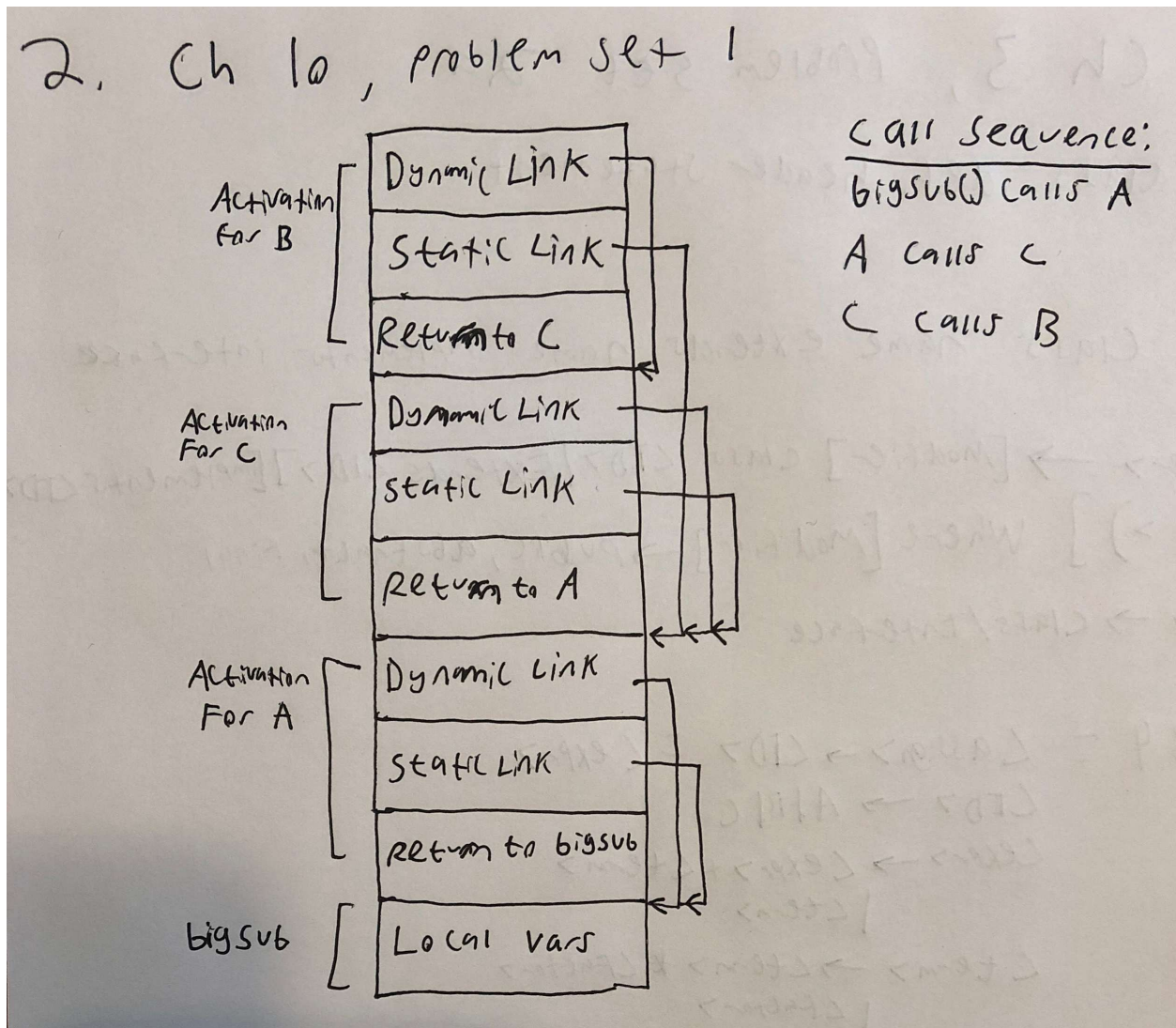


Homework #6

2.



3.

3. Ch 3, Problem set 2a

Java class def. header statement

Public class name extends name implements interface

$\langle \text{header} \rangle \rightarrow [\text{modifier}] \text{class } \langle \text{ID} \rangle [\text{Extends } \langle \text{ID} \rangle] [\text{implements } \langle \text{ID} \rangle (\langle \text{ID} \rangle)]$ Where $[\text{modifier}] \rightarrow \text{public, abstract, final}$
 $\langle \text{ID} \rangle \rightarrow \text{class/interface}$

4.

4. 3.4 = $\langle \text{assign} \rangle \rightarrow \langle \text{ID} \rangle = \langle \text{expr} \rangle$

$\langle \text{ID} \rangle \rightarrow A | B | C$

$\langle \text{expr} \rangle \rightarrow \langle \text{expr} \rangle + \langle \text{term} \rangle$
 $\quad \quad \quad | \langle \text{term} \rangle$

$\langle \text{term} \rangle \rightarrow \langle \text{term} \rangle * \langle \text{factor} \rangle$
 $\quad \quad \quad | \langle \text{factor} \rangle$

$\langle \text{factor} \rangle \rightarrow (\langle \text{expr} \rangle)$
 $\quad \quad \quad | \langle \text{ID} \rangle$

Rewritten: $\langle \text{assign} \rangle \rightarrow \langle \text{ID} \rangle = \langle \text{expr} \rangle$

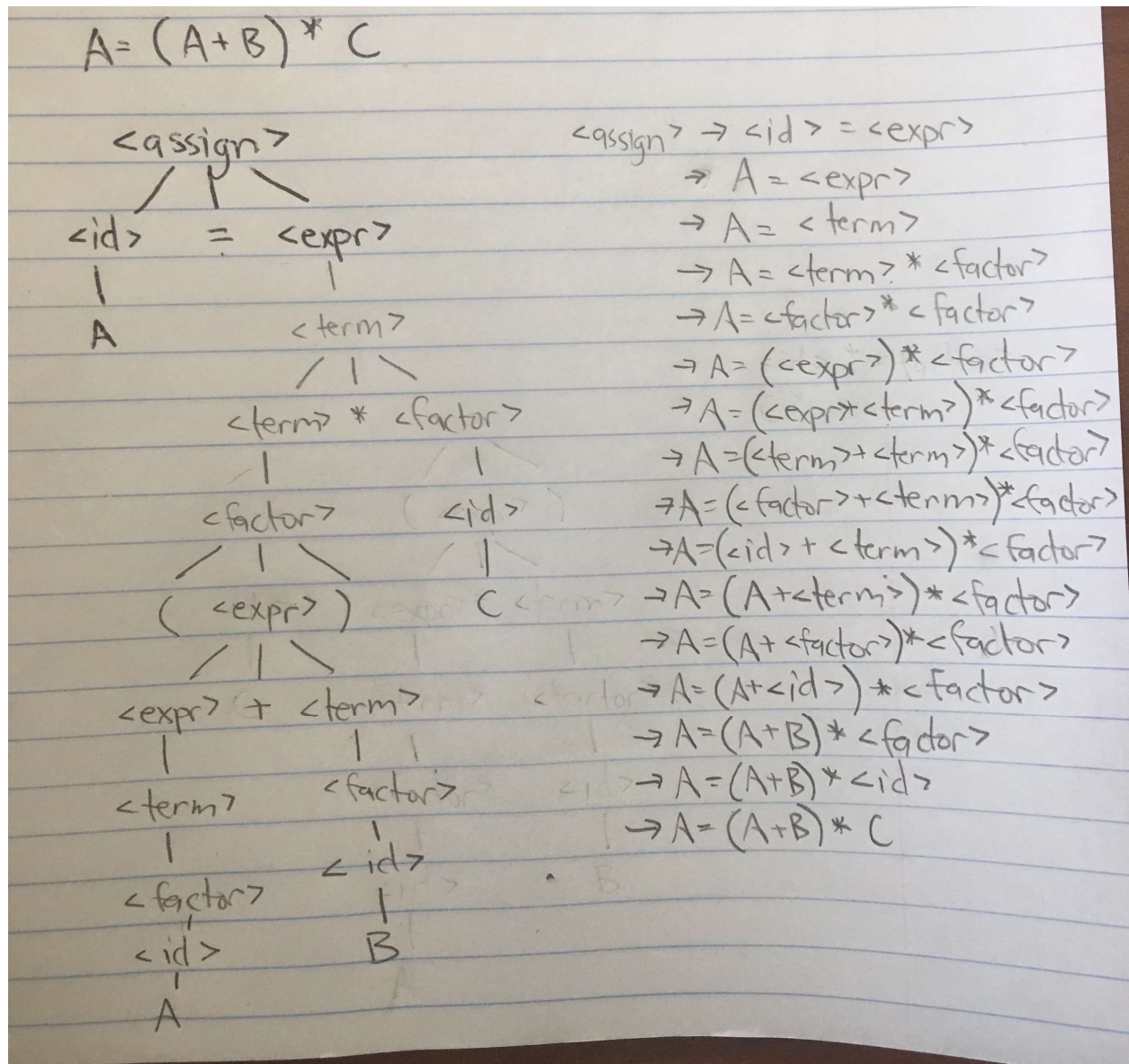
$\langle \text{ID} \rangle \rightarrow A | B | C$

$\langle \text{expr} \rangle \rightarrow \langle \text{expr} \rangle * \langle \text{term} \rangle | \langle \text{term} \rangle$

$\langle \text{term} \rangle \rightarrow \langle \text{factor} \rangle + \langle \text{term} \rangle | \langle \text{factor} \rangle$

$\langle \text{factor} \rangle \rightarrow (\langle \text{expr} \rangle) | \langle \text{ID} \rangle$

5.



6.

11 CONSIDER THE FOLLOWING GRAMMAR:

$$\begin{aligned} \langle S \rangle &\rightarrow \langle A \rangle a \langle B \rangle b \\ \langle A \rangle &\rightarrow \langle A \rangle b \mid b \\ \langle B \rangle &\rightarrow a \langle B \rangle \mid a \end{aligned}$$

a) baab

$$\begin{aligned} \langle S \rangle &\rightarrow \langle A \rangle a \langle B \rangle b \\ &\rightarrow b a \langle B \rangle b \\ &\rightarrow b a a b \quad \checkmark \end{aligned}$$

b) bbbab

$$\begin{aligned} \langle S \rangle &\rightarrow \langle A \rangle a \langle B \rangle b \\ &\rightarrow \langle A \rangle b a \langle B \rangle b \\ &\rightarrow \langle A \rangle b b a \langle B \rangle b \\ &\rightarrow b b b a \langle B \rangle b \quad \times \end{aligned}$$

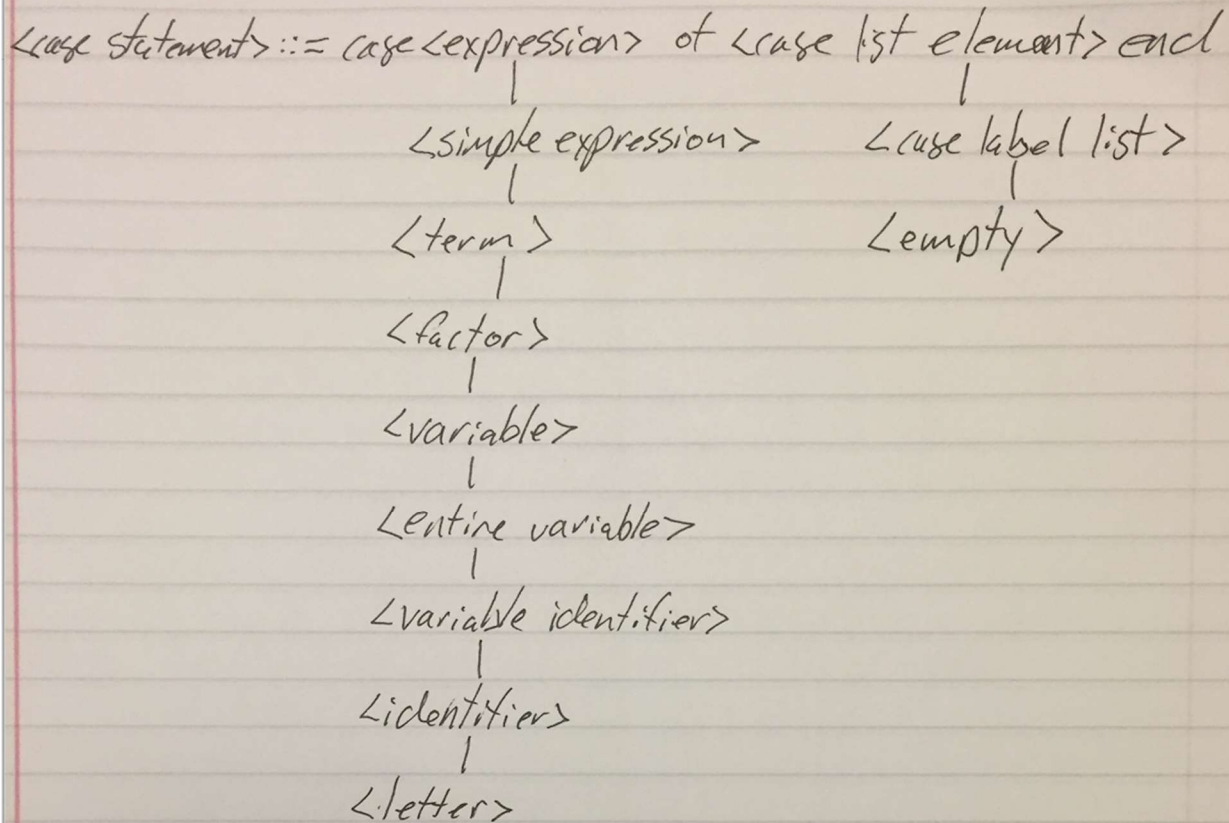
7.

$$\begin{aligned} S &\rightarrow A \{bA\} \\ A &\rightarrow a [b] A \end{aligned}$$

$$\begin{aligned} S &\rightarrow S b A \mid A \\ A &\rightarrow a A \mid a b A \end{aligned}$$

$$\begin{aligned} \langle S \rangle &\rightarrow \langle S \rangle b \langle A \rangle \mid \langle A \rangle \\ \langle A \rangle &\rightarrow a \langle A \rangle \mid a b \langle A \rangle \end{aligned}$$

8.



$\langle \text{case statement} \rangle ::= \text{case } \langle \text{letter} \rangle \text{ end}$

$\langle \text{case statement} \rangle ::= \text{case } X \text{ end}$

9.

Ben: Completed questions 2, 3, 4 with Mike. Checked questions 5 & 6.

Mike: Helped Ben with 2, 3, 4, completed question 8.

Brendan: Completed questions 5 and 6 with input from John. Looked over all other solutions

John: Completed 8 and helped Brendan with 5 and 6.

Everyone: Completed the post semester survey