weeSeepy©

intro

weeSeepy: Home

www.dcs.gla.ac.uk/~pat/weeSeepy/

Computing Science
University of Glasgow

weeSeepy: a small CP toolkit

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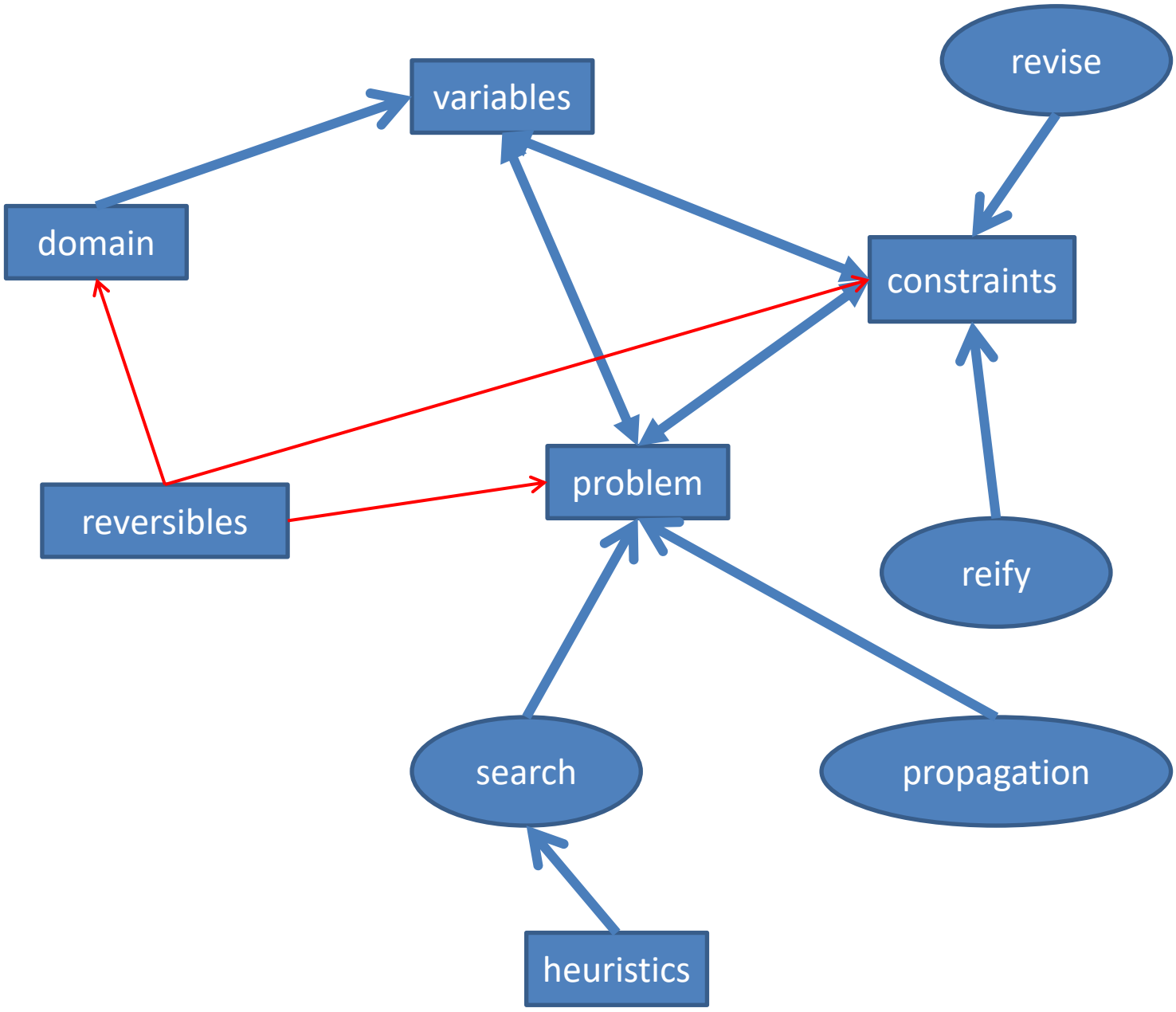
weeSeepy is a small (wee) constraint programming (seepy) toolkit written in java. It was inspired by Mini-CP and choco.

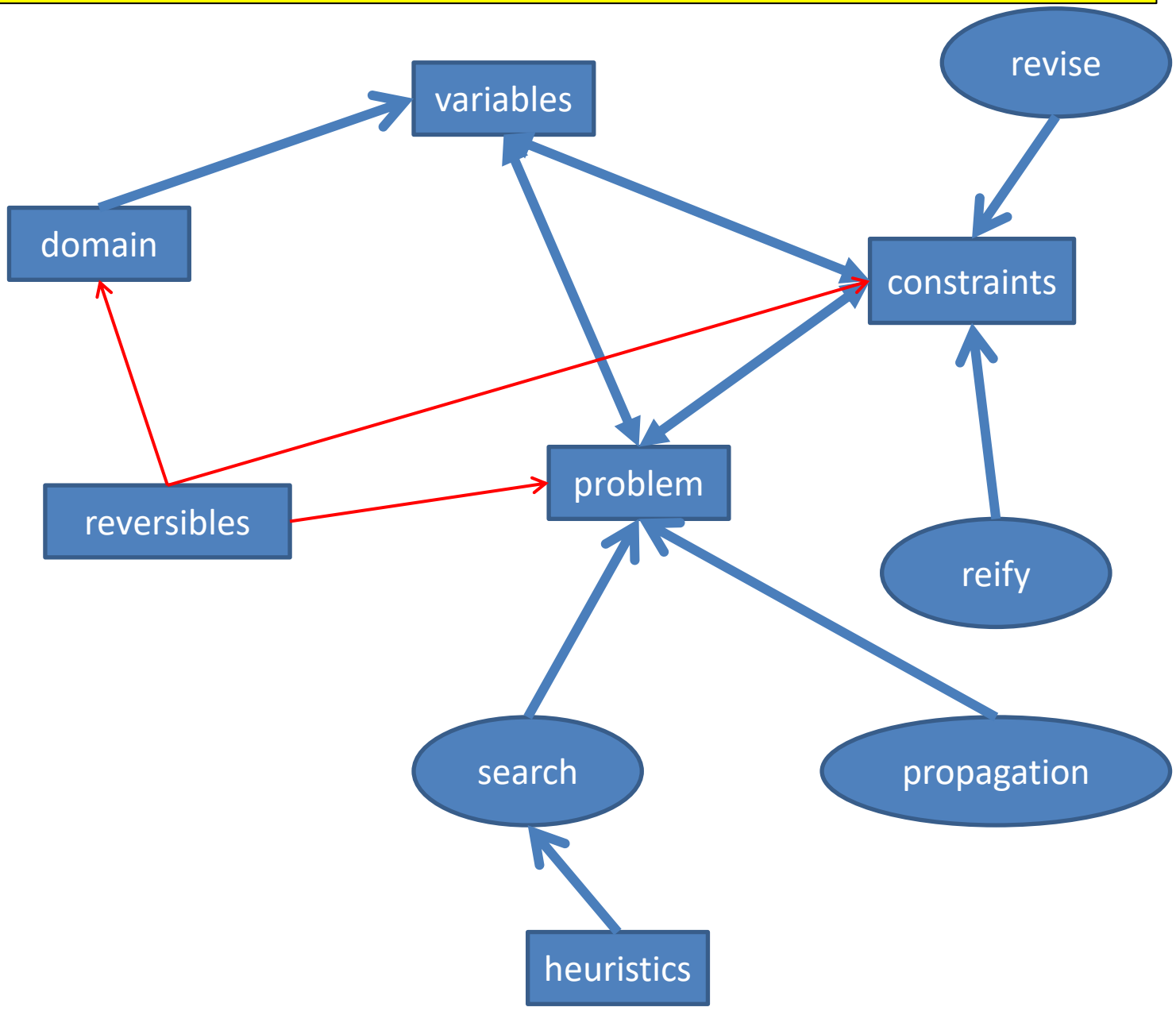
weeSeepy is an ongoing development project. It is intended that weeSeepy will be used for teaching constraint programming, allowing students and project students to get under the hood and see how a CP toolkit might be implemented. Therefore, it can be used in the classroom and by project students.

Off course, we always want to combine teaching with research. Being small, and using simple design concepts, it is possible for an individual to fully understand weeSeepy and have full control of weeSeepy. Therefore researchers may use weeSeepy to test out new constraints, variable and value ordering heuristics and new search algorithms. A recent example of this, is the work by Gilles Pesant where used mini-CP in this paper.

The goal: to implement a small CP toolkit , making the simplest possible design decisions, and use it for teaching and research


revise
variables
domain
constraints
problem
reversibles
reify
search
propagation
heuristics

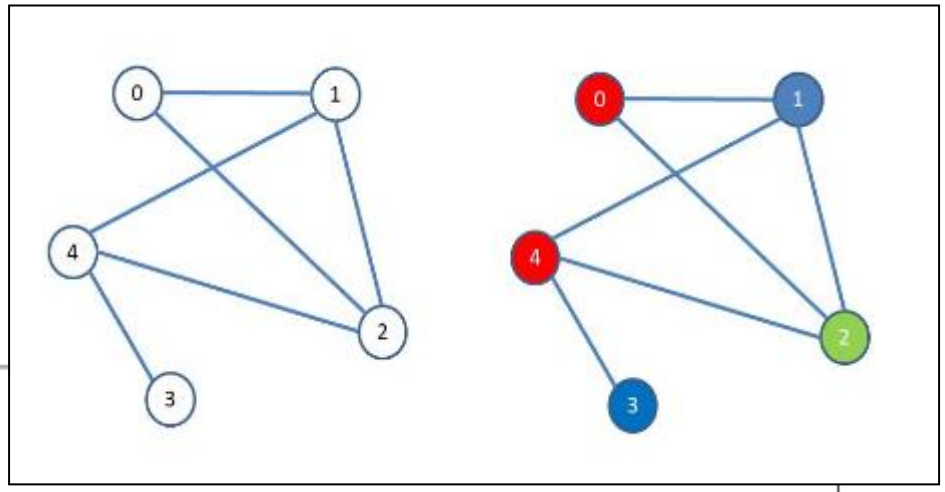
Almost feel like you have to implement everything before you even start!



Inspired by miniCP and influenced by choco

[1] Laurent Michel, Pierre Schaus, Pascal Van Hentenryck. MiniCP: A lightweight solver for constraint programming, 2018. Available from `https://minicp.bitbucket.io`.

[2] C. Prud'homme, J.-G. Fages, and X. Lorca. Choco documentation, 2017.




```
1  import java.util.*;
2
3  public class Col3 {
4
5      public static void main(String[] args){
6          Problem pb = new Problem("Col3");
7
8          int n = 5;
9          int k = 3;
10
11         IntVar[] v = new IntVar[n];
12
13         for (int i=0;i<n;i++) v[i] = pb.intVar("v_" + i,1,k);
14
15         pb.post(new NotEquals(pb,v[0],v[1]));
16         pb.post(new NotEquals(pb,v[0],v[2]));
17         pb.post(new NotEquals(pb,v[1],v[2]));
18         pb.post(new NotEquals(pb,v[1],v[4]));
19         pb.post(new NotEquals(pb,v[2],v[4]));
20         pb.post(new NotEquals(pb,v[3],v[4]));
21
22         pb.trace = true;
23         pb.show();
24         System.out.println(pb.bt());
25         pb.show();
26     }
27
28 }
```

Listing 1: weeSeepy code to three colour the simple graph in Figure 1


Where to start?


Domains and reversible integers