

```

┆  $\forall [T:Type]. \forall [P:T \rightarrow \mathbb{P}]. \forall [C:\mathbb{P}].$ 
|  $((\exists x:T. True) \Rightarrow (\forall x:T. ((P x) \wedge C)) \Rightarrow ((\forall x:T. (P x)) \wedge C))$ 
|
BY RepeatFor 3 ((UD THENA Auto))
|
[1]. T: Type
[2]. P: T  $\rightarrow$   $\mathbb{P}$ 
[3]. C:  $\mathbb{P}$ 
┆  $(\exists x:T. True) \Rightarrow (\forall x:T. ((P x) \wedge C)) \Rightarrow ((\forall x:T. (P x)) \wedge C)$ 
|
BY RepeatFor 2 ((D 0 THENA Auto))
|
4.  $\exists x:T. True$ 
5.  $\forall x:T. ((P x) \wedge C)$ 
┆  $(\forall x:T. (P x)) \wedge C$ 
|
BY D 0
| \
| ┆  $\forall x:T. (P x)$ 
| |
1 BY (D 0 THENA Auto)
| |
| 6. x: T
| ┆ P x
| |
1 BY (SimpleInstHyp [x] 5. THENA Auto)
| |
| 7.  $(P x) \wedge C$ 
| ┆ P x
| |
1 BY D 7
| |
| 7. P x
| 8. C
| ┆ P x
| |
1 BY NthHyp 7
| \
| ┆ C
| |
BY D 4
| |
4. x: T
5. True
6.  $\forall x:T. ((P x) \wedge C)$ 
┆ C
|
BY (SimpleInstHyp [x] 6. THENA Auto)
|
7.  $(P x) \wedge C$ 
┆ C
|
BY D 7
|
7. P x
8. C

```

```
⊢ C
|
BY NthHyp 8
```

Extract:

```
λe,f. <λx.let p1,c1 = f x in p1,
      let x,true = e in let p2,c2 = f x in c2>
```

```
where e : ∃x:T. True
      f : ∀x:T. ((P x) ∧ C)
      p1 : P x
      c1 : C
      p2 : P x
      c2 : C
```