NLP

Exercise 4

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Question 2

①

root		John	likes	balloons	that	pop	and	eggs

① ⟶ shift

root	John		likes	balloons	that	pop	and	eggs

② ⟶ shift

root	John	likes		balloons	that	pop	and	eggs

③ ⟶ left arc nsubj

root	likes		balloons	that	pop	and	eggs

nsubj

John likes balloon that pop and eggs

④ ⟶ shift

| root | likes | balloon | | that | pop | and | eggs |

⑤ ⟶ shift

| root | likes | balloon | that | | ~~pop~~ pop | and | eggs |

⑥ ~~shift~~ ⟶ shift

| root | likes | balloon | that | pop | | and | eggs |

⑦ ⟶ Left arc mark

| root | likes | balloon | pop | | and | eggs |

nsubj   mark

John likes balloon that pop and eggs

⑧ ⟶ Right arc acl

| root | likes | balloon | | and | eggs |

nsubj   acl   mark

John likes balloon that pop and eggs

⑨ ⟶ shift

root	liks	balloons	and		eggs

(10) → shift

root	likes	balloons	and	eggs		□

(11) → Left arc CC

root	likes	balloons	eggs		□

the   nsubj   ad
                                      mark   CC
John likes balloon that pop   and eggs

(12) → right arc conj

root	likes	balloons		□

        nsubj   conj   ad
                              mark   CC
John likes balloon that pop and eggs

(13) → right arc obj

root	likes		□

        nsubj   obj   ad   conj
                                  mark   CC
John likes balloons that pop and eggs

④ → right arc root

[root]　　　□

root
nsubj ↓ obj　　　　　　　acl　　　conj
　　　　　　　　　mark　　　cc
John likes balloons that pop and eggs
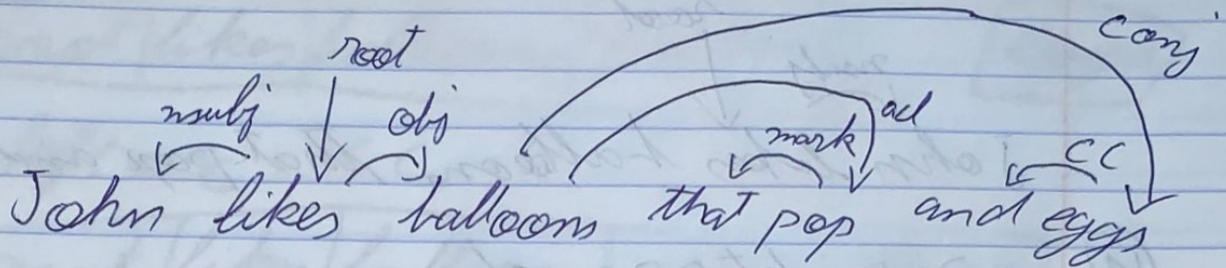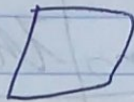
so we are done that was the needed

sequence of transitions and it's of

length 74

②

[root] [John | likes | balloons | that | pop | and | eggs]

① → shift

[root | John] [likes | balloons | that | pop | and | eggs]

② → Left arc nsubj

[root] [likes | balloons | that | pop | and | eggs]

nsubj
John likes balloons that pop and eggs

③ → right arc root

| root | likes | | balloon | that | pop | and | eggs |

root
nsubj ↓

John likes balloon that pop and eggs

④ → right arc obj

| root | likes | balloon | | That | pop | and | eggs |

nsubj root obj

John likes balloon that pop and eggs

⑤ → shift

| root | likes | balloon | That | | pop | and | eggs |

⑥ → Left arc mark

| root | likes | balloon | | pop | and | eggs |

root
nsubj ↓ obj   mark

John likes balloon that Pop and eggs

⑦ → right arc ad

| root | likes | balloon | pop | | and | eggs |

$$\overset{\text{root}}{\underset{\text{nsubj}}{\downarrow}} \overset{\text{dbj}}{\text{acl}} \overset{\text{mark}}{}$$

John likes balloons that pop and eggs

⑧ → shift

root	likes	balloons	pop	and		eggs

⑨ → Left arc   cc

root	likes	balloons	pop		eggs

$$\overset{\text{root}}{\underset{\text{nsubj}}{\downarrow}} \overset{\text{dbj}}{} \overset{\text{acl}}{} \overset{\text{mark}}{} \overset{\text{cc}}{}$$

John likes balloons that pop and eggs

⑩ → reduce

root	likes	balloons		eggs

⑪ → right arc   conj

root	likes	balloons	eggs		☐

$$\overset{\text{root}}{\underset{\text{nsubj}}{\downarrow}} \overset{\text{dbj}}{} \overset{\text{acl}}{} \overset{\text{mark}}{} \overset{\text{cc}}{} \overset{\text{conj}}{}$$

John likes balloons that pop and eggs

so we are done this is the sequence
of transitions needed which is of length
11

We got an accuracy of 41% from our trained model.