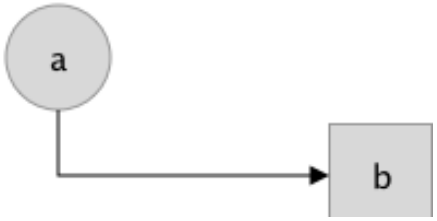
CSC 369 Worksheet 2 Solution

August 16, 2020

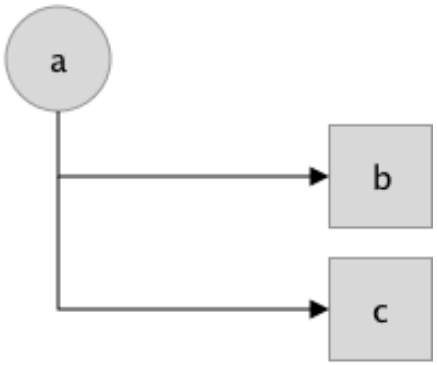
1 Homework (Simulation)

1. I need to create process trees at each step when the command `./fork.py -s 10` is run.

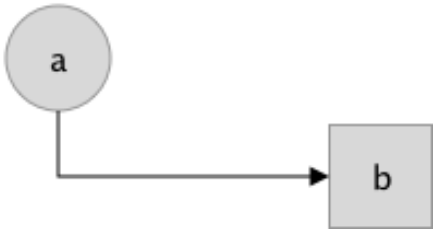
1) Action: a forks b



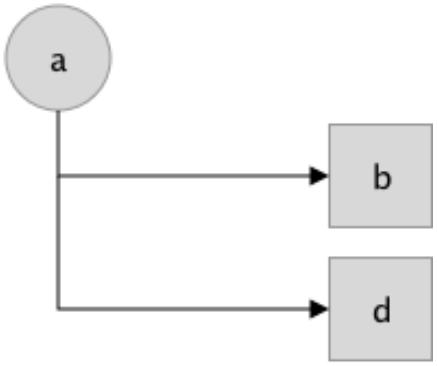
2) Action: a forks c



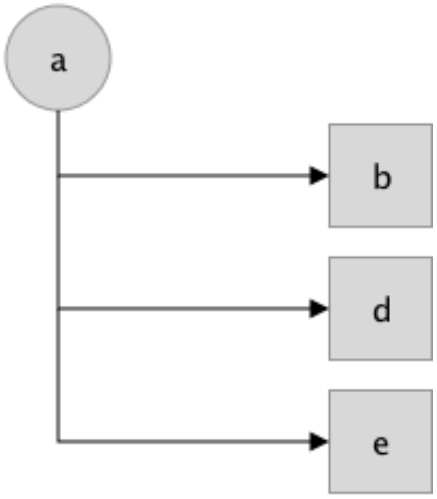
3) Action: c EXITS



4) Action: a forks d



5) Action: a forks e



Notes

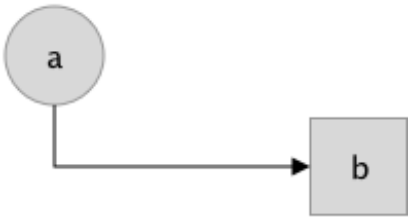
- **fork()**
  - Is used to create a new process
  - **Creator** → parent process
  - **Newly Created** → child process
  - Child process is nearly identical to parent process
- **exec()**
  - Allows a child to break free from its similarity to its parent and execute an entirely new program.
- **wait()**
  - Is used to let parent code delay its execution until the child finishes executing.
  - Makes the output deterministic

2. I need to write how the resulting final process trees will look like as the fork-percentage changes. Here I ran command (`./fork.py -s 10 -a 10 -f 0.1` and `./fork.py -s 10 -a 10 -f 0.9`)

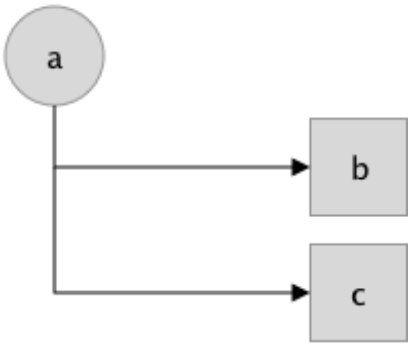
Notes

- `./fork.py -s 10 -a 10 -f 0.1`

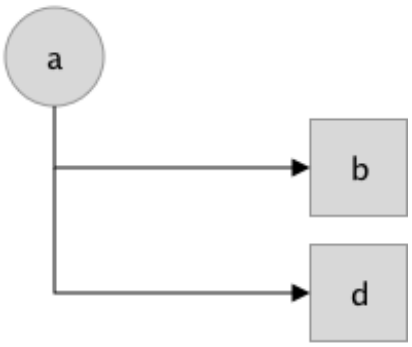
1) Action: a forks b



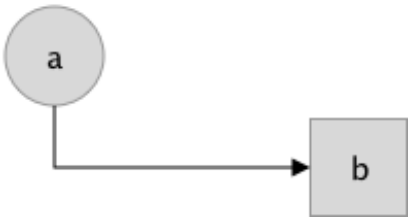
2) Action: a forks c



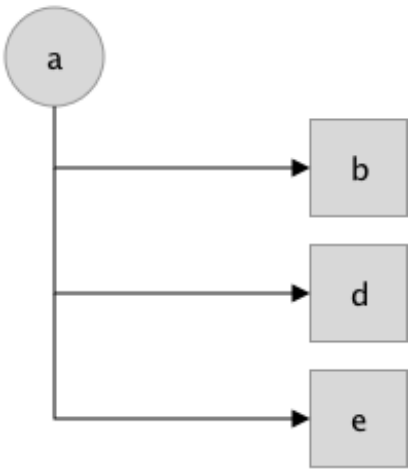
3) Action: a forks d



4) Action: c EXITS



5) Action: d EXITS



- `./fork.py -s 10 -a 10 -f 0.9`

2 Homework (Code)

1.