



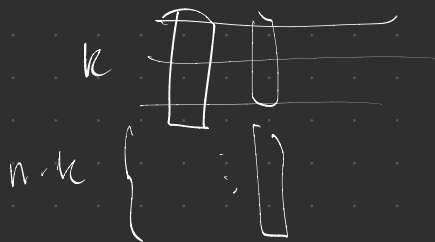
$$HTH = \frac{1}{2} \begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix} \begin{pmatrix} 1 & 0 \\ 0 & e^{i\pi/8} \end{pmatrix} \begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix}$$

$$e^{i\pi/8} \begin{pmatrix} 1 & 0 \\ 0 & e^{i\pi/4} \end{pmatrix} = \begin{pmatrix} e^{i\pi/8} & 0 \\ 0 & e^{i\pi/8} \end{pmatrix}$$

$$T = e^{i\pi \hat{Z}/8} = \cos \frac{\pi}{8} + i \sin \frac{\pi}{8} \hat{Z}$$

$$= \cos \frac{\pi}{8} \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix} + i \begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix} \sin \frac{\pi}{8}$$

$$\cos \frac{\pi}{8} - i \sin \frac{\pi}{8}$$



$$k \text{ Locals} \quad \text{Global} + \text{Local}$$

$$k\beta \quad \text{vs} \quad n\alpha + (n-k)\beta$$

$$\text{When } k\text{-locals} > \text{GL}$$

$$k\beta > n\alpha + (n-k)\beta$$

$$2k\beta > n(\alpha + \beta)$$

$$\frac{k}{n} > \frac{1}{2} \left(\frac{\alpha + \beta}{\beta} \right) = 0.52$$

The Global-Local 'trick'

When $k/n > 0.52$ where
(of the same type)
 $k = \#$ of local ops. in one

time block, better

to do global on n

then insert on other $n-k$