

### The Gridville Garbash problem

Gridville is a perfect city. It is laid out as an  $n \times n$  grid and each of  $n^2$  families inhabits its own square. A developer offers to buy  $k < n$  plots at a price of one billion Wazooli's per plot. If a plot is bought, the family will move out and the plot will be used for growing Garbash, the most valuable commodity in Grid World. If at any time, a family plot has two Garbash plots adjacent to it<sup>1</sup> the smell of the Garbash will cause them to leave and the developer will buy up the plot for a mere million Wazooli's and start growing Garbash. After, 10 years, the developer agrees to clean up and replace the plots by family homes, **unless** everybody has left.

The developer will not disclose where he plans to put his  $k$  initial plots. Should the inhabitants of Gridville take the money, given that they want to get back to normal in 10 years?

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<sup>1</sup>Plot  $(x, y)$  is adjacent to plot  $(x', y')$  iff  $x = x'$  and  $|y - y'| = 1$  or  $y = y'$  and  $|x - x'| = 1$ .