Enumerative Combinatoric Algorithms

Reverse Search

Example: Tik Tak Toe
Tik Tak Toe

- Enumerate all valid game positions (not considering symmetries)

- o starts, x follows \(\rightarrow 5\ o, 4\ x\)

- What do we need? \(G(V, E)\)
  - \(V\) \(\equiv\) game positions
  - labeled board cells
  - neighbors, \(\gamma(v, k)\): legally add the \(k^{th}\) mark (or legally remove one mark)
  - predecessor function, \(f(v)\): empty board is root, otherwise remove highest legal mark