Memory.

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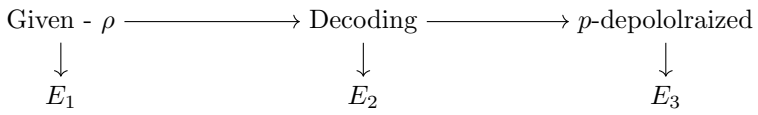
0.1 Definitions.

0.2 Idea.



$$\mathbf{Pr}\left[S \subset E_2\right] \leq \mathbf{Pr}\left[\text{any bit } v \in S_{c_1} \text{ sees majority of unstatisfied stabilizers }\right] \leq q^{\Delta|S|_{c_1}}$$

$$\begin{aligned}
\mathbf{Pr}\left[S \subset E_3\right] &= \sum_{S' \subset S} \mathbf{Pr}\left[S' \subset E_2 \cap S/S' \in E_3/E_2\right] \\
&\leq \sum_{S' \subset S} q^{\Delta|S'_{c_1}|} p^{|S/S'_{c_1}|} \leq \sum_{S' \subset S} q^{\Delta|S'_{c_1}|} p^{|S_{c_1}|-|S'_{c_1}|} \\
&\leq \left(q^{\Delta}+p\right)^{|S_{c_1}|} \leq \begin{cases} \left(q^{\Delta}+p\right)^{\frac{1}{4}|S|} & \text{if } |S_{c_1}| \geq \frac{1}{4}|S| \\ \star & \text{else} \end{cases}
\end{aligned}$$