$1 \mid$ **First, show all eigenvalues are complete and at most 1**

$2 \mid$ **then, it must converge because the $\lambda = 1$ eigenvalues send their inputs to the same thing each time, and the other ones are less than one so they end up going to zero**

$3 \mid$ **convergence speed: larger non-1 eigenvalues will cause the chain to converge more slowly**