C: Clustering coeff (# of edges btw the nearest neighbors of a node)

L: Avg path len

$L_r \sim \frac{\log N}{\log(\frac{K}{N} - 1)}$ small

$C_r \sim \frac{K}{N^2}$ small

$\lambda = \frac{L}{L_r} \sim 1$

$\gamma = \frac{C}{C_r} > 1$

} for small world networks

$\rightarrow \sigma = \frac{\gamma}{\lambda} > 1$ for small world

$E_{glob} \sim \frac{1}{L}$

$E_{loc} \sim C$

} ie global efficiency inverse to path len since low path len means it's easy to send long dist messages. Local efficiency prop to C since high clustering means easy to send messages to neighbors.

Small world networks are efficient w.r.t. info transmission since L small
$\rightarrow E_{glob}$ high & C high
$\rightarrow E_{loc}$ high. This is also considering that small world networks are rel. sparse.