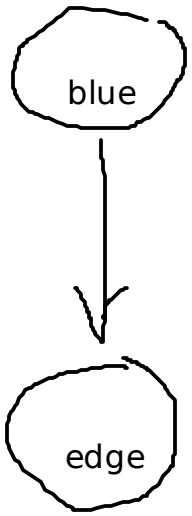
blue(v)
edge(v,w)



blue(v)=0.3

convex combination (mixture)

edge(v,w)= WIF 0.7
THEN 0.2
ELSE WIF blue(w):
THEN 0.5
ELSE: 0.8;

0.7* 0.2 + 0.3* 0.8

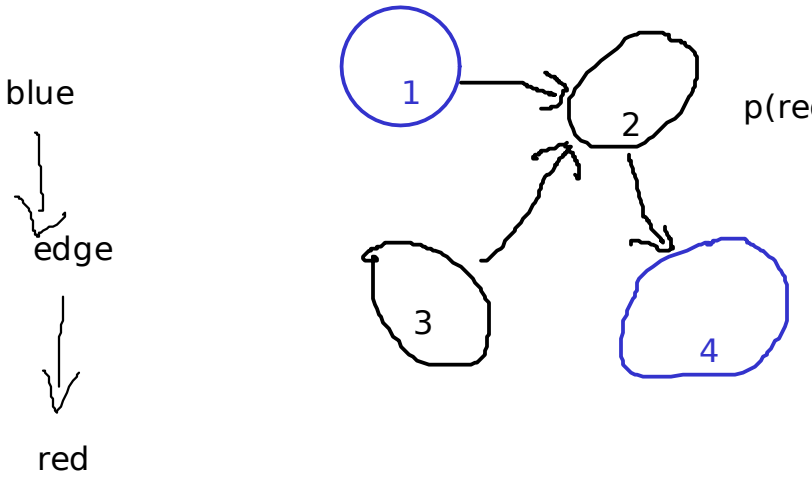
Probability formula phi defined by syntax:

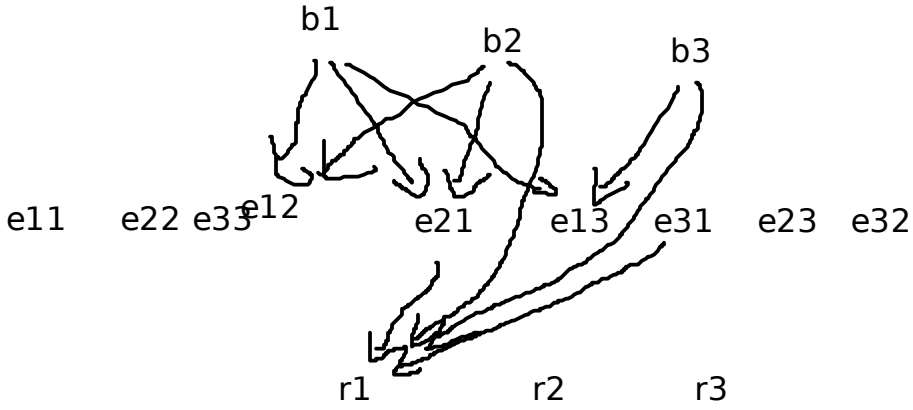
phi == <constant> || <atom> || WIF phi THEN phi ELSE phi ||
COMBINE phi WITH <combination function> FORALL <variables> WHERE psi ;

blue(v) = 0.3
edge(v,w) = ... (defined dependent on blue)

red(v) = COMBINE 0.4*blue(w)
WITH max
FORALL w
WHERE edge(w,v) & w != v ;

0.3^2*0.7^2*





FO formula phi in relations blue,edge,red phi1 phi2 phi3

alpha1: exists y (blue(y) & not edge(x,y))

alpha2: exists y(exists x (blue(x) & not edge(y,x)) & not edge(x