1. (5 pts) Let Σ = {a, b}, and L be the language that contains strings that do not contain exactly three a's in sequence. Examples of strings in L: baab, baaaab (4 a's in a row), bbabaabaaaab. Examples of strings not in L: aaa, baaab, bababaaabab (all of them have three a's in a row somewhere). Create a grammar, G, for L.

S  A

A  bA

A  aaC

A  aB

A  λ

B  aaaA

C  aaA

1. Diagram

   Description automatically generated(10 pts) draw the parse tree for string u = baaaab
2. (5 pts) State, with justification, whether your grammar is ambiguous or not.

The language is ambiguous as proven by the fact that there exists multiple possible, valid, parse trees for the string given in number 2 (u = baaaab). Below is example:

Diagram

Description automatically generated