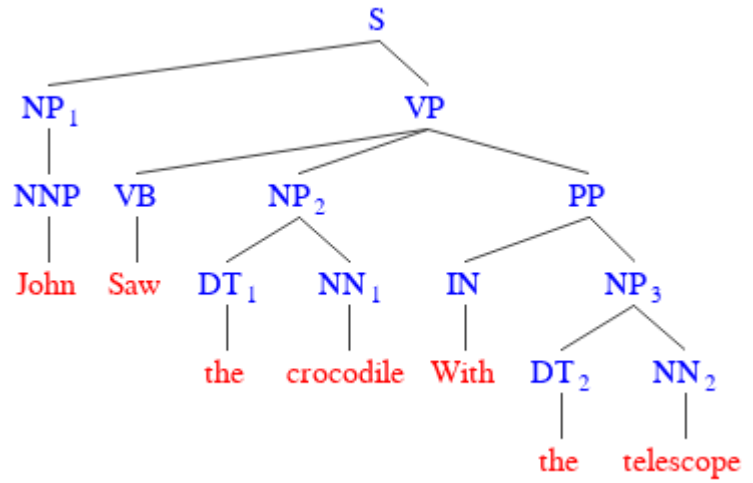


1

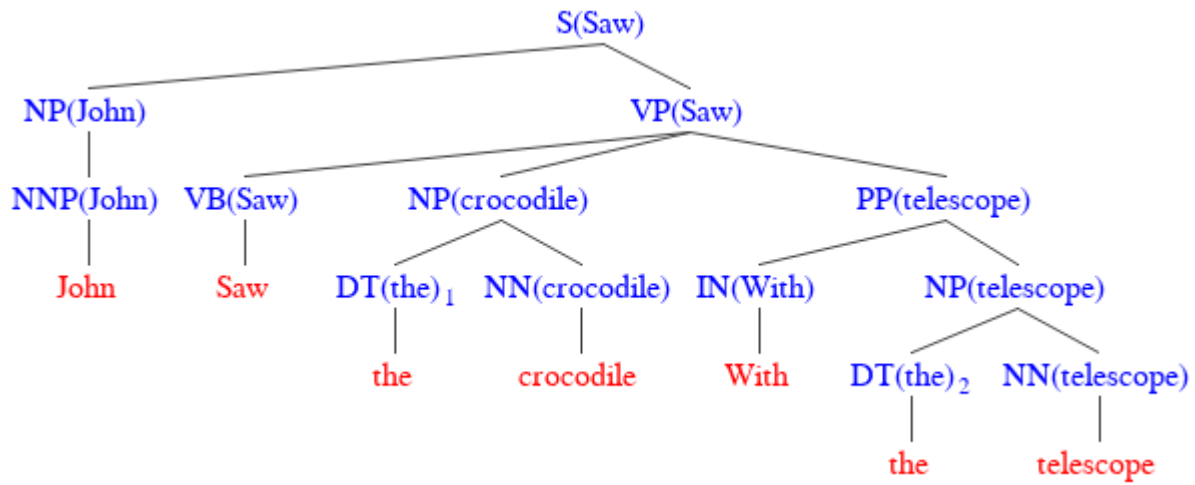
1.1




1.2

there is only 1 option to derivate the sentence under the given CFG.

1.3



1.4



John saw the crocodile with the telescope

2

2.1

```
C:\Users\Omer\Anacondas\python.exe C:/Users/Omer/PycharmProjects/untitled13/tets.py
running arc standart with the following actions  SHIFT , SHIFT , LEFT nsubj, SHIFT , SHIFT , SHIFT , LEFT
stack: ['root'] buffer: ['John', 'likes', 'balloons', 'that', 'pop', 'and', 'eggs']
arcs: []
----- SHIFT -----
stack: ['root', 'John'] buffer: ['likes', 'balloons', 'that', 'pop', 'and', 'eggs']
arcs: []
----- SHIFT -----
stack: ['root', 'John', 'likes'] buffer: ['balloons', 'that', 'pop', 'and', 'eggs']
arcs: []
----- LEFT nsubj-----
stack: ['root', 'likes'] buffer: ['balloons', 'that', 'pop', 'and', 'eggs']
arcs: [('likes', 'John')]
----- SHIFT -----
stack: ['root', 'likes', 'balloons'] buffer: ['that', 'pop', 'and', 'eggs']
arcs: [('likes', 'John')]
----- SHIFT -----
stack: ['root', 'likes', 'balloons', 'that'] buffer: ['pop', 'and', 'eggs']
arcs: [('likes', 'John')]
----- SHIFT -----
stack: ['root', 'likes', 'balloons', 'that', 'pop'] buffer: ['and', 'eggs']
arcs: [('likes', 'John')]
----- LEFT mark-----
stack: ['root', 'likes', 'balloons', 'pop'] buffer: ['and', 'eggs']
arcs: [('likes', 'John'), ('pop', 'that')]
----- RIGHT acl-----
stack: ['root', 'likes', 'balloons'] buffer: ['and', 'eggs']
arcs: [('likes', 'John'), ('pop', 'that'), ('balloons', 'pop')]
----- SHIFT -----
stack: ['root', 'likes', 'balloons', 'and'] buffer: ['eggs']
arcs: [('likes', 'John'), ('pop', 'that'), ('balloons', 'pop')]
----- SHIFT -----
stack: ['root', 'likes', 'balloons', 'and', 'eggs'] buffer: []
arcs: [('likes', 'John'), ('pop', 'that'), ('balloons', 'pop')]
----- LEFT cc-----
stack: ['root', 'likes', 'balloons', 'eggs'] buffer: []
arcs: [('likes', 'John'), ('pop', 'that'), ('balloons', 'pop'), ('eggs', 'and')]
----- RIGHT conj-----
stack: ['root', 'likes', 'balloons'] buffer: []
arcs: [('likes', 'John'), ('pop', 'that'), ('balloons', 'pop'), ('eggs', 'and'), ('balloons', 'eggs')]
----- RIGHT obj-----
stack: ['root', 'likes'] buffer: []
arcs: [('likes', 'John'), ('pop', 'that'), ('balloons', 'pop'), ('eggs', 'and'), ('balloons', 'eggs'),
----- RIGHT root-----
stack: ['root'] buffer: []
arcs: [('likes', 'John'), ('pop', 'that'), ('balloons', 'pop'), ('eggs', 'and'), ('balloons', 'eggs'),
```

2.2

```
running arc eager with the following actions  SHIFT , LEFT nsubj, RIGHT root, RIGHT obj, SHIFT , LEFT mar
stack: ['root'] buffer: ['John', 'likes', 'balloons', 'that', 'pop', 'and', 'eggs']
arcs: []
--Shift--
stack: ['root', 'John'] buffer: ['likes', 'balloons', 'that', 'pop', 'and', 'eggs']
arcs: []
--Left arc nsubj--
arcs: [('likes', 'John')]
stack: ['root'] buffer: ['likes', 'balloons', 'that', 'pop', 'and', 'eggs']
arcs: [('likes', 'John')]
--Right arc root--
arcs: [('likes', 'John'), ('root', 'likes')]
stack: ['root', 'likes'] buffer: ['balloons', 'that', 'pop', 'and', 'eggs']
arcs: [('likes', 'John'), ('root', 'likes')]
--Right arc obj--
arcs: [('likes', 'John'), ('root', 'likes'), ('likes', 'balloons')]
stack: ['root', 'likes', 'balloons'] buffer: ['that', 'pop', 'and', 'eggs']
arcs: [('likes', 'John'), ('root', 'likes'), ('likes', 'balloons')]
--Shift--
stack: ['root', 'likes', 'balloons', 'that'] buffer: ['pop', 'and', 'eggs']
arcs: [('likes', 'John'), ('root', 'likes'), ('likes', 'balloons')]
--Left arc mark--
arcs: [('likes', 'John'), ('root', 'likes'), ('likes', 'balloons'), ('pop', 'that')]
stack: ['root', 'likes', 'balloons'] buffer: ['pop', 'and', 'eggs']
arcs: [('likes', 'John'), ('root', 'likes'), ('likes', 'balloons'), ('pop', 'that')]
--Right arc acl--
arcs: [('likes', 'John'), ('root', 'likes'), ('likes', 'balloons'), ('pop', 'that'), ('balloons', 'pop')]
stack: ['root', 'likes', 'balloons', 'pop'] buffer: ['and', 'eggs']
arcs: [('likes', 'John'), ('root', 'likes'), ('likes', 'balloons'), ('pop', 'that'), ('balloons', 'pop')]
--Reduce--
stack: ['root', 'likes', 'balloons'] buffer: ['and', 'eggs']
arcs: [('likes', 'John'), ('root', 'likes'), ('likes', 'balloons'), ('pop', 'that'), ('balloons', 'pop')]
--Shift--
stack: ['root', 'likes', 'balloons', 'and'] buffer: ['eggs']
arcs: [('likes', 'John'), ('root', 'likes'), ('likes', 'balloons'), ('pop', 'that'), ('balloons', 'pop')]
--Left arc cc--
arcs: [('likes', 'John'), ('root', 'likes'), ('likes', 'balloons'), ('pop', 'that'), ('balloons', 'pop')]
stack: ['root', 'likes', 'balloons'] buffer: ['eggs']
arcs: [('likes', 'John'), ('root', 'likes'), ('likes', 'balloons'), ('pop', 'that'), ('balloons', 'pop')]
--Right arc conj--
arcs: [('likes', 'John'), ('root', 'likes'), ('likes', 'balloons'), ('pop', 'that'), ('balloons', 'pop')]
stack: ['root', 'likes', 'balloons', 'eggs'] buffer: []
```