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let  $\varepsilon = \blacksquare : \{s : \mathbb{S} \mid \text{len}(s) = 0\}$  in
let  $\text{unit} = \perp : \{\nu : \text{Unit} \mid \text{true}\}$  in
let  $\text{eq}_{\mathbb{S}} = \perp : \{s : \mathbb{S} \mid \text{true}\} \rightarrow \{t : \mathbb{S} \mid \text{true}\} \rightarrow \{b : \mathbb{B} \mid b \Leftrightarrow s = t\}$  in
let  $\text{eq}_{\mathbb{N}} = \perp : \{n : \mathbb{Z} \mid n \geq 0\} \rightarrow \{m : \mathbb{Z} \mid m \geq 0\} \rightarrow \{b : \mathbb{B} \mid b \Leftrightarrow m = n\}$  in
let  $\text{drop} = \perp : \{n : \mathbb{Z} \mid n \geq 0\} \rightarrow \{s : \mathbb{S} \mid \text{len}(s) \geq n\} \rightarrow \{t : \mathbb{S} \mid s = \star^n t\}$  in
let  $\text{take} = \perp : \{n : \mathbb{Z} \mid n \geq 0\} \rightarrow \{s : \mathbb{S} \mid \text{len}(s) \geq n\} \rightarrow \{t : \mathbb{S} \mid t = \star^n \wedge s = t \star^m \wedge m = \text{len}(s)\}$  in

rec  $\text{empty} : \{s : \mathbb{S} \mid \text{true}\} \rightarrow \{b : \mathbb{B} \mid b \Leftrightarrow \text{len}(s) = 0\}$ 
   $= \lambda x.$ 
    let  $n = \text{length } x$  in
       $\text{eq}_{\mathbb{N}} 0 n$ 
in

rec  $\text{trim} : \{s : \mathbb{S} \mid \star\} \rightarrow \{t : \mathbb{S} \mid \star\}$ 
   $= \lambda x.$ 
    let  $b = \text{empty } x$  in
      if  $b$  then
         $\varepsilon$ 
      else
        let  $y = \text{take } 1 \ x$  in
          let  $x = \text{eq}_{\mathbb{S}} \blacksquare y$  in
            if  $x$  then
              let  $z = \text{drop } 1 \ x$  in
                 $\text{trim } z$ 
            else
               $x$ 
in

in

unit

```