Question 1

It depends on the existing parity bits

d_{min}' could be 3

$$n = 4$$
$$k = 1$$

0		1
0	x_1	1
0	x_1	1
0	$x_1 \oplus x_2$	0
0		0
0		1
0		1

$d_{min} = 3$

$\Rightarrow d_{min} = 5$

$$G = (u_1 \; u_2 \; u_3) \left(I_D \; \vdots \; \; \vdots \right)$$

$$\begin{pmatrix} 1 & 0 & 1 \\ 0 & 1 & 1 \\ 1 & 0 & 1 \\ 0 & 1 & 1 \\ 1 & 0 & 1 \\ \vdots & \vdots & \vdots \end{pmatrix}$$

Supposons que la distance minimale est 3.

Ce nouveau code, pour les codes à une distance 3, va ajouter 2 de distance $\Rightarrow 5$ ou

20	10
02	01
00	00

Q2

$$\left(\begin{array}{ccc} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{array}\right) \quad P$$

$$\left(\begin{array}{cccc} 1 & 1 & 0 & 1 & 0 \\ 0 & 1 & 1 & 0 & 0 \\ 0 & 1 & 1 & 0 & 0 \\ 0 & 1 & 1 & 0 & 1 \end{array}\right)$$

$$\rightarrow \left(\begin{array}{ccccc} 1 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 1 & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 \end{array}\right) \left(\right.$$

Q3

Inter code

- sum $\in E$
- $0 \in E$ ✓

1 3 1

Q5 bijection entre C_1 et code Fp

3^3

2^3

$$(1\ 1\ 1\ 1)\begin{pmatrix}1\\0\\0\\0\end{pmatrix}$$

$$= \begin{pmatrix}1\end{pmatrix}$$

$d_{min} = 4$

$$\begin{matrix}
0 & 0 & 0 & 1\\
1 & 1 & 1 & 1\\
1 & 1 & 1 & 1\\
0 & 1 & 0 & 1\\
0 & 0 & 0 & 1\\
1 & 0 & 0 & 0
\end{matrix}$$

Q9 → 4 de dimension !

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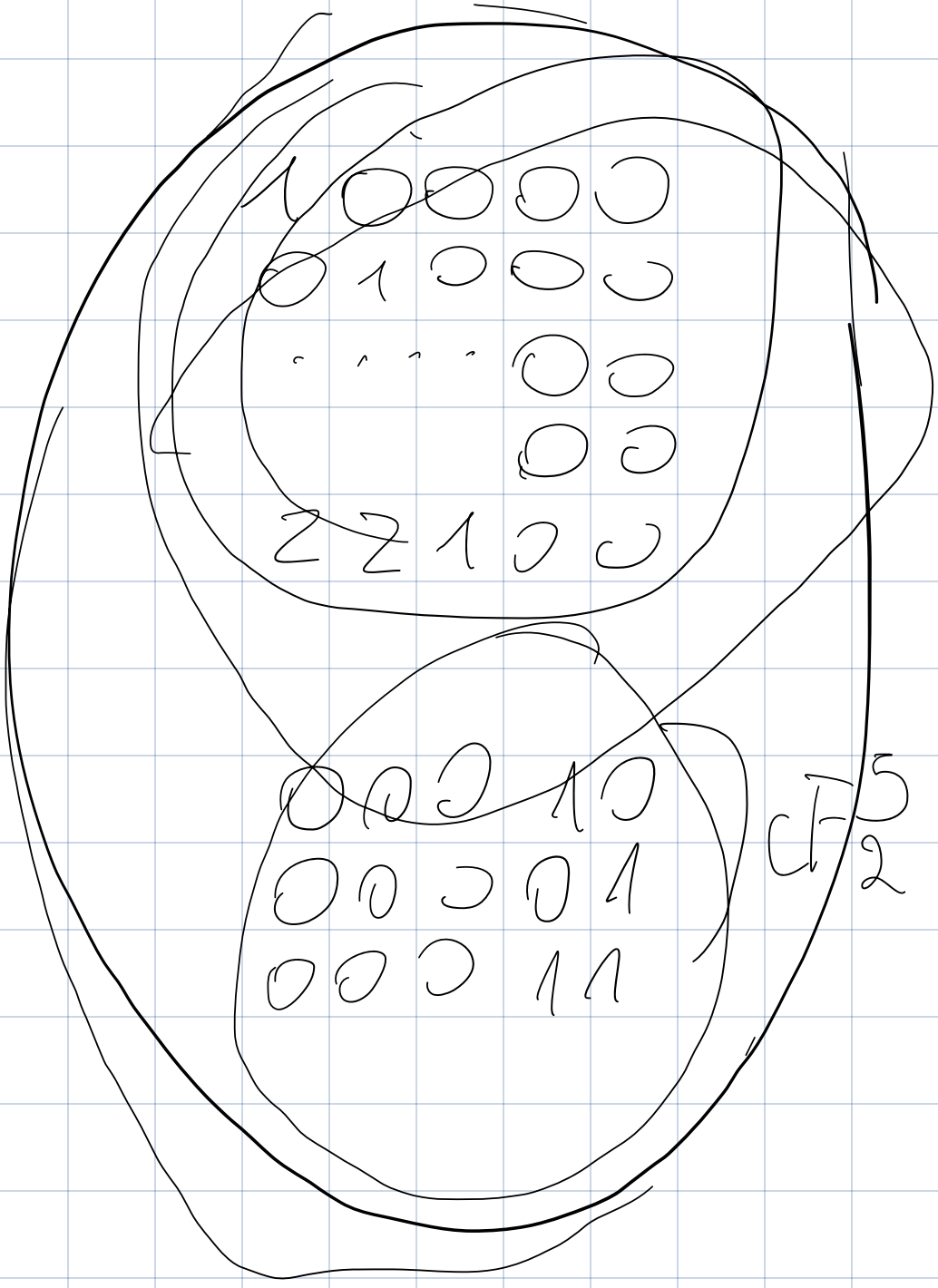

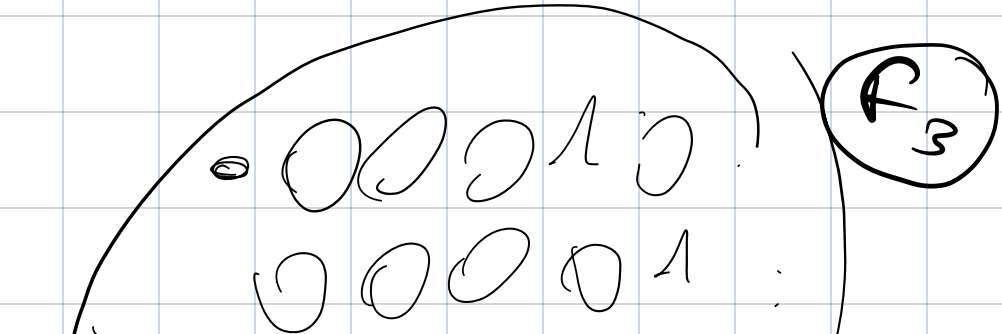

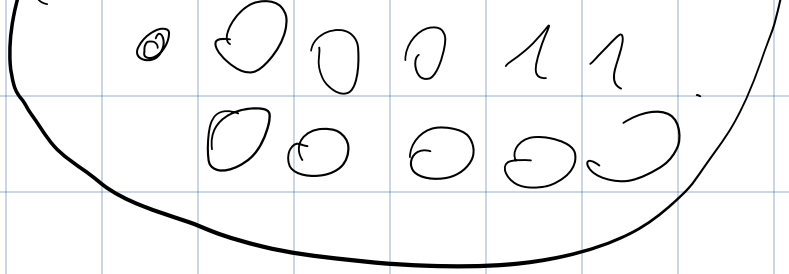

$C_1 \subset F_3^5$

$n = 5 \quad k = 2$