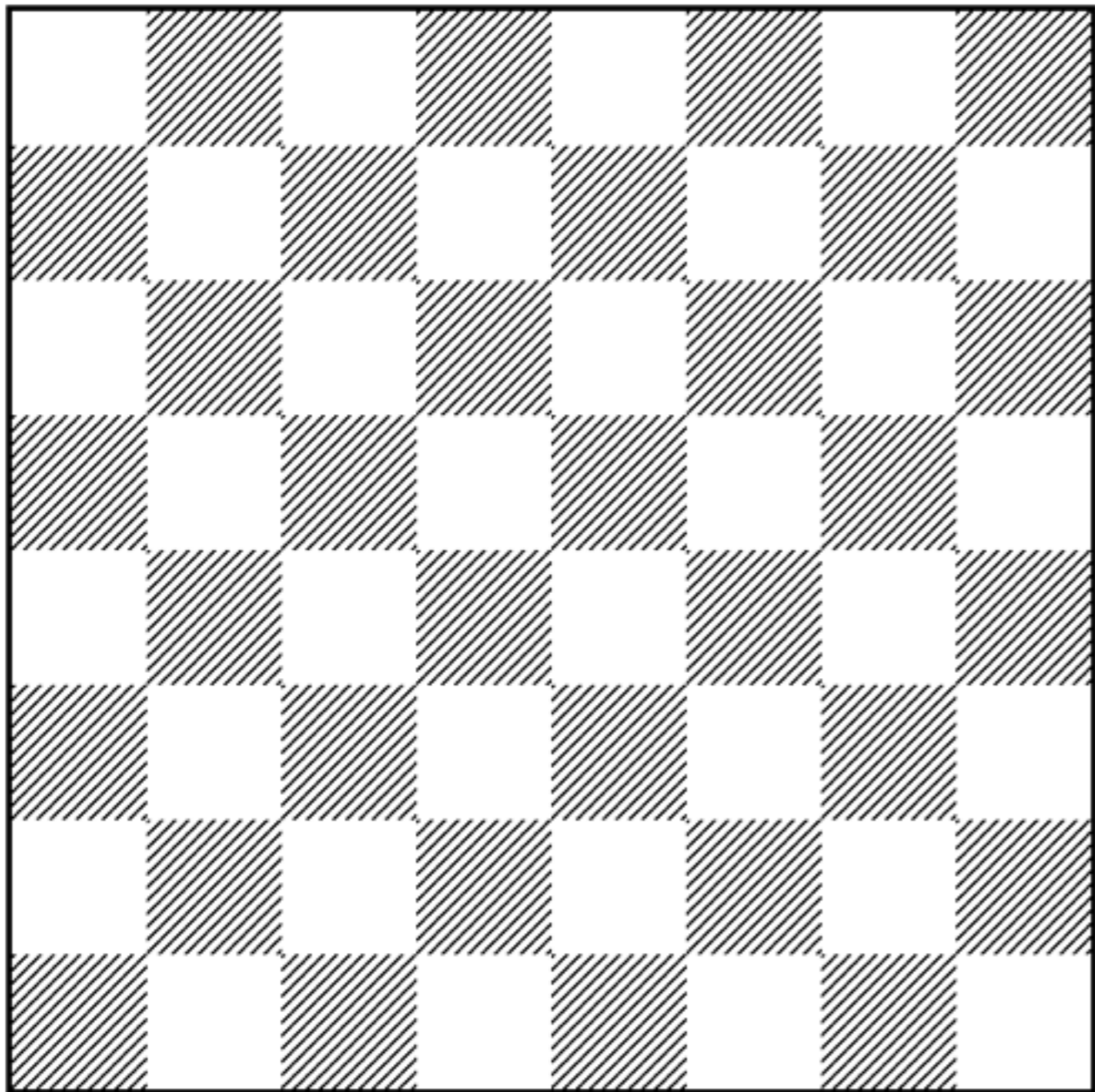


Squaring a chessboard

John Foley
@ChessScholar

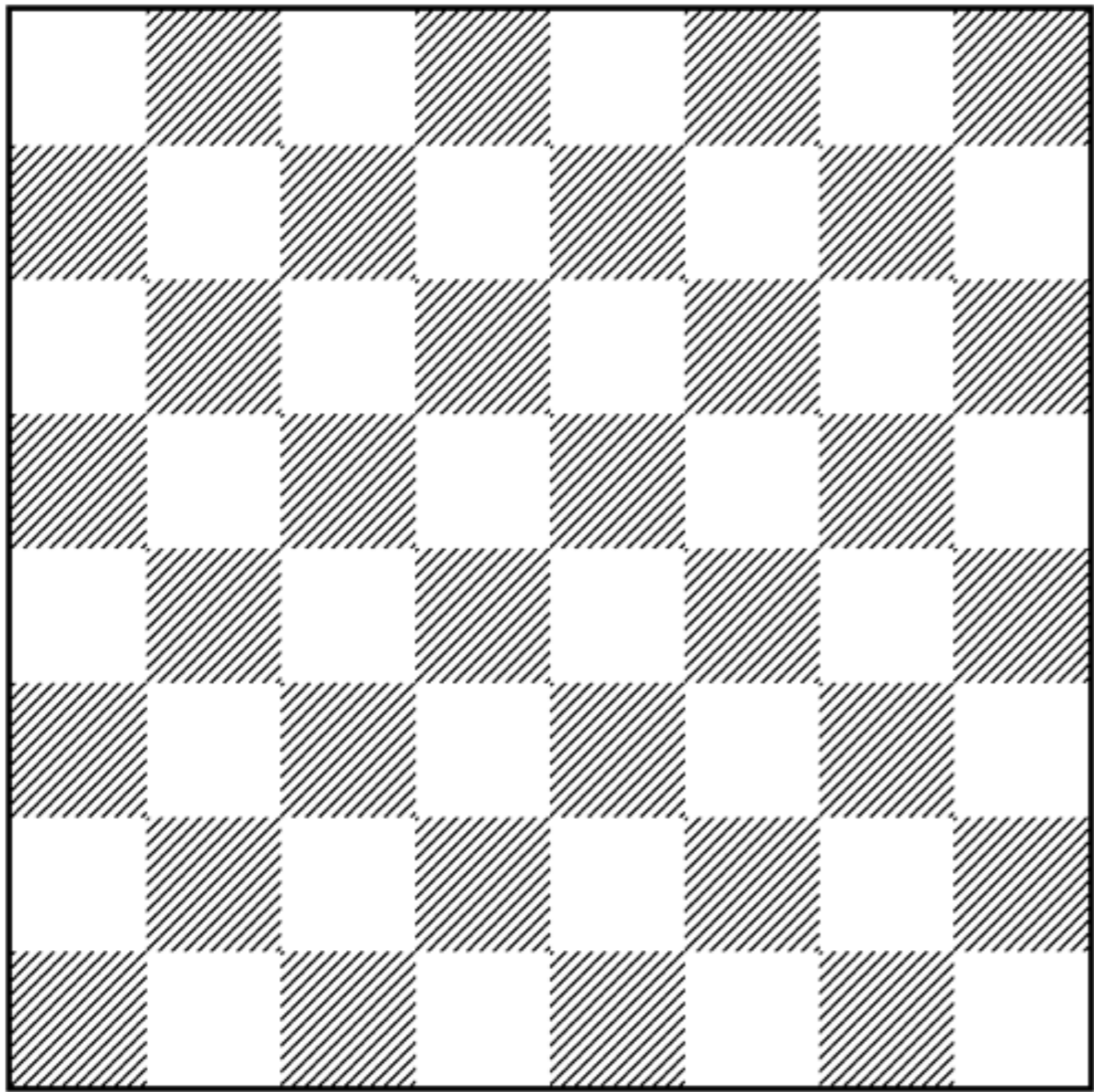
MathsJam 2014

Standard problems



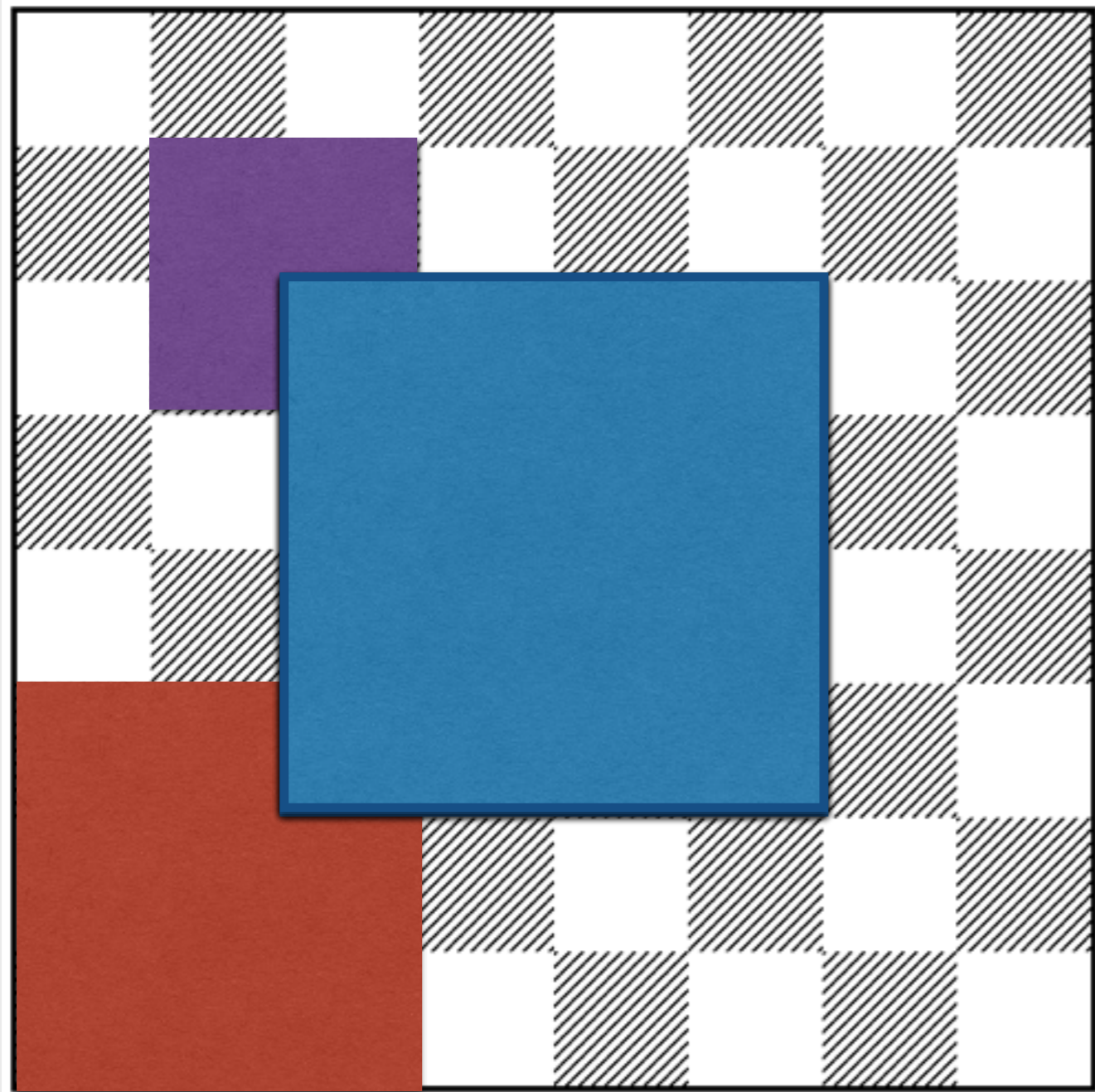
$$S=8$$

How many squares?

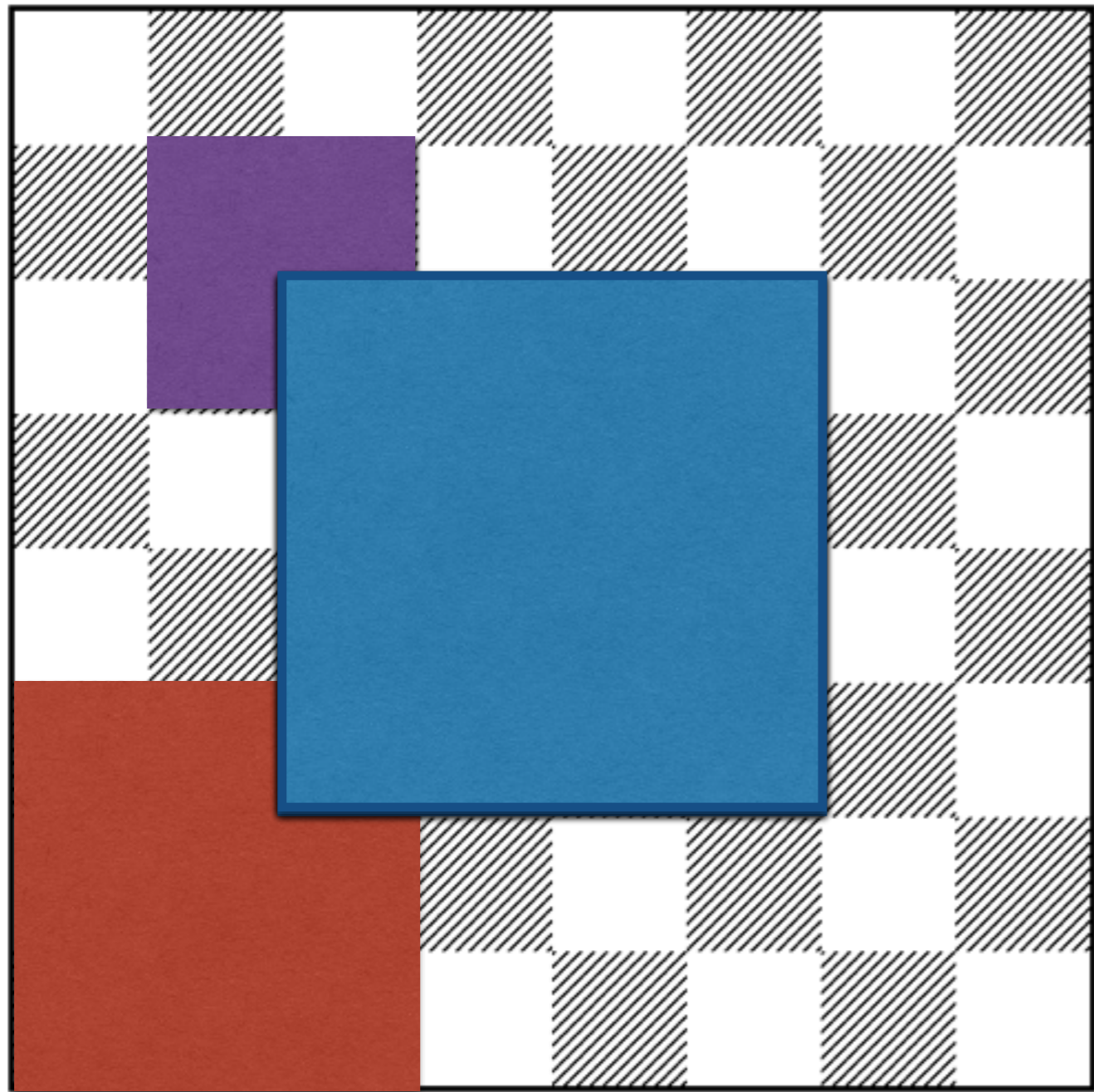


$$8^2 = 64$$

How many geometrical squares?



How many geometrical squares?



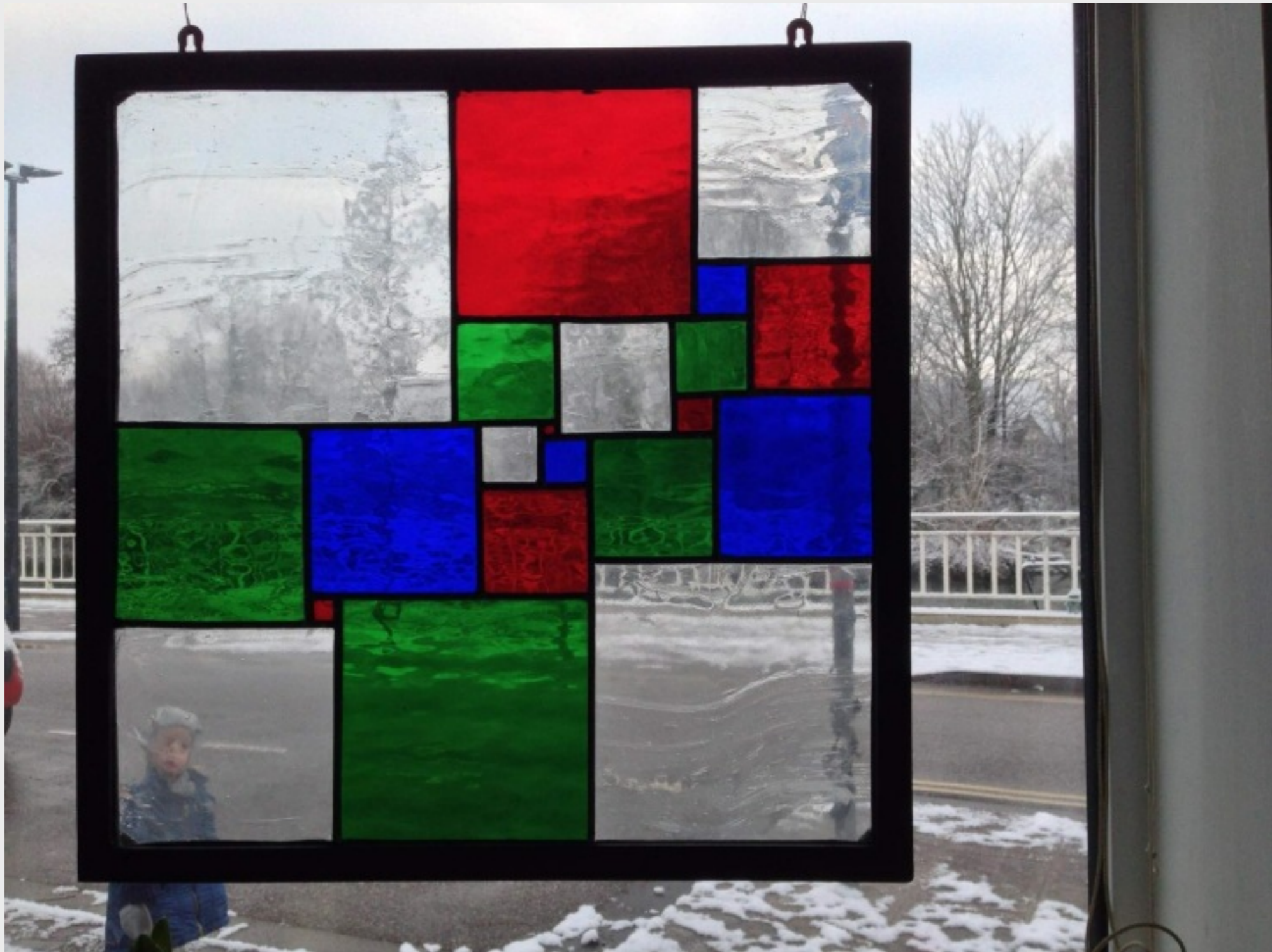
$$\sum_{s=1}^8 s^2 = 204$$

64 x (1x1)
49 x (2x2)
36 x (3x3)
25 x (4x4)
16 x (5x5)
9 x (6x6)
4 x (7x7)
1 x (8x8)

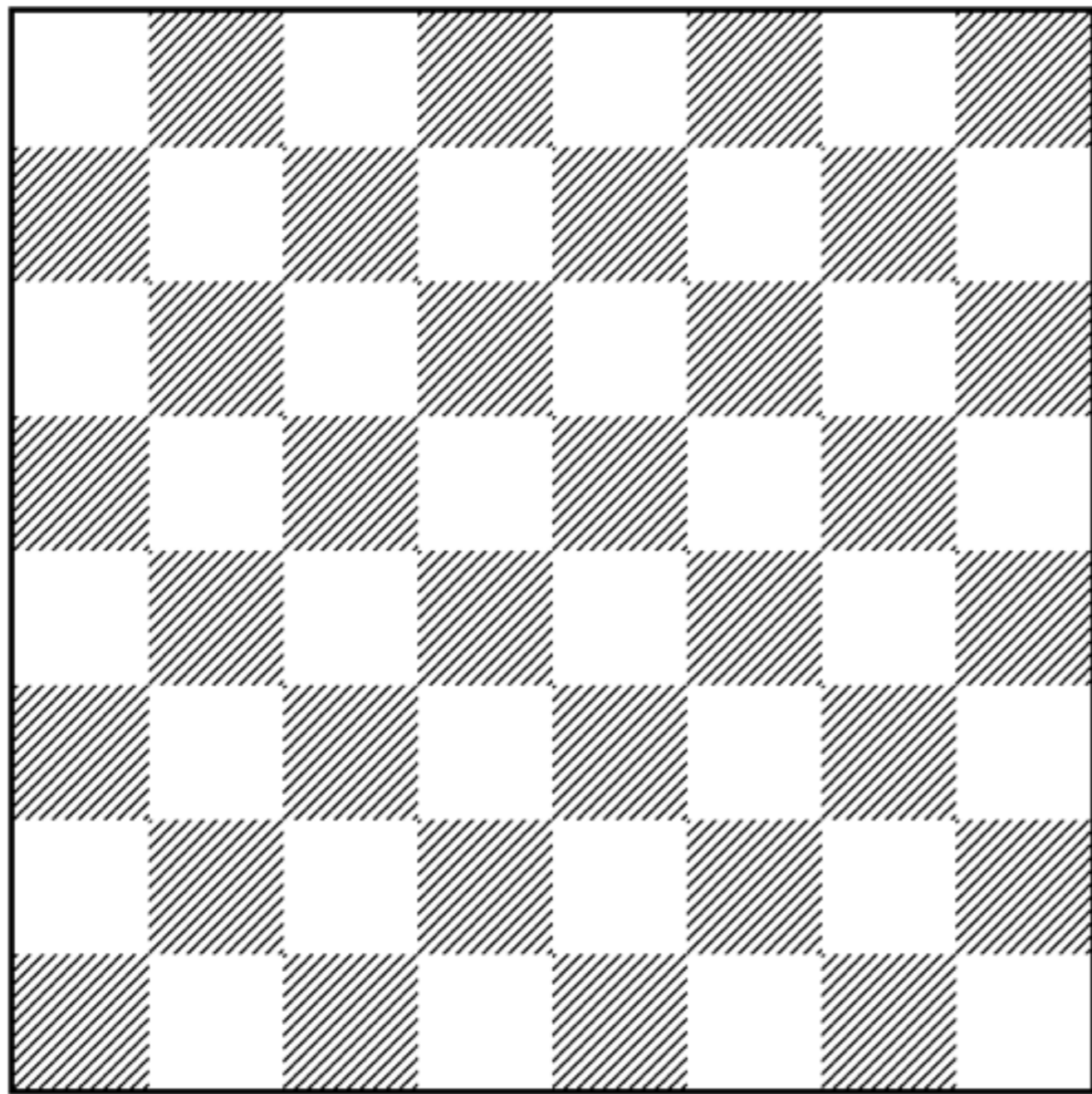
Squaring the square

The problem of tiling an integral square using only other integral squares.

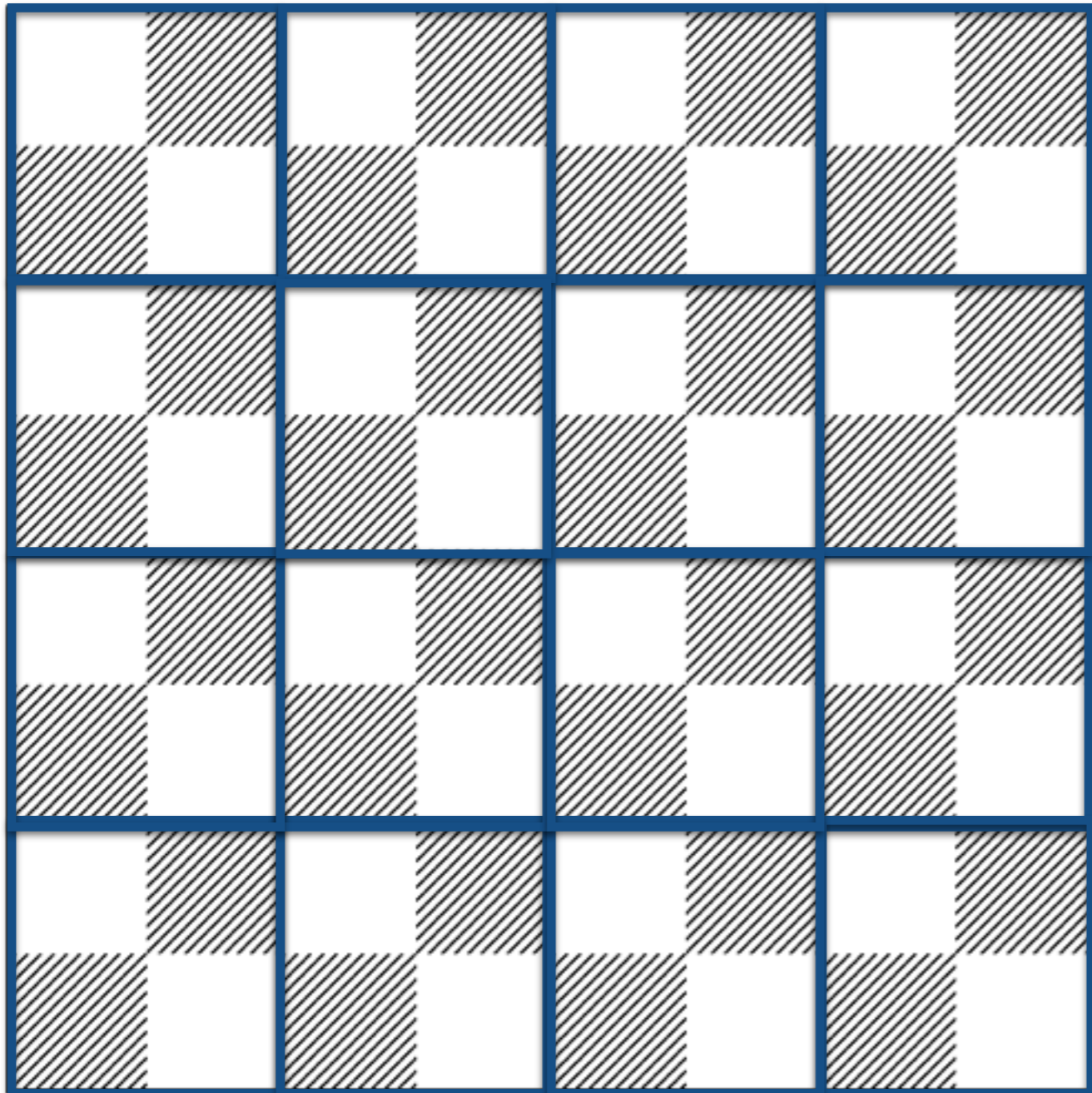
Squared squares can be pretty



How many squares?

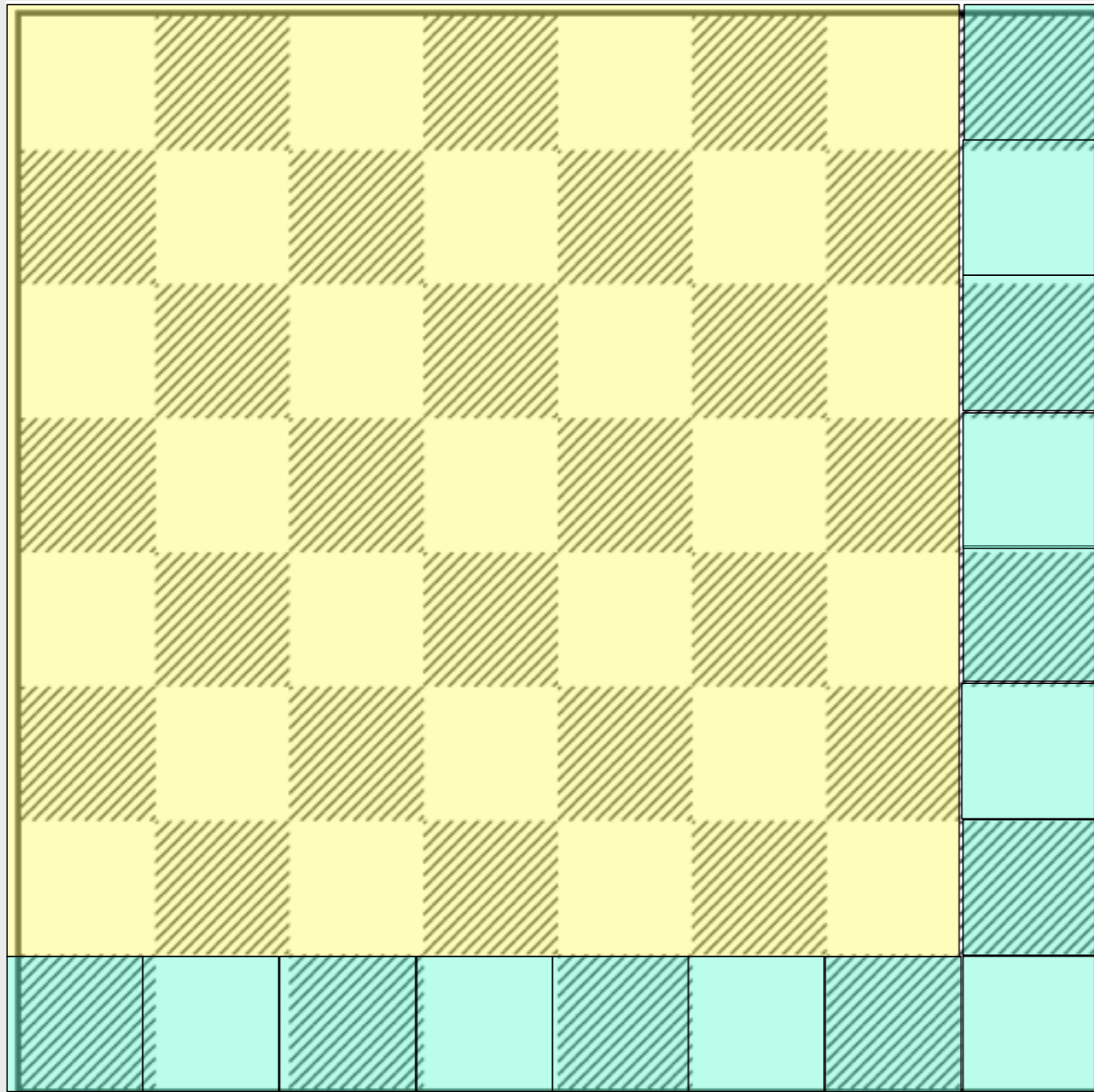


16 tiles



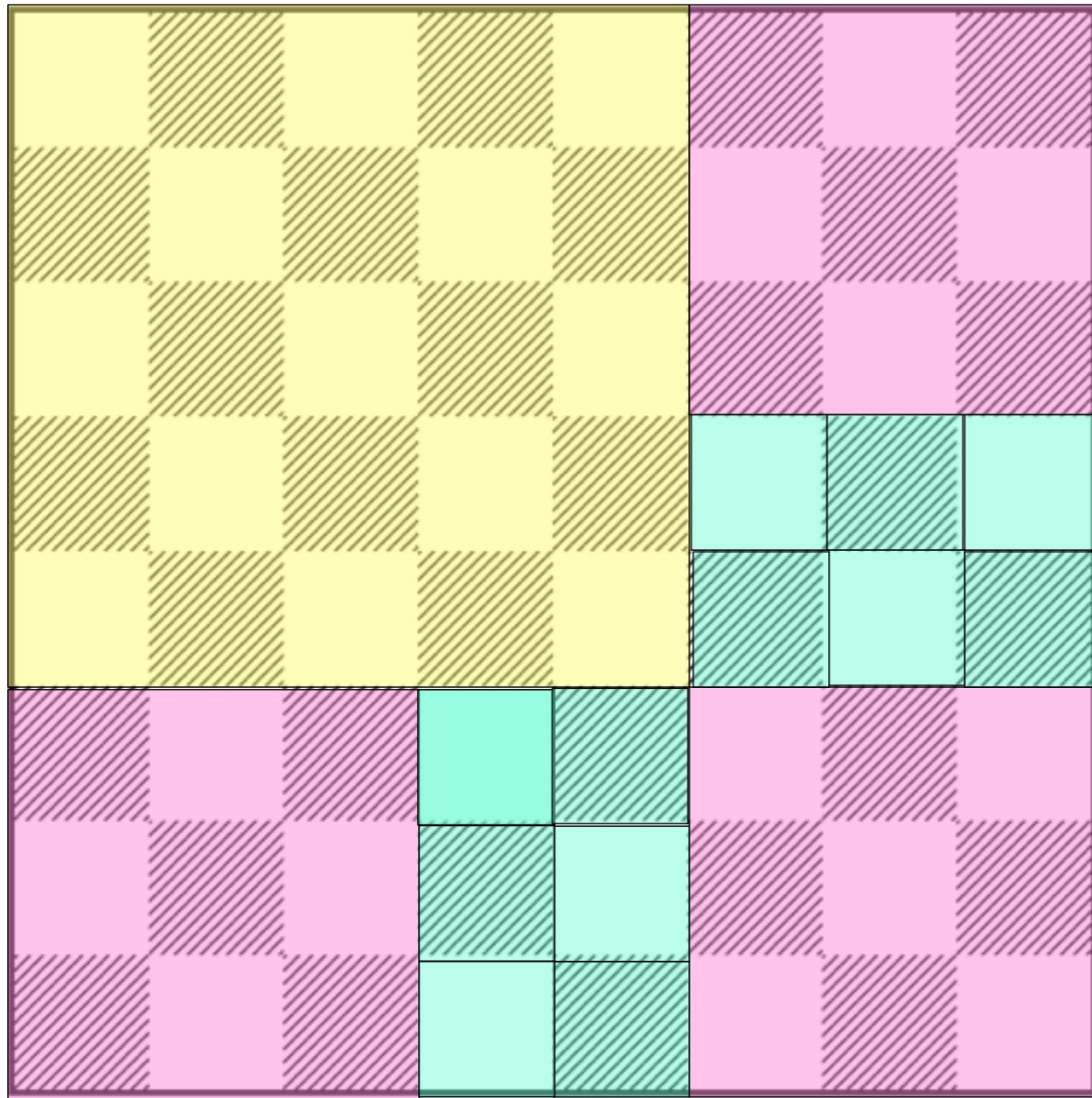
1 Equal sized

16 tiles



2 Biggest square

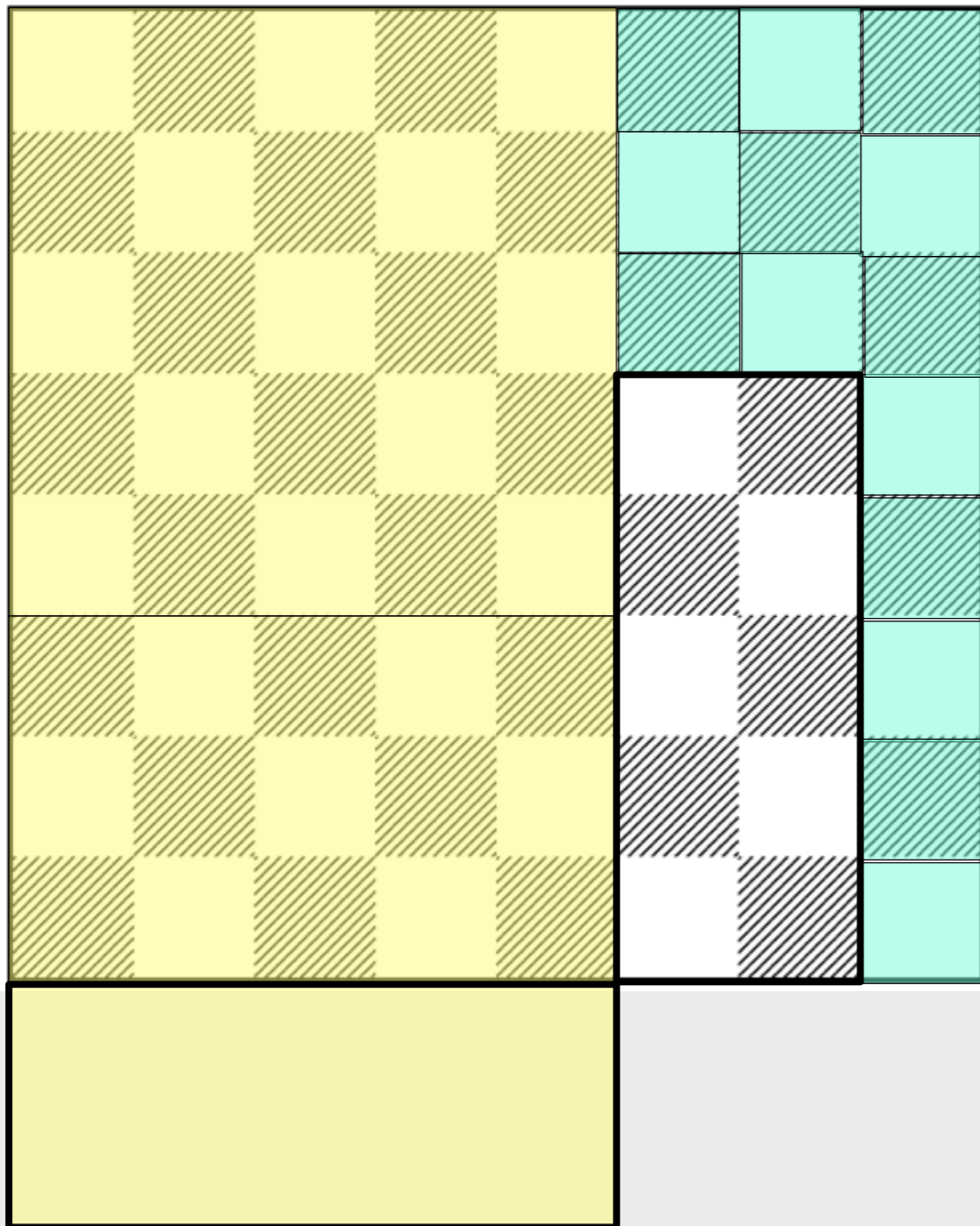
16 tiles



3 Four non-unit squares

16 tiles

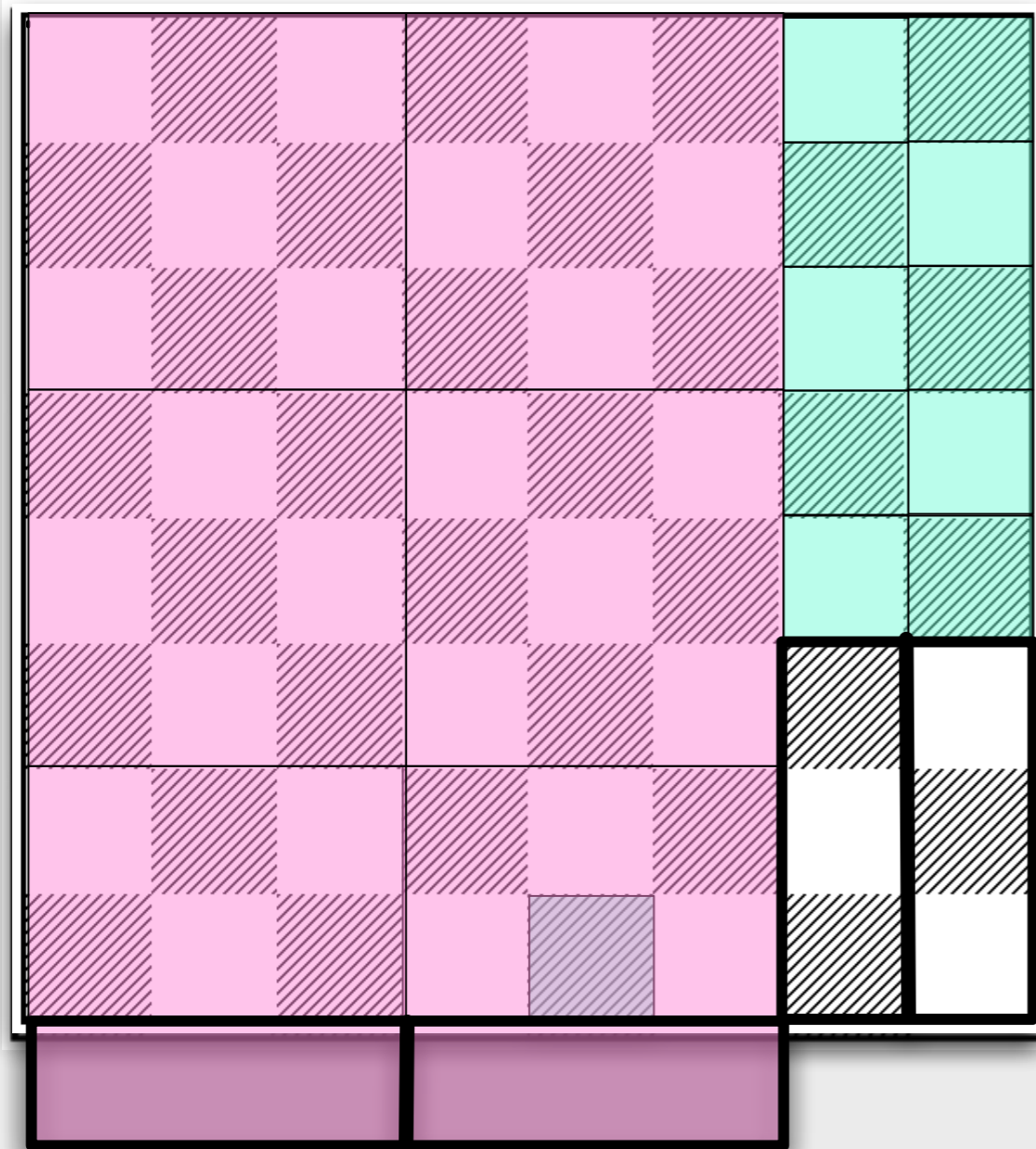
Overspill



4 Two non-unit squares

16 tiles

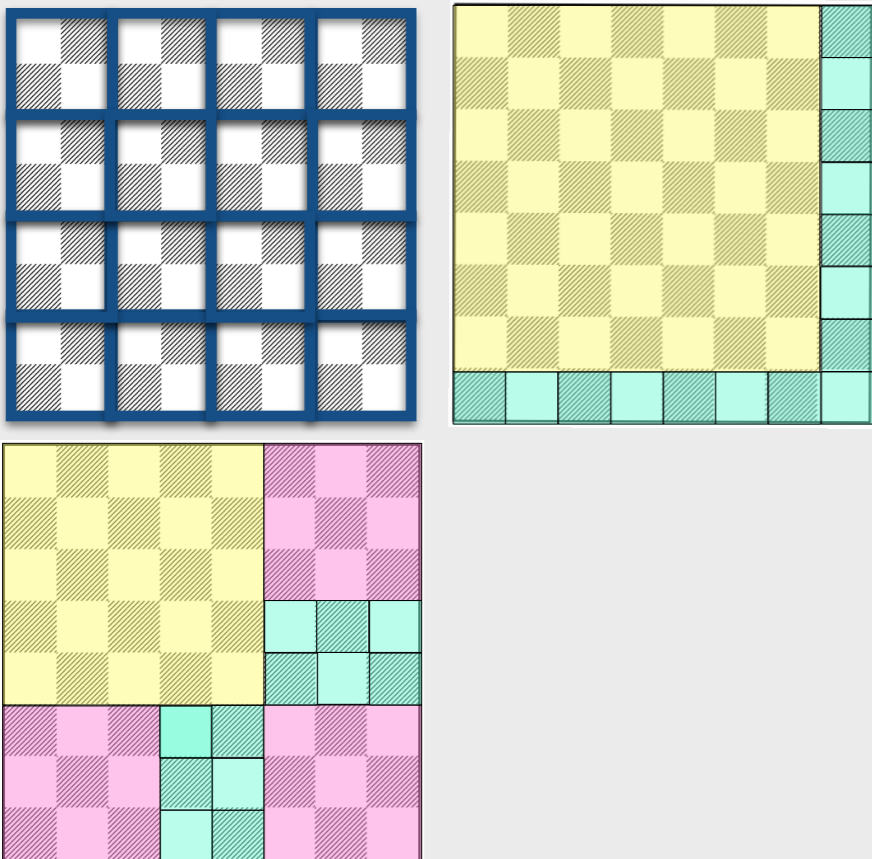
Overspill



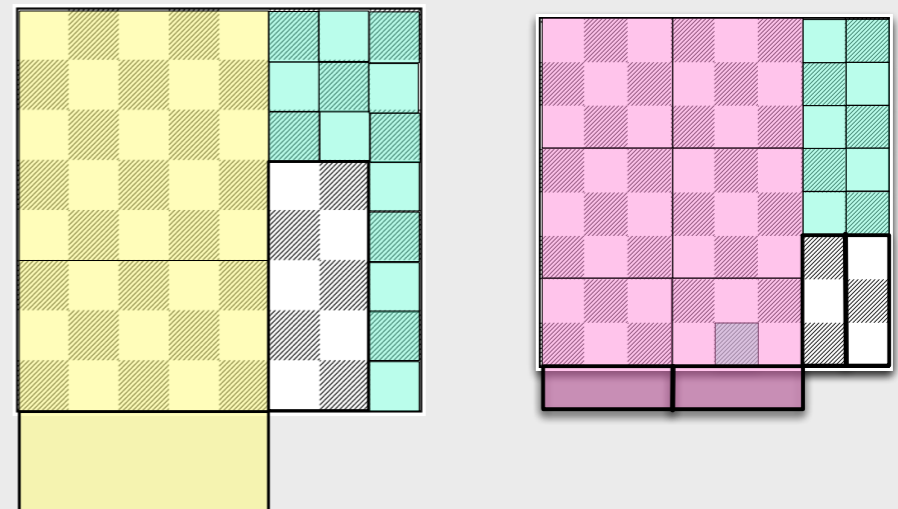
5 Six non-unit squares

16 tiles

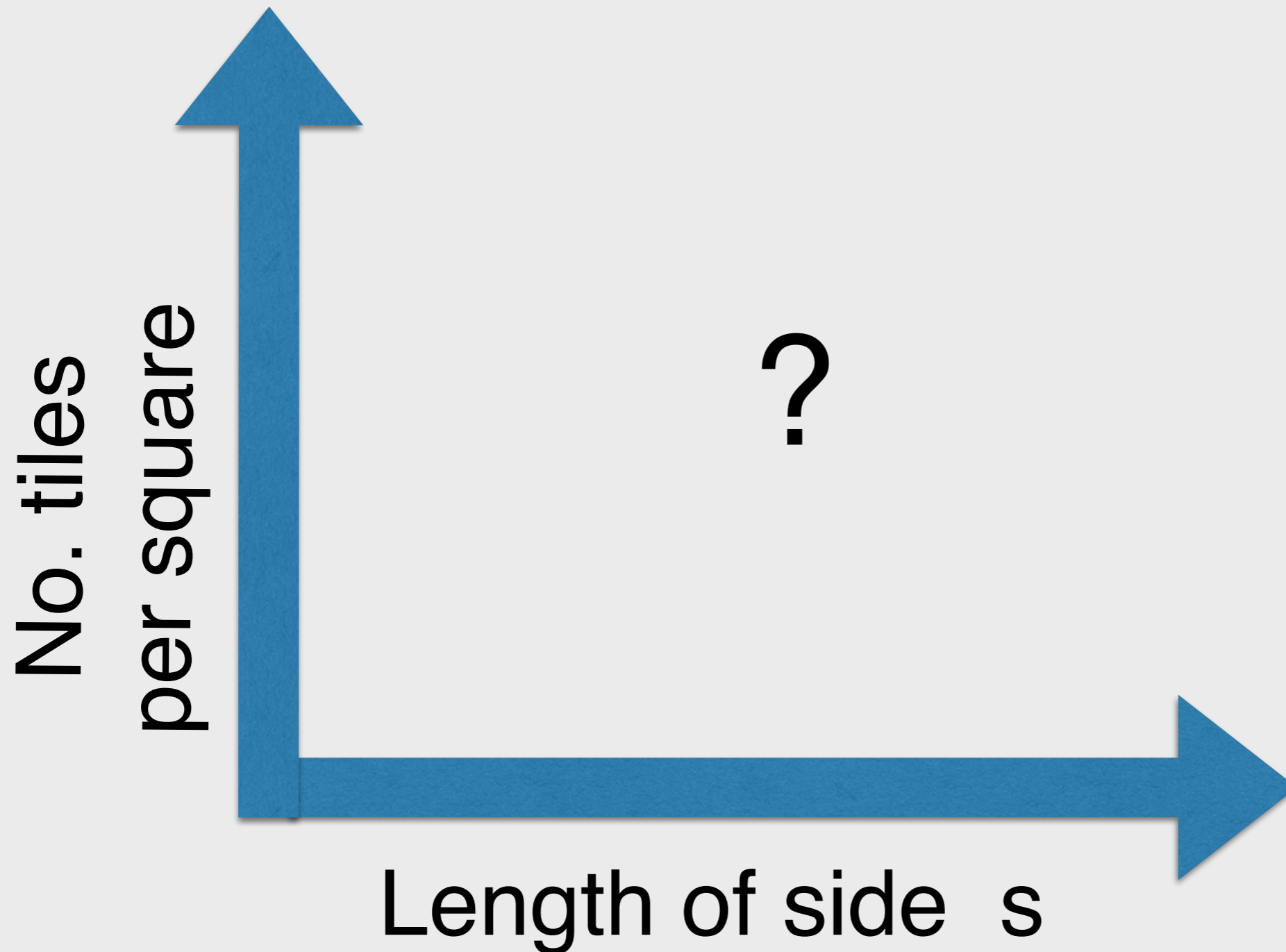
Three carpets



Two overspills



How many carpet solutions?



Thank you

John Foley

@ChessScholar

