

Inference at \*  
of proof for Lemma do-apply-p-filter:

```
⊢ ∀T:Type, P:(T→ ℙ), f:(∀x:T. Dec(P(x))), x:T.  
  (↑can-apply(p-filter(f);x) ⇒ (do-apply(p-filter(f);x) = x)  
  by (((if (((first_nat 4:n) = 0) then (Repeat (((D (0)·)  
CollapseTHEN (Auto·)).  
  )) else (RepeatFor (first_nat 4:n) (((D (0)·)  
CollapseTHEN (Auto·)).))))·)
```

```
CollapseTHEN (RepUR “can-apply do-apply p-filter“ ( 0)·).
```

1:

1.  $T : \text{Type}$
  2.  $P : T \rightarrow \mathbb{P}$
  3.  $f : \forall x:T. \text{Dec}(P(x))$
  4.  $x : T$
- ```
⊢ (↑isl(case f(x) of inl(p) => inl x | inr(p) => inr p ))  
  ⇒ (outl(case f(x) of inl(p) => inl x | inr(p) => inr p ) = x)
```