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| --- | --- | --- | --- |
| **What makes a vertex central in a network?****(one or more ideas)** | **How do you describe it mathematically?**  | **When is it appropriate to use it?** | **How can we capture it?** |
| Lots of one-hop connections from $v$ | The number of vertices that $v$ influences directly | Local influence mattersSmall diameter | Degree centrality $$deg⁡(v)$$ |
| Lots of one-hop connections from $v$ relative to the size of the graph | The proportion of the vertices that $v$ influences directly | Local influence mattersSmall diameter | Normalized degree centrality $\frac{deg⁡(v)}{|V(G)|}$ or $\frac{deg⁡(v)}{\left|V\left(G\right)\right|-1}$ or $\frac{deg⁡(v)}{|Δ(G)|}$ |
| In the “middle” of the graph |  |  |  |

**Objective:** identify what makes a node central in a network, and how could we can capture it