q

C

b_i

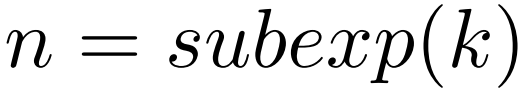
k

n

2

$$n = exp(O(k))$$

$q = 3$



$$n \geq \Omega(k^2)$$

3

$$n \geq \tilde{\Omega}(k^3)$$

$b \in 0,1^k \rightarrow x \in 0,1^n$

x

$\hat{b_i} \in 0, 1$

(q, δ, ϵ)

$$\triangle(x, Enc(b)) \leq \delta n$$

$$Dec^x(i) = b_i$$

$$\geq \frac{1}{2} + \epsilon$$

i

$2^{\Omega(k)} \leq n$

$n \leq 2^k$

$k^2 \leq n$

$$n \leq exp(k^{o(1)})$$

$O(1)$

$$k^{\frac{q}{q+1}} \leq n$$

$k^{\frac{q+1}{q-1}} \leq n$

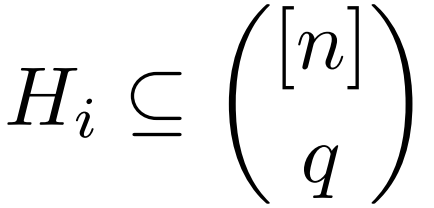
$k^3 \leq n$

$(3, \delta, \epsilon)$

$$n \geq \tilde{\Omega}_{\delta,\epsilon}(k^3)$$

k^3

$H_1, H_2, \cdots H_k$



$$\left|H_i\right| \geq \delta n$$

v

$v + e_i$

$\approx \mathbb{Z}_m^h$

$$val(\psi_b) = 1$$

$b \in 0, 1^k$

$n \ll k^{\frac{q}{q-2}}$

$$\psi \rightarrow A \rightarrow algval(\psi)$$

$$val(\psi) \leq algval(\psi)$$

$algval(\psi) < 1$

m

b_c

$$\sum_{j \in C} x_j = b_c$$

$$\psi_b \;\; is \;\; \sum_{j \in C}$$

$xj = b_i, i \in [k], C \in H_i$