- Given all to all Graph of inter-protein distances:
  Find a hierarchical clustering based on edge cut
- New Problem:
  There are not good algorithms for cut-based clustering
  involving inter-node distances
- Approximate a minimum radius (in edit distance) to preserve
  connectivity of the graph
- use the resulting sub-graph to approximate min-cut graph
  clusters

- For each node in G:
  Choose a minimum radius such that if this node is only connected to other nodes within that radius, the node is still connected
- This is annoyingly NP hard, however greedy approximation fairs well

Centralized Greedy Radius Approximation

- Given fully connected edge-weighted Graph G
- Given set S= and N= All nodes in G
- Choose a random node x in N
- S=[x]
- Set x's radius equal to it's lowest weight edge
- N = N - [x]
- While *N* is not empty:
  - Choose a node y from N, such that it has the lowest distance to a node in S
  - Set radius y to distance to node in S
  - S = S $\bigcup$ [*y*]
  - N = N - [y]
- Generate subgraph G' where all nodes in G' are connected only to nodes within their radii