let $\varepsilon = \boxed{} : \{s : \mathbb{S} \mid \mathrm{len}(s) = 0\}$ **in**
let $\mathrm{unit} = \bot : \{\nu : \mathsf{Unit} \mid \mathsf{true}\}$ **in**
let $\mathrm{eq}_{\mathbb{S}} = \bot : \{s : \mathbb{S} \mid \mathsf{true}\} \to \{t : \mathbb{S} \mid \mathsf{true}\} \to \{b : \mathbb{B} \mid b \Leftrightarrow s = t\}$ **in**
let $\mathrm{eq}_{\mathbb{N}} = \bot : \{n : \mathbb{Z} \mid n \geq 0\} \to \{m : \mathbb{Z} \mid m \geq 0\} \to \{b : \mathbb{B} \mid b \Leftrightarrow m = n\}$ **in**
let $\mathrm{drop} = \bot : \{n : \mathbb{Z} \mid n \geq 0\} \to \{s : \mathbb{S} \mid \mathrm{len}(s) \geq n\} \to \{t : \mathbb{S} \mid s = \underline{\star^n t}\}$ **in**
let $\mathrm{take} = \bot : \{n : \mathbb{Z} \mid n \geq 0\} \to \{s : \mathbb{S} \mid \mathrm{len}(s) \geq n\} \to \{t : \mathbb{S} \mid t = \star^n \land\ s = t\,\star^m \land m = \mathrm{len}(s)\}$ **in**

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

rec $\mathrm{trim} : \{s : \mathbb{S} \mid \bigstar\} \to \{t : \mathbb{S} \mid \bigstar\}$
$= \lambda x.$
  let $b = \mathrm{empty}\ x$ **in**
  if b **then**
    ε
  else
    let $y = \mathrm{take}\ 1\ x$ **in**
    let $x = \mathrm{eq}_{\mathbb{S}}\ \boxed{␣}\ y$ **in**
    if x **then**
      let $z = \mathrm{drop}\ 1\ x$ **in**
      $\mathrm{trim}\ z$
    else
      x
in

unit