

MAU11602 Assignment 5
Due 2026-03-12

1. Stacks and the append function were defined by

```
datatype 'a stack = Empty | Push of 'a * 'a stack
fun append (Empty, t) = t
  | append (Push (i, s), t) = Push (i, append (s, t))
```

We expect append to be associative, i.e. that

$$\text{append } (s, \text{append } (t, u)) = \text{append } (\text{append } (s, t), u)$$

Prove this using structural induction.