— “Concise Constraint Satisfaction Problem Description”

Problem Statement

given a graph with n nodes represent a variable.Each with finite number of domain.And a set of constraints are given. Find an assignment of the variables so all constraints are satisfied.

Constraints specification

1. $x_j > x_i \mid j > i$
2. $gcd(x_j, x_i) = 1 \mid$ i and j not prime
3. $x_j = x_i^2 \mid$ i , j even
4. $x_j \% x_i = 0 \mid j > i$ and i , j odd
5. $3x_j = x_i \mid j > 2i$

Domain Specification

1. D_{x_i} = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10] where i is prime
2. D_{x_i} =[10, 11, 12, 13, 14, 15] i is odd and not prime and i%5!=0
3. D_{x_i} =[2, 4, 6, 8, 10] where i is even and i%4!=0
4. D_{x_i} =[1, 4, 9, 16, 25, 36, 49, 64, 81, 100] i%4 = 0
5. D_{x_i} =[3,5,7,9,11] where i%5=0

create graph

first I will take 10 nodes and connect all nodes randomly. then assign domain as domain specification and assign constraints to every edges from the constraints specification. After solving this graph I will repeat the process for 20, 30 , 40 nodes.

evaluation

After creating the graph run arc - consistency algorithm to reduce the domain size of each node.
