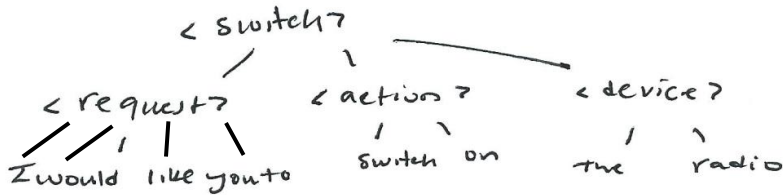


Homework #8 Grammar

Problem #1

a) $\langle \text{switch} \rangle$, $\langle \text{request} \rangle$, $\langle \text{polite} \rangle$, $\langle \text{action} \rangle$, $\langle \text{device} \rangle$

b)



c) $\langle \text{switch} \rangle \rightarrow [\langle \text{request} \rangle] \langle \text{action} \rangle \langle \text{device} \rangle$

→ Please $\langle \text{action} \rangle \langle \text{device} \rangle$

→ Please turn off $\langle \text{device} \rangle$

→ Please turn off the lights

Problem #2

a) $\langle \text{exp} \rangle$

b) $(7 + 3) * 2$

$(\langle \text{digit} \rangle + 3) * 2$

$(\langle \text{digit} \rangle + \langle \text{digit} \rangle) * 2$

$(\langle \text{digit} \rangle + \langle \text{digit} \rangle) * \langle \text{digit} \rangle$

$(\langle \text{number} \rangle + \langle \text{number} \rangle) * \langle \text{number} \rangle$

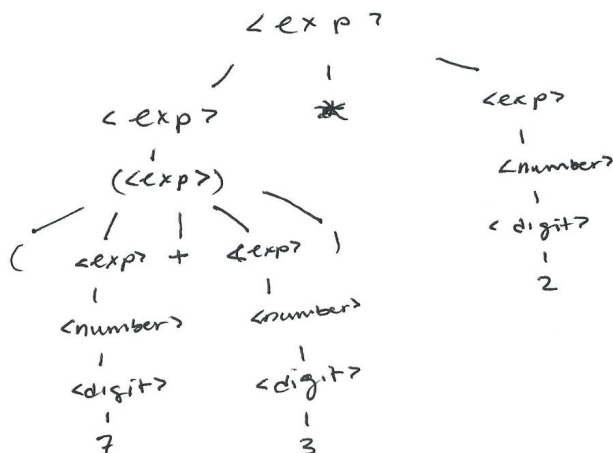
$(\langle \text{exp} \rangle + \langle \text{exp} \rangle) * \langle \text{exp} \rangle$

$(\langle \text{exp} \rangle) * \langle \text{exp} \rangle$

$\langle \text{exp} \rangle * \langle \text{exp} \rangle$

$\langle \text{exp} \rangle$

c)



Problem #3

- a) $\langle \text{pop} \rangle$, $\langle \text{bop} \rangle$, $\langle \text{boop} \rangle$
- b) $x, y, z, , (\text{comma}), (,), [,]$
- c)



- d) Is the following sentence legal (valid) in the language? $[(x),[y,x]]$
Yes, based on deriving it using the parse tree below

