proof of 2-approximation guarantee (continued)

([Khuller and Saha, 2009])

- consider greedy when the first vertex $v \in S^* \subseteq V$ is removed
- let S be the set of vertices, just before removing v
- total number of edges before removing v is $\geq \lambda |S|/2$
- therefore, greedy returns a solution with degree density at least $\frac{\lambda}{2}$

QED