Exercise I: Constituency Parsing

Given Sentence **"She ate the cake on the table."** and the following Context-Free Grammar (CFG):

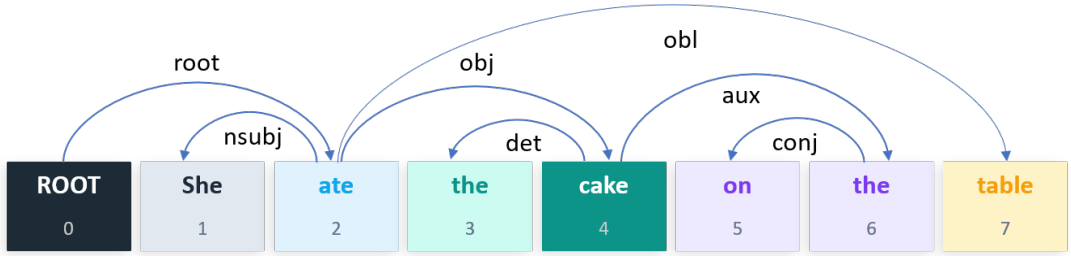
S → NP VP NP → Det N | NP PP | N VP → V NP | VP PP PP → P NP	Det → the N → She | cake | table V → ate P → on

Identify the terminals in CFG.

a) Starting from the start symbol S, derive the sentence step by step. Provide two different derivations corresponding to the two possible interpretations of the sentence.
b) Draw two constituency trees corresponding to your derivations.
c) Explain the two different meanings of the sentence based on the two parse trees.

Exercise II: Dependency Parsing

Given Sentence **"She ate the cake on the table"** and the following Dependency Tree that contains errors:



a) Apply a transition-based parser and fill in the steps (Stack, Buffer, Action, Dependency).
b) Compute UAS and LAS using the incorrect tree as Prediction and the following correct tree as Gold.

