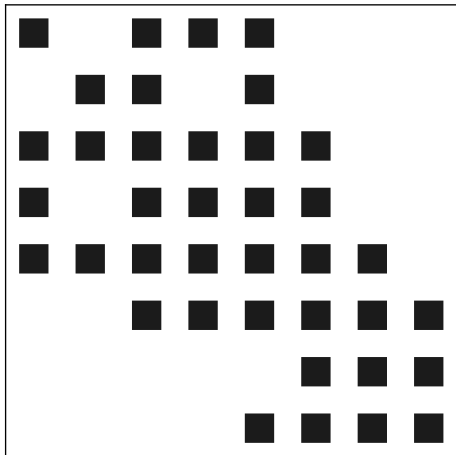
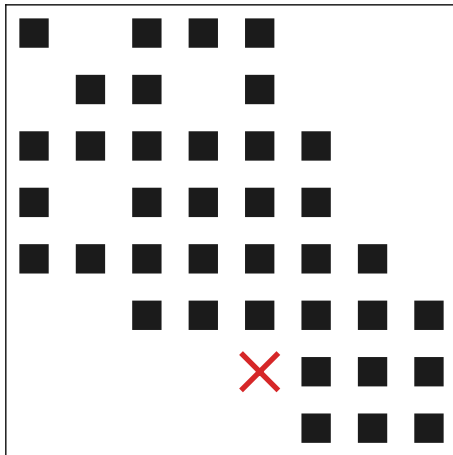


## Why analyze's pre-pivot symbolic phase isn't enough under partial pivoting

(a) Symbolic pre-pivot prediction  
nnz = 38



(b) Actual  $L + U$  post-pivot  
nnz = 38,  $\times = 1$  entries the symbolic missed



(c) Dynamic discovery  
(captures all, nnz = 38)

