1a.

|  |  |  |  |
| --- | --- | --- | --- |
| Stack | Buffer | New Dependency | Transition |
| [ROOT] | [Nadia, rode, the, old, donkey, with, dexterity] |  | Initial Config |
| [ROOT, Nadia] | [rode, the, old, donkey, with, dexterity] |  | SHIFT |
| [ROOT, Nadia, rode] | [the, old, donkey, with, dexterity] |  | SHIFT |
| [ROOT, rode] | [the, old, donkey, with, dexterity] | rode –nsubj-> Nadia | LEFT-ARC |
| [ROOT, rode, the] | [old, donkey, with, dexterity] |  | SHIFT |
| [ROOT, rode, the, old] | [donkey, with, dexterity] |  | SHIFT |
| [ROOT, rode, the, old, donkey] | [with, dexterity] |  | SHIFT |
| [ROOT, rode, the, donkey] | [with, dexterity] | donkey –amod-> old | LEFT-ARC |
| [ROOT, rode, donkey] | [with, dexterity] | donkey –det-> the | LEFT-ARC |
| [ROOT, rode] | [with, dexterity] | rode –dobj-> donkey | RIGHT-ARC |
| [ROOT, rode, with] | [dexterity] |  | SHIFT |
| [ROOT, rode, with, dexterity] |  |  | SHIFT |
| [ROOT, rode, with] |  | with –pobj-> dexterity | RIGHT-ARC |
| [ROOT, rode] |  | rode –prep-> with | RIGHT-ARC |
| [ROOT] |  | ROOT -> rode | RIGHT-ARC |

1b. the number of steps it will take is 2n + 1. For each word in the sentence, it will take one step to add the word to the stack and one step to remove the word from the stack. The added 1 is for initializing the commit.

1c. The reason is…