$$(\mathsf{fakt}(1,Z),\quad \mathsf{true})$$

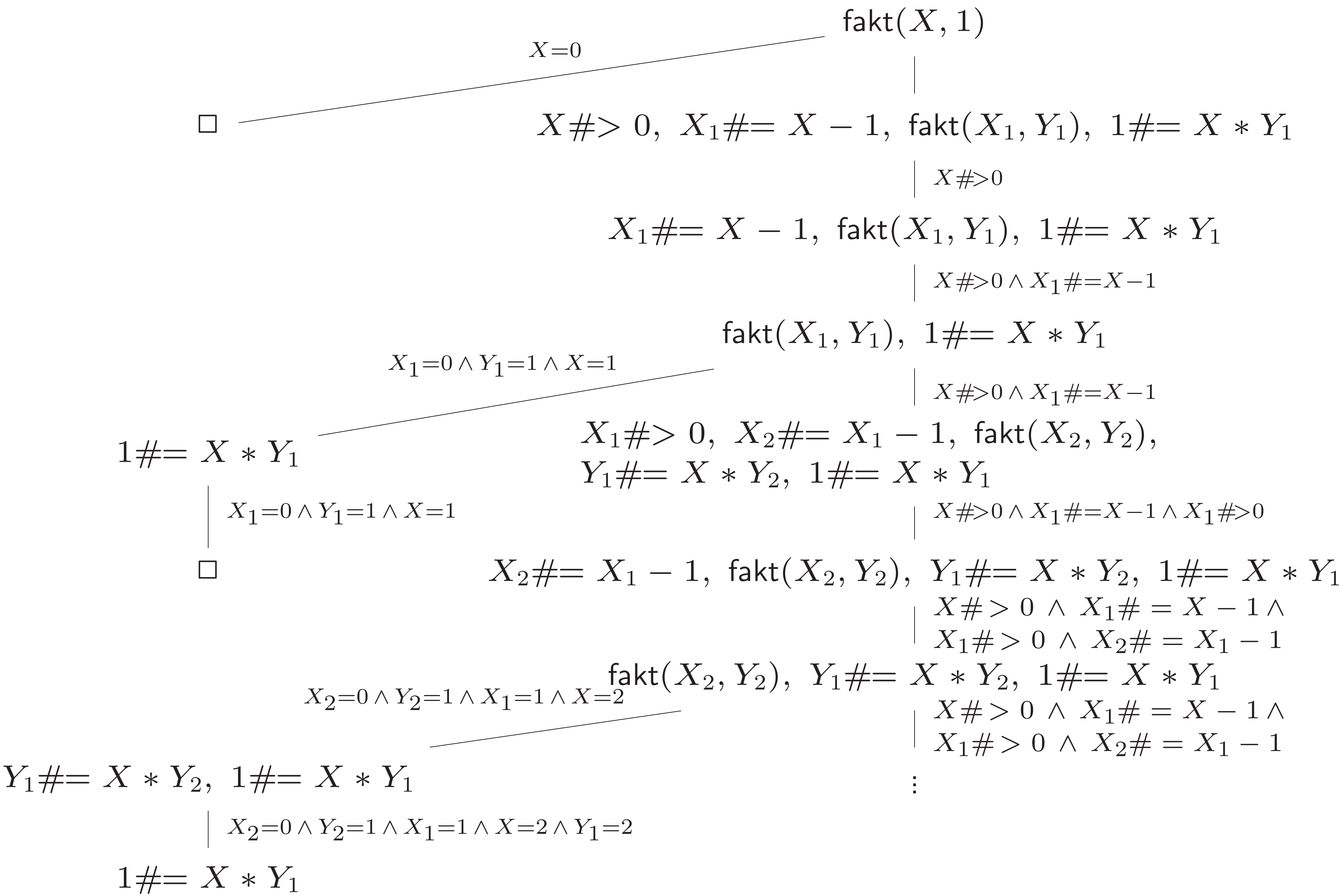
$$\vdash_{\mathcal{P}} (X\#>0, X_1\#= X-1, \mathsf{fakt}(X_1,Y_1), Y\#= X*Y_1,\quad \underbrace{\mathsf{true} \wedge \overline{\mathsf{fakt}(1,Z) = \mathsf{fakt}(X,Y)}}_{X=1\,\wedge\, Z=Y})$$

$$\vdash_{\mathcal{P}} (X_1\#= X-1, \mathsf{fakt}(X_1,Y_1), Y\#= X*Y_1,\quad \underbrace{X\#>0 \ \wedge\ X=1 \ \wedge\ Z=Y}_{X=1\,\wedge\, Z=Y})$$

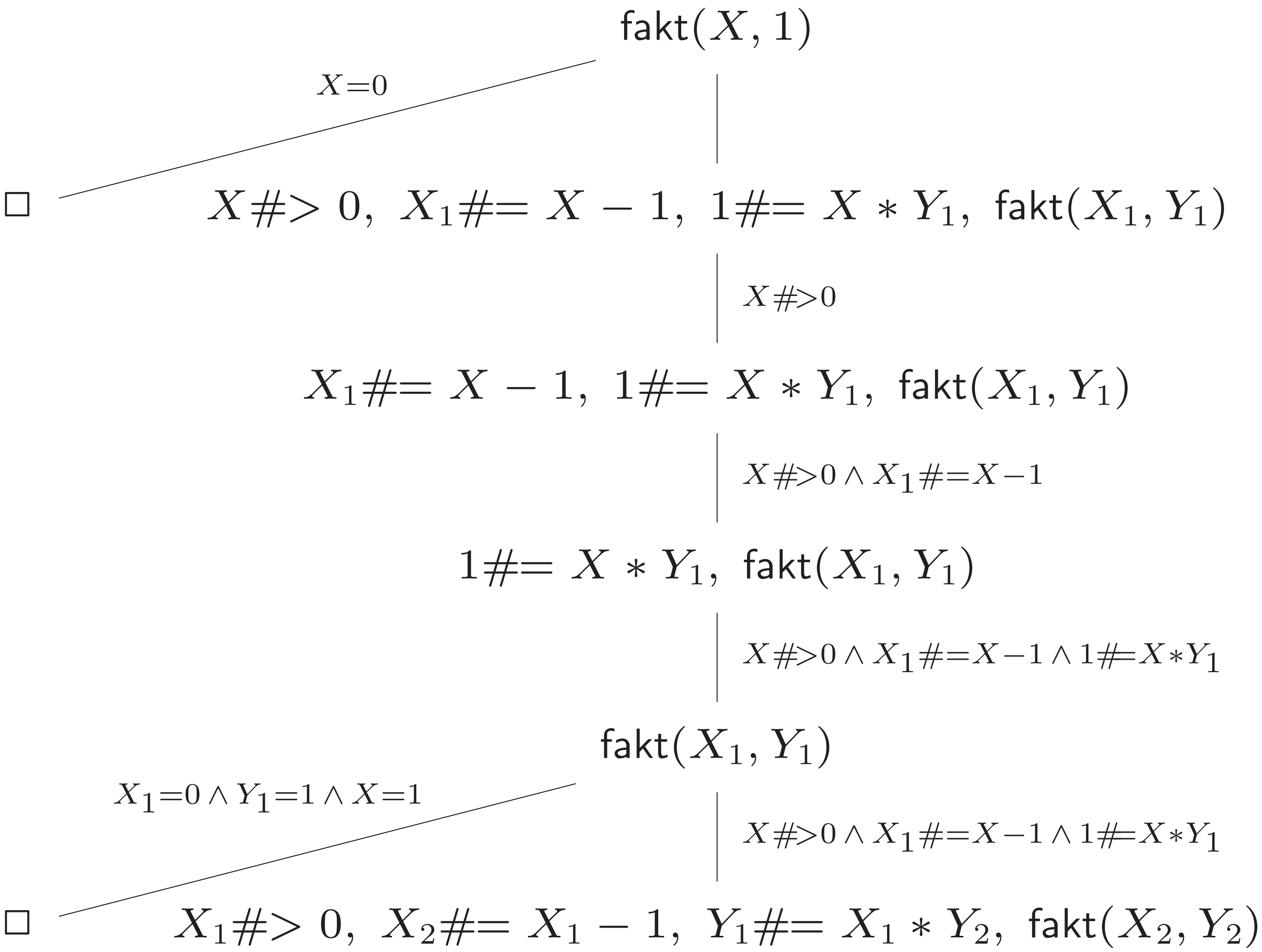
$$\vdash_{\mathcal{P}} (\mathsf{fakt}(X_1,Y_1), Y\#= X*Y_1,\quad \underbrace{X_1\#= X-1 \ \wedge\ X=1 \ \wedge\ Z=Y}_{X_1=0\,\wedge\, X=1\,\wedge\, Z=Y})$$

$$\vdash_{\mathcal{P}} (Y\#= X*Y_1,\quad \underbrace{\overline{\mathsf{fakt}(X_1,Y_1) = \mathsf{fakt}(0,1)} \ \wedge\ X_1=0 \ \wedge\ X=1 \ \wedge\ Z=Y}_{X_1=0\,\wedge\, Y_1=1\,\wedge\, X=1\,\wedge\, Z=Y})$$

$$\vdash_{\mathcal{P}} (\Box,\quad \underbrace{Y\#= X*Y_1 \ \wedge\ X_1=0 \ \wedge\ Y_1=1 \ \wedge\ X=1 \ \wedge\ Z=Y}_{Y=1\,\wedge\, X_1=0\,\wedge\, Y_1=1\,\wedge\, X=1\,\wedge\, Z=1})$$



fakt(X, 1)
X=0
□
X#> 0, X1#= X − 1, fakt(X1, Y1), 1#= X ∗ Y1
X#>0
X1#= X − 1, fakt(X1, Y1), 1#= X ∗ Y1
X#>0 ∧ X1#=X−1
fakt(X1, Y1), 1#= X ∗ Y1
X1=0 ∧ Y1=1 ∧ X=1
1#= X ∗ Y1
X#>0 ∧ X1#=X−1
X1#> 0, X2#= X1 − 1, fakt(X2, Y2),
Y1#= X ∗ Y2, 1#= X ∗ Y1
X1=0 ∧ Y1=1 ∧ X=1
□
X#>0 ∧ X1#=X−1 ∧ X1#>0
X2#= X1 − 1, fakt(X2, Y2), Y1#= X ∗ Y2, 1#= X ∗ Y1
X#> 0 ∧ X1# = X − 1 ∧
X1#> 0 ∧ X2# = X1 − 1
fakt(X2, Y2), Y1#= X ∗ Y2, 1#= X ∗ Y1
X2=0 ∧ Y2=1 ∧ X1=1 ∧ X=2
Y1#= X ∗ Y2, 1#= X ∗ Y1
X#> 0 ∧ X1# = X − 1 ∧
X1#> 0 ∧ X2# = X1 − 1
⋮
X2=0 ∧ Y2=1 ∧ X1=1 ∧ X=2 ∧ Y1=2
1#= X ∗ Y1


fakt(X, 1)
X=0
□
X#> 0, X1#= X − 1, 1#= X ∗ Y1, fakt(X1, Y1)
X#>0
X1#= X − 1, 1#= X ∗ Y1, fakt(X1, Y1)
X#>0 ∧ X1#=X−1
1#= X ∗ Y1, fakt(X1, Y1)
X#>0 ∧ X1#=X−1 ∧ 1#=X∗Y1
fakt(X1, Y1)
X1=0 ∧ Y1=1 ∧ X=1
X#>0 ∧ X1#=X−1 ∧ 1#=X∗Y1
□
X1#> 0, X2#= X1 − 1, Y1#= X1 ∗ Y2, fakt(X2, Y2)

```
:- use_module(library(clpfd)).

queens(N,L) :- length(L, N),
               L ins 1 .. N,
               all_different(L),
               safe(L),
               label(L).

safe([]).
safe([X|Xs]) :- safe_between(X, Xs, 1),
                safe(Xs).

safe_between(X, [], M).
safe_between(X, [Y|Ys], M) :- no_attack(X, Y, M),
                              M1 #= M + 1,
                              safe_between(X, Ys, M1).

no_attack(X, Y, N) :- X+N #\= Y, X-N #\= Y.
```

```
:- use_module(library(clpr)).

mortgage(D, T, I, R, S) :- {T = 0, D = S}.
mortgage(D, T, I, R, S) :- {T > 0, T1 = T - 1, D1 = D + D * I - R},
                           mortgage(D1, T1, I, R, S).
```