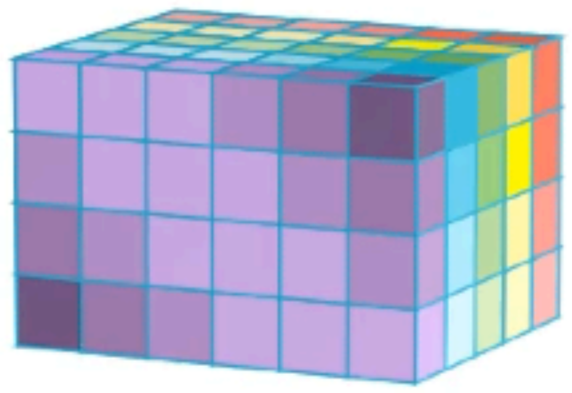
1

Matrix Code Equivalence

footnote



$$\mathscr{C} \subseteq \mathbb{F}_q^{m \times n \times k}$$

3-tensor

Can think of a matrix code as a 3-tensor over $\mathbb{F}_q$

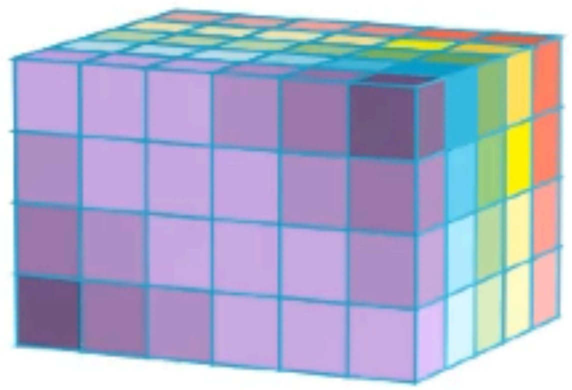
Equivalence then becomes *tensor isomorphism*

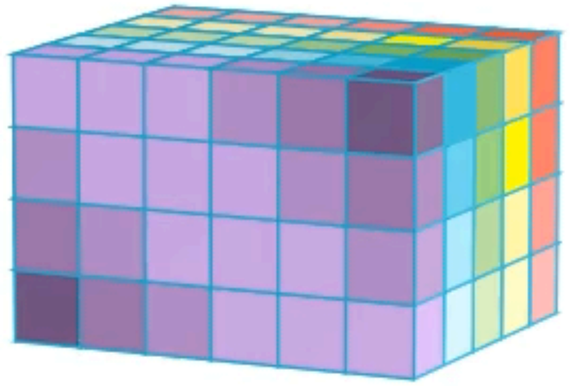
$$\mathscr{D} \subseteq \mathbb{F}_q^{m \times n \times k}$$

$$A \in \mathrm{GL}_m(q)$$

$$B \in \mathrm{GL}_n(q)$$

$$T \in \mathrm{GL}_k(q)$$





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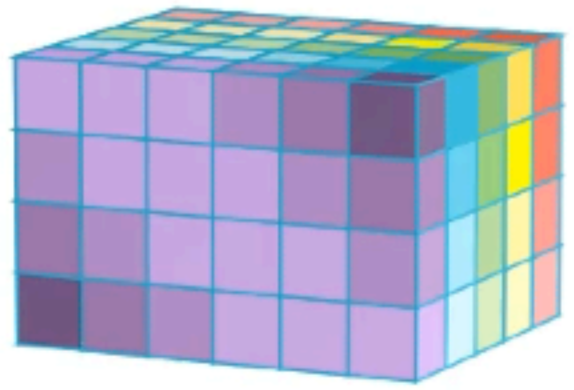

1

Matrix Code Equivalence

symmetry

Viewed as a 3-tensor, we can see $\mathscr{C}$ from three directions

- an k-dimensional code in $\mathbb{F}_q^{m\times n}$
- an m-dimensional code in $\mathbb{F}_q^{n\times k}$
- an n-dimensional code in $\mathbb{F}_q^{m\times k}$