Ego-Splitting Framework

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Idea

- Overlapping community detection
- Reduce problem to non-overlapping communities (partition)
  - Many established algorithms
- Ego-net of node u: Subgraph induced by the neighbors of u
- Two partition algorithms: local and global (can be the same)

The Framework

- For each node: Use the local clustering algorithm to partition the ego-net
- Create persona graph:
  - Create a persona for each partition
  - Add edges between personas
- Use the global clustering algorithm on the persona graph
  - each partition equals a community
- For each node: Collect communities from all personas

Problems

- local partitioning is critical
- number of Communities $\leq$ number of Personas
- Triangle with two nodes in community and one outside $\Rightarrow$ outside node is included in community by global partition algorithm

Possible Improvements

- Clean-up at the end (OSLOM)
- Connect personas of one node with additional edges

Plots

NMI Score LFR graphs