

(fact(1, Z), true)

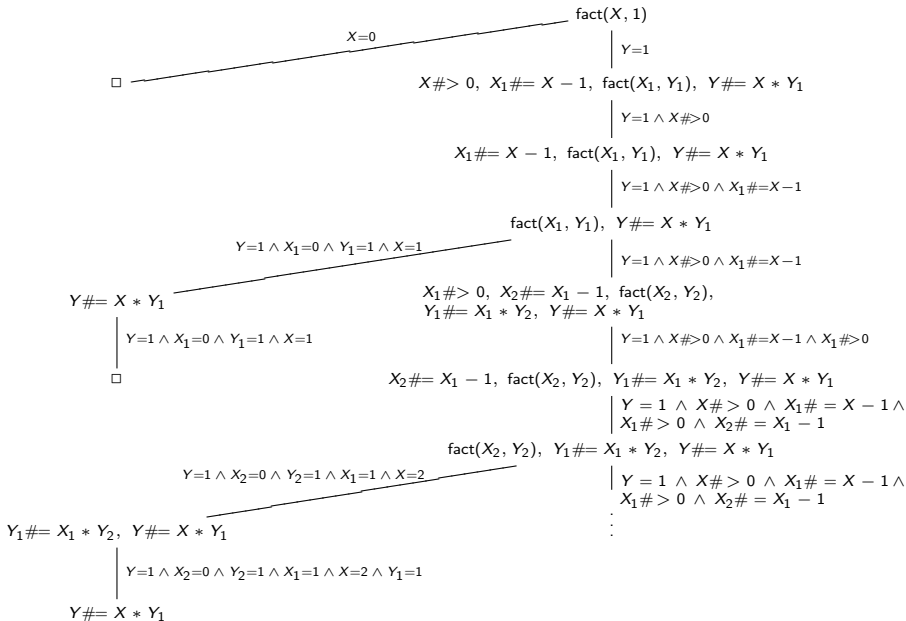
$$\vdash_{\mathcal{P}} (X\#> 0, X_1\# = X - 1, \text{fact}(X_1, Y_1), Y\# = X * Y_1, \underbrace{\text{true} \wedge \overline{\text{fact}(1, Z) = \text{fact}(X, Y)}}_{X=1 \wedge Z=Y})$$

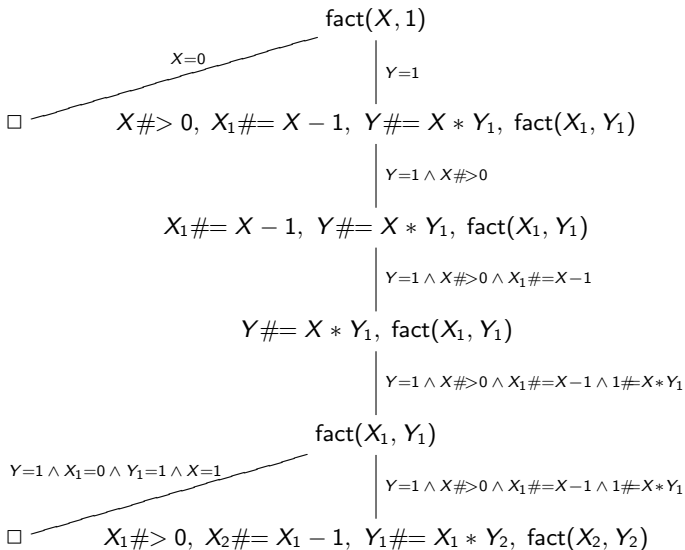
$$\vdash_{\mathcal{P}} (X_1\# = X - 1, \text{fact}(X_1, Y_1), Y\# = X * Y_1, \underbrace{X\#> 0 \wedge X = 1 \wedge Z = Y}_{X=1 \wedge Z=Y})$$

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

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

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





```
:- 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).
```