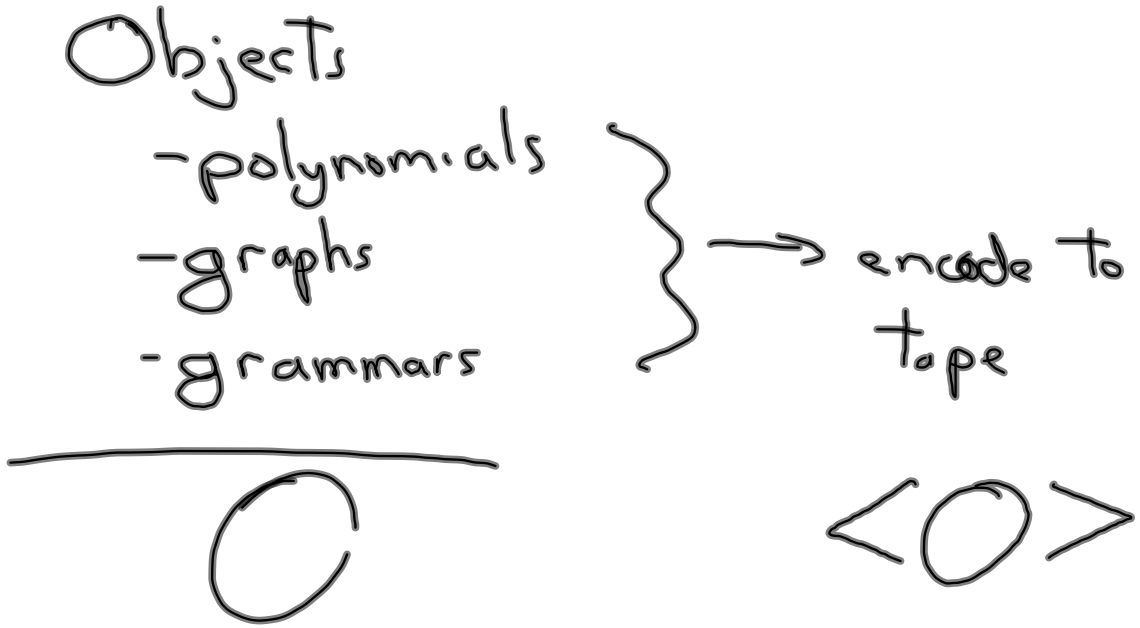
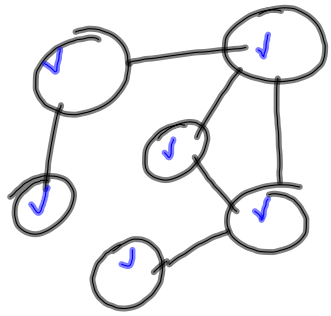
TM algorithms (descriptions)

1. formal description
   - states
   - transitions
   - r/w head moves.
2. implementation description
   - tape changes
   - r/w head moves

   e.g. move r/w head right to the first blank
3. high level descriptions
   - describes what the alg. does
   - ignore r/w head


Objects
-polynomials
-graphs
-grammars
encode to
tape
C
<O>

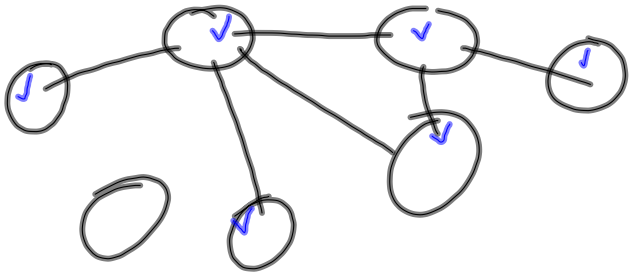
A: language of all strings representing (undirected) graphs that are connected



Machine M decides A (high level)

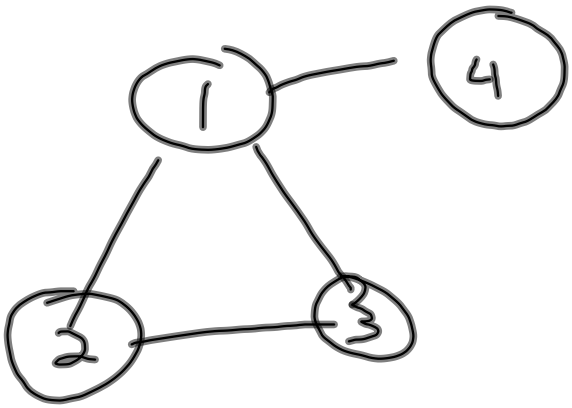
M = On input <G>, the encoding of a graph G as a string.

1. select 1st node and mark it
2. repeat step 3 until no new nodes are marked
3. for each node in G
   mark it if there is an edge from G to a marked node.
4. Check if all nodes have been marked. If so, accept. If not, reject



Implementation Level

G:



$\langle G \rangle = (1, 2, 3, 4)((1,2),(1,3),(2,3),(1,4))$

0. check input

1. mark a node

2/3 mark w/ −

G: