

# CENTRAL STRUCTURES FROM 1 TO J

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For a graph  $G=(V,E)$  of order  $n = |V(G)|$  and  $1 \leq k \leq n$ , for each vertex  $v$  in  $V(G)$  let  $d(v, S) = \max \{d(v, w) \mid w \text{ is in } S\}$  and let  $r_k(v) = \min \{d(v, S) \mid \text{vertex set } S \text{ has cardinality } |S| = k\}$ . The  $k$ -centrum  $C_k(G)$  is the set of vertices  $v$  in  $V(G)$  at which  $r_k(v)$  is minimized. These and other central subsets are defined by deciding which individual vertices are most central relative to sets of order  $k$ . and considering all such vertices.

On the other hand, the  $k$ -center and  $k$ -median are examples of vertex sets defined to be the most central subsets of a fixed size  $k$  relative to certain measures of centrality.

We will discuss the (change in) structure of various sets of central subsets defined over a range  $k$  of values,  $1 \leq k \leq j$ .