

- 1) Find a minimal decomposition of
 $M = \begin{pmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 4 & 5 & 6 \\ 3 & 4 & 5 \end{pmatrix}$ and use it to compute
 the product

$$M \cdot \begin{pmatrix} 1 & 1 \\ 1 & 1 \\ 1 & 1 \end{pmatrix}$$

- 2) Consider a matrix $M = M_1 + \dots + M_r$ where
 each M_i has rank 1.
 Compute a decomposition of M^t

- ③ (Discussion)

A sends messages to C (binary messages)

B intercepts every bit with probability p
 and changes it

The chief of intelligence records the
 occurrences of 0, 1 in A and C

Can the chief detect the probability p
 that a message is intercepted?