Planets = ["Sun", "Moon", "Mer", "Ven", "Mars", "Jup", "Sat", "Urann",
"Neptune"]

$E : \mathcal{A} \rightarrow [0,1]$

Simul (generate data) compute entropy

$E = \{$ "Sun" : 0.7, "Mer" : 0.8, ... $\}$

"generate a tree"; "get an encoding from most significant to least significant".

More significance object has lesser entropy

[Higher entropy]

[lower entropy] $\}$ More significant "Private"

Construct
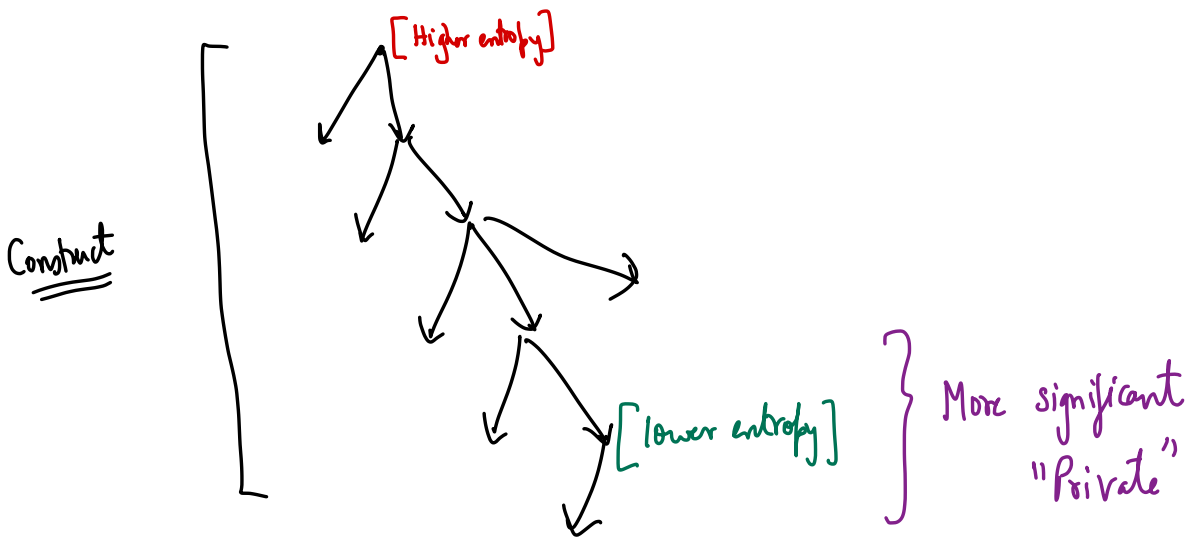
Person "Alice" = [✓ , ? , ? , ? , ? ..... , ✓ ,]
                    ⌣   ⌣   ⌣
                   Sun   Moon   Neptune

Alice[0]   vs.   Alice[7]
  ✓   ✓
                    ⌣
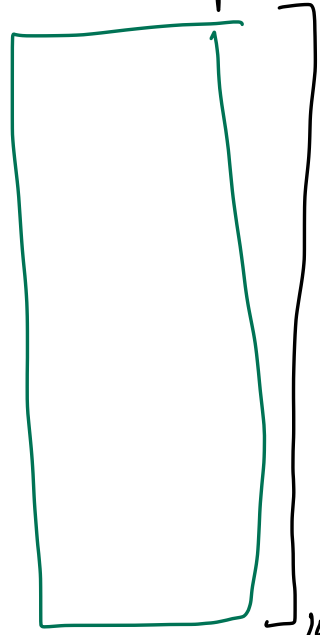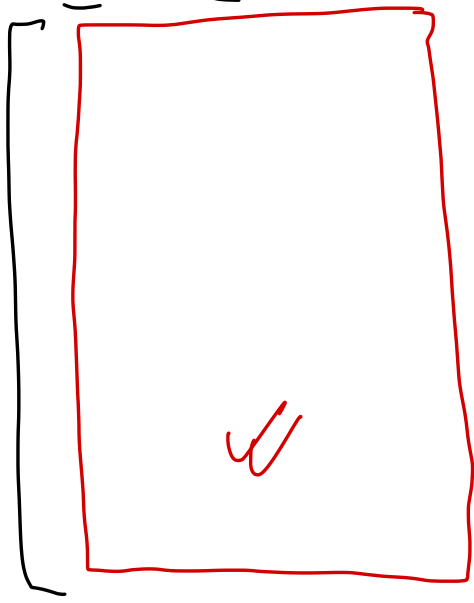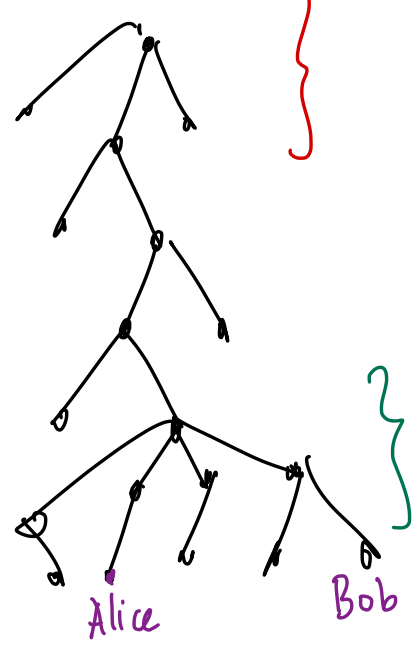   Private

100 people

2D array   100 rows × 9 columns

. . . . Neptune

"Alice"

"Bob"

Sun   Mom   Mercury

$M =$

.
.
.

100 × 9

Function

Horde

Alice   Bob

Leaves

$$M = \begin{array}{c} \text{Alice} \\ \text{Bob} \\ \text{Charlie} \end{array} \overset{\text{Sun} \qquad\qquad\qquad\qquad \text{Neptune}}{\begin{bmatrix} 2 & 4 & - & - & - & - & - & \cdot & 1 \\ 3 & 2 & & & & & & & 6 \\ 4 & 1 & & & & & & & 7 \end{bmatrix}}$$

3×9

$$M \times \boxed{I_{9\times9}} = \begin{bmatrix} 2 & 4 & & \cdot & - & \cdot & \cdot & & 1 \\ 3 & 2 & & \cdot & - & & - & \cdot & 6 \\ 4 & 1 & & - & & - & \cdot & & 7 \end{bmatrix}_{3\times9}$$

$$M \times \boxed{0_{9\times9}} = \begin{bmatrix} 0 & & & & & & & & 0 \\ 0 & & - & - & - & - & - & - & 0 \\ 0 & & & & & & & & 0 \end{bmatrix}$$

$$M \times N = M'$$

$\boxed{N:}$

9×9

- inverting N is hard.
- $(\text{sub-matrix of } N)^{-1}$

is harder to invert.

- $N :$ encryption matrix.

$$M \times N = \boxed{M'}$$

$$M = M' \times N^{-1}$$