Algorithm 1

```
function [HM]=eligible(HM_tree,Req)
BM = root of HM_tree
while (BM is not empty)
 For every model M in BM
  If (Var(Req) is a subset of Var(M)+Var(Mon))
   Remove M from BM
   save M in HM
  else
   add children of M in BM
  endif
 endfor
endwhile
Return HM
```

Algorithm 2

Input: system model PM, abstraction tree for environment HM_tree, requirement Req
Output: Counter examples CE and corresponding model refinements, if any

```
[HM]=eligible(HM_tree,Req);
Mc= HM;
while (Mc is not empty)
  For all M in Mc
   [satisfied,CE]=ModelChecking(M,PM,Req);
   Remove M from Mc
   If satisfied==0
      add the children of M to Mc
      cache CE
   else
      save CE from the parent model
   endif
 endfor
endwhile
Return all saved CEs and their corresponding models
```