Choosing C

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This is a quick idea about choosing C. I think choosing C as n/k would be useful as it allows us to compare the iid and non-iid cases. As usual we parameterise k as $n^{1-\beta}$.

$$\frac{n}{k} = \frac{n}{n^{1-\beta}} = nn^{-(1-\beta)} = n^{1-1+\beta} = n^{\beta} \tag{1}$$

So $\log C$ becomes $\log n^{\beta} = \beta \log n$.

Also, I think we can get a bound on the number of not-full groups by choosing this C. In the iid case we expect to have roughly k groups of size n/k. The number of full groups we know is upper bounded by $k/\ln 2$. The difference is:

$$\mid k - \frac{k}{\ln 2} \mid = \mid k \left(1 - \frac{1}{\ln 2}\right) \mid \leq \frac{k}{2} \tag{2}$$