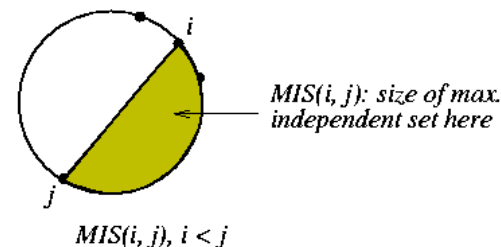
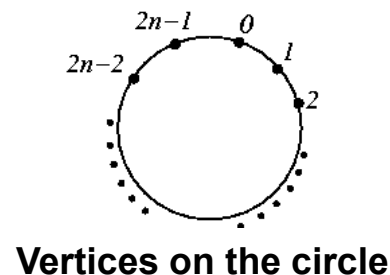
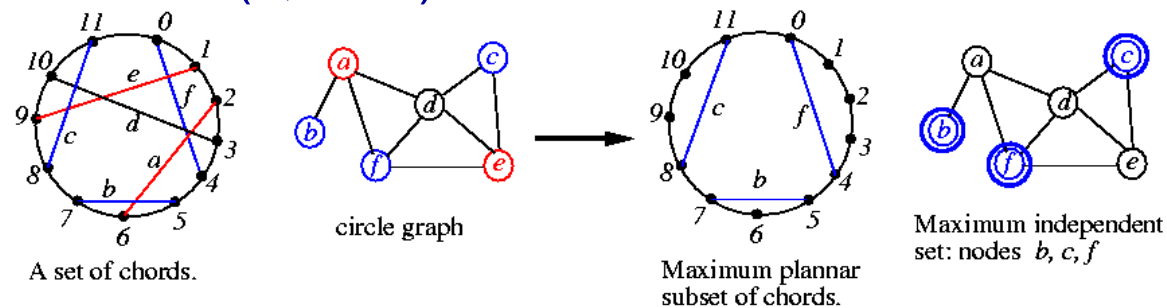


# Supowit's Algorithm for Finding MPSC

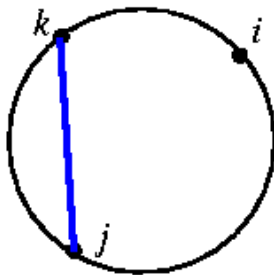
- Supowit, "Finding a maximum planar subset of a set of nets in a channel," *IEEE TCAD*, 1987.
- Problem MPSC: Given a set of chords, find a maximum planar subset of chords.
  - Label the vertices on the circle 0 to  $2n-1$ .
  - Compute  $MIS(i, j)$ : size of maximum independent set between vertices  $i$  and  $j$ ,  $i < j$ .
  - Answer =  $MIS(0, 2n-1)$ .



# Dynamic Programming in Supowit's Algorithm

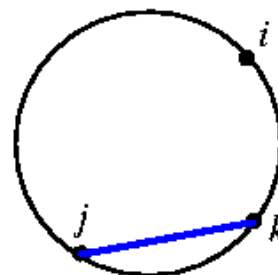
- Apply dynamic programming to compute  $MIS(i, j)$ .

case 1



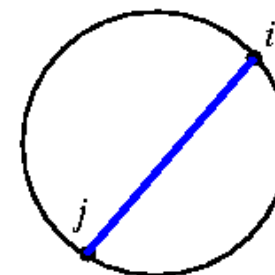
$$MIS(i, j) = MIS(i, j-1)$$

case 2



$$MIS(i, j) = MIS(i, k-1) + 1 + MIS(k+1, j-1)$$

case 3



$$MIS(i, j) = MIS(i+1, j-1) + 1$$

