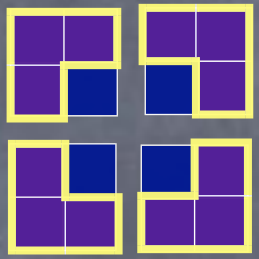

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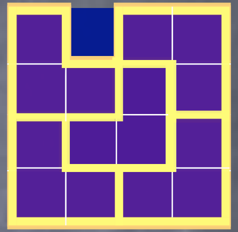

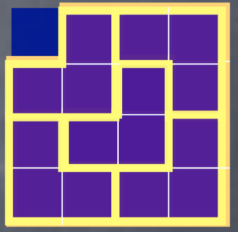

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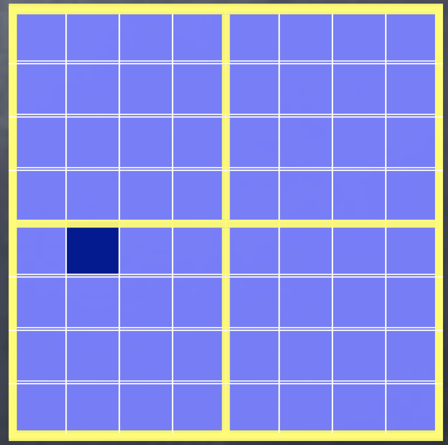

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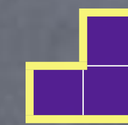
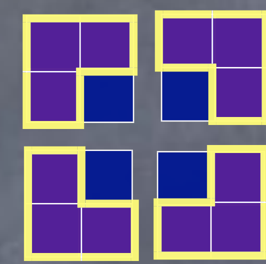
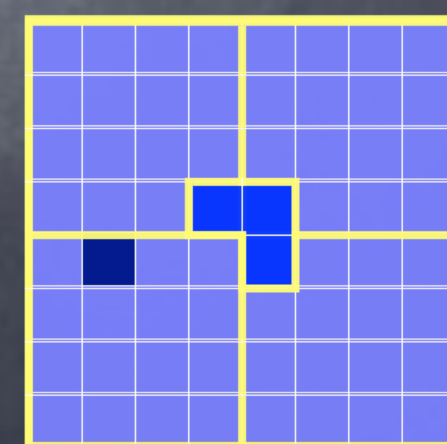




- Base case: n=1

- Inductive step: For all integers $k \geq 1$:
  <u>Hypothesis</u>: true for n=k
  <u>To prove</u>: true for n=k+1

  - Idea: can partition the $2^{k+1} \times 2^{k+1}$ punctured grid into four $2^k \times 2^k$ punctured grids, plus a tromino. Each of these can be tiled using trominoes (by inductive hypothesis).



- Actually gives a (recursive) algorithm for tiling

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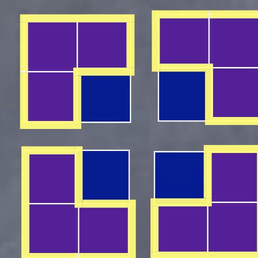

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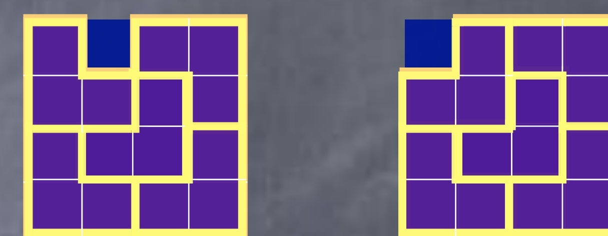

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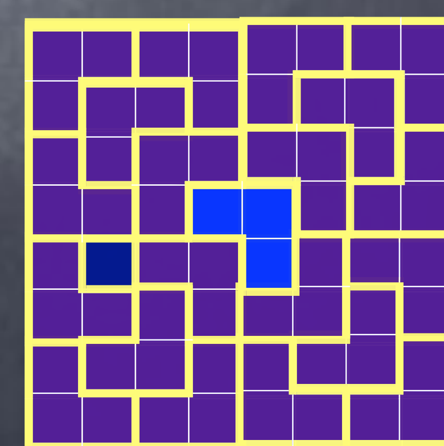

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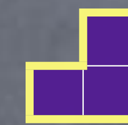

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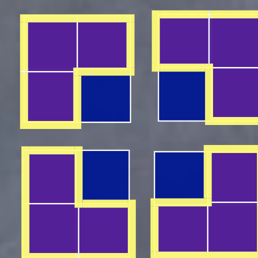

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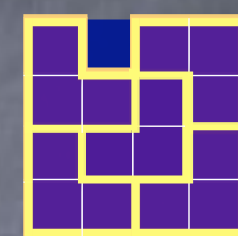

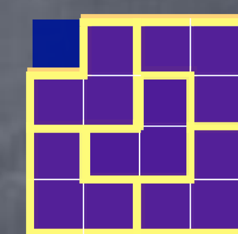

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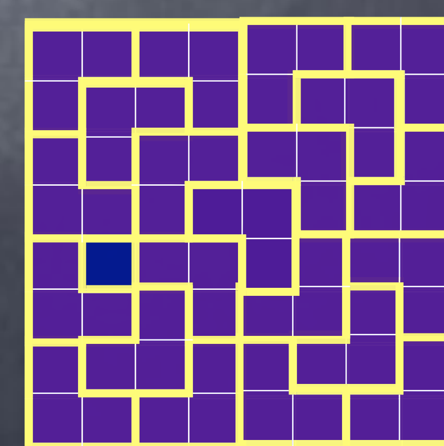

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