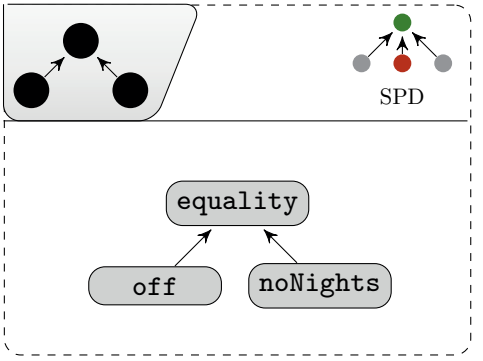
Engineering Objective Functions

define hard constraints in MiniZinc
define soft constraints in MiniBrass - including a graphical notation

```
include "rostering_o.mzn";
include "soft_constraints/minibrass.mzn";

int: day = 1; int: night = 2; int: off = 3;
set of int: SHIFTS = {day, night, off};
set of int: NURSES = 1..3;
array[NURSES] of var SHIFTS: roster;

solve search miniBrass();
```




```
include "defs.mbr"; % The MiniBrass type library

% Constraint Preferences allow for qualitative ranking
% of soft constraints
PVS: cp1 = new ConstraintPreferences("cp1") {
  soft-constraint equality: 'sum(i in NURSES)
                             (roster[i] = night) = 2';
  soft-constraint noNight: 'roster[2] in {day, off}';
  soft-constraint off: 'roster[3] = off';
  % having no night shift for nurse 2 is *less important*
  % than equal share of night shifts
  crEdges : '[| mbr.noNight, mbr.equality |
               mbr.off, mbr.equality |]';
  useSPD: 'true' ;
};

output '["roster = \(roster);"]' ;

solve cp1;
```