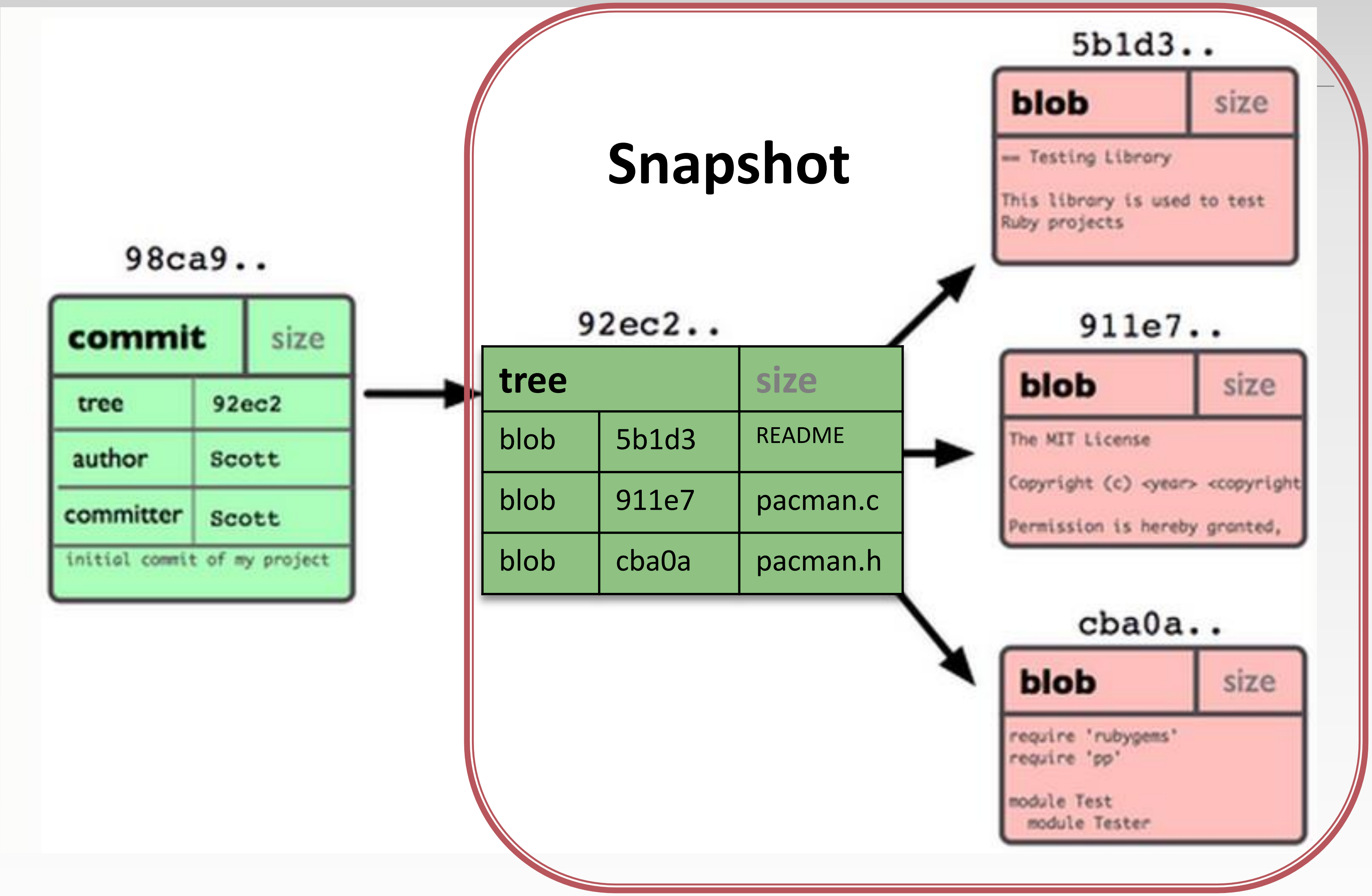
CS35L – Winter 2019

Slide set:	9.2
Slide topics:	Source control, Git
Assignment:	9

Git Repo Structure



Snapshot

98ca9..

commit	size
tree	92ec2
author	Scott
committer	Scott

initial commit of my project

92ec2..

tree		size
blob	5b1d3	README
blob	911e7	pacman.c
blob	cba0a	pacman.h

5b1d3..

blob	size

== Testing Library

This library is used to test
Ruby projects

911e7..

blob	size

The MIT License

Copyright (c) <year> <copyright

Permission is hereby granted,

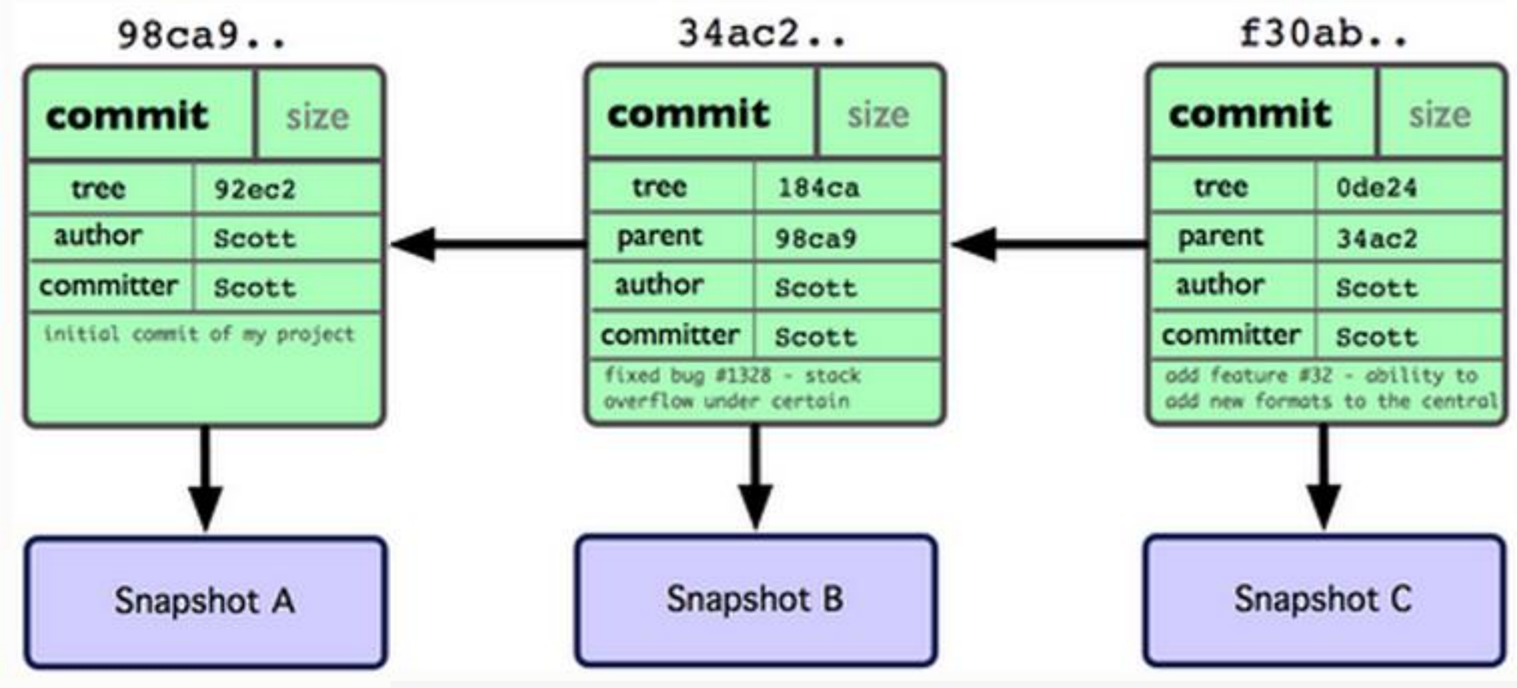
cba0a..

blob	size

```
require 'rubygems'
require 'pp'

module Test
  module Tester
```

After 2 More Commits…



commit	size
tree	92ec2
author	Scott
committer	Scott

initial commit of my project

commit	size
tree	184ca
parent	98ca9
author	Scott
committer	Scott

fixed bug #1328 - stack overflow under certain

commit	size
tree	0de24
parent	34ac2
author	Scott
committer	Scott

add feature #32 - ability to add new formats to the central

What Is a Branch?

A pointer to one of the commits in the repo (head) + all ancestor commits

When you first create a repo, are there any branches?

- Default branch named ‘master’

The default master branch

- points to last commit made
- moves forward automatically, every time you commit

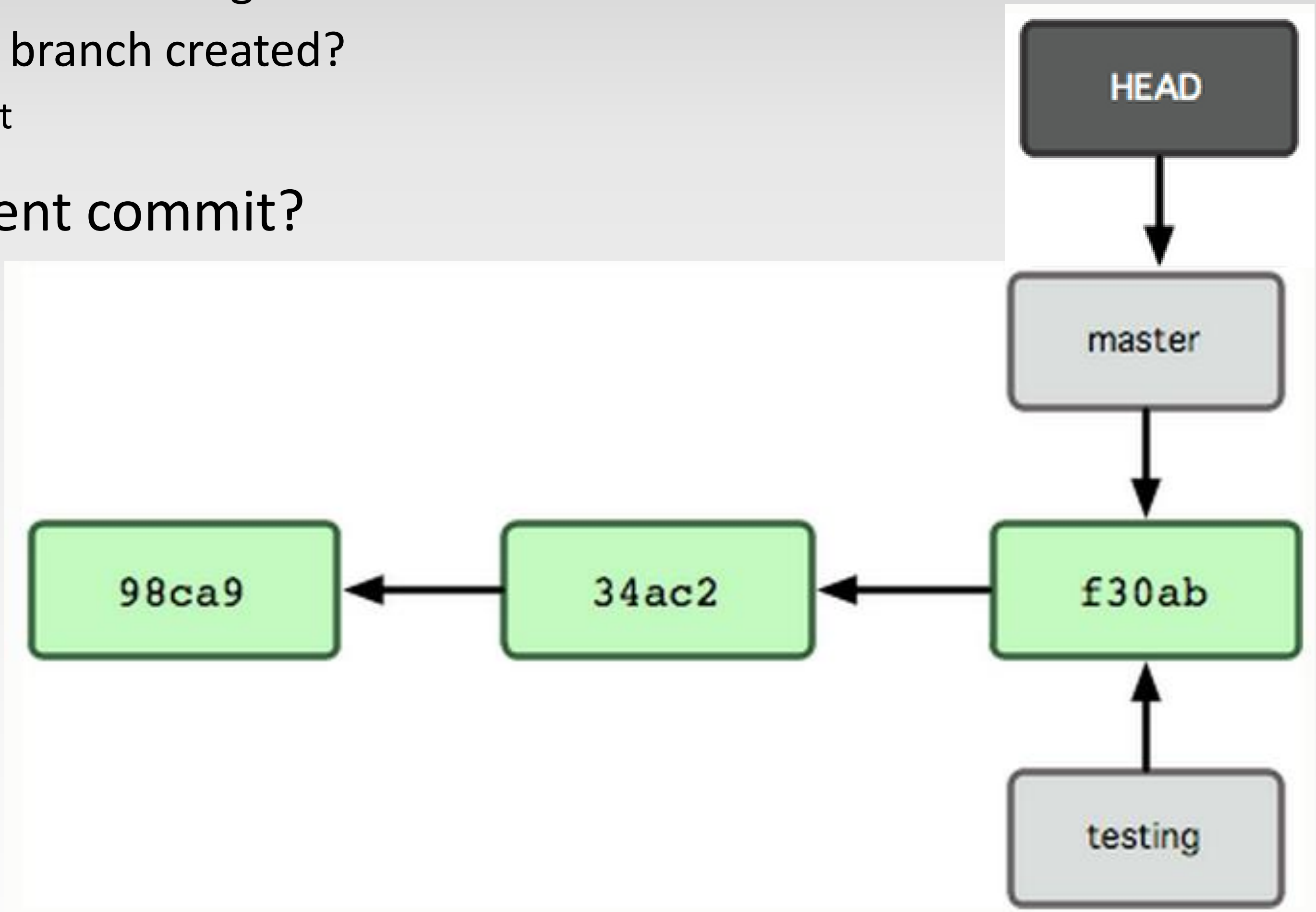
New Branch

Creating a new branch = creating new pointer

- `$ git branch` testing
- Where is new branch created?
  - Current commit

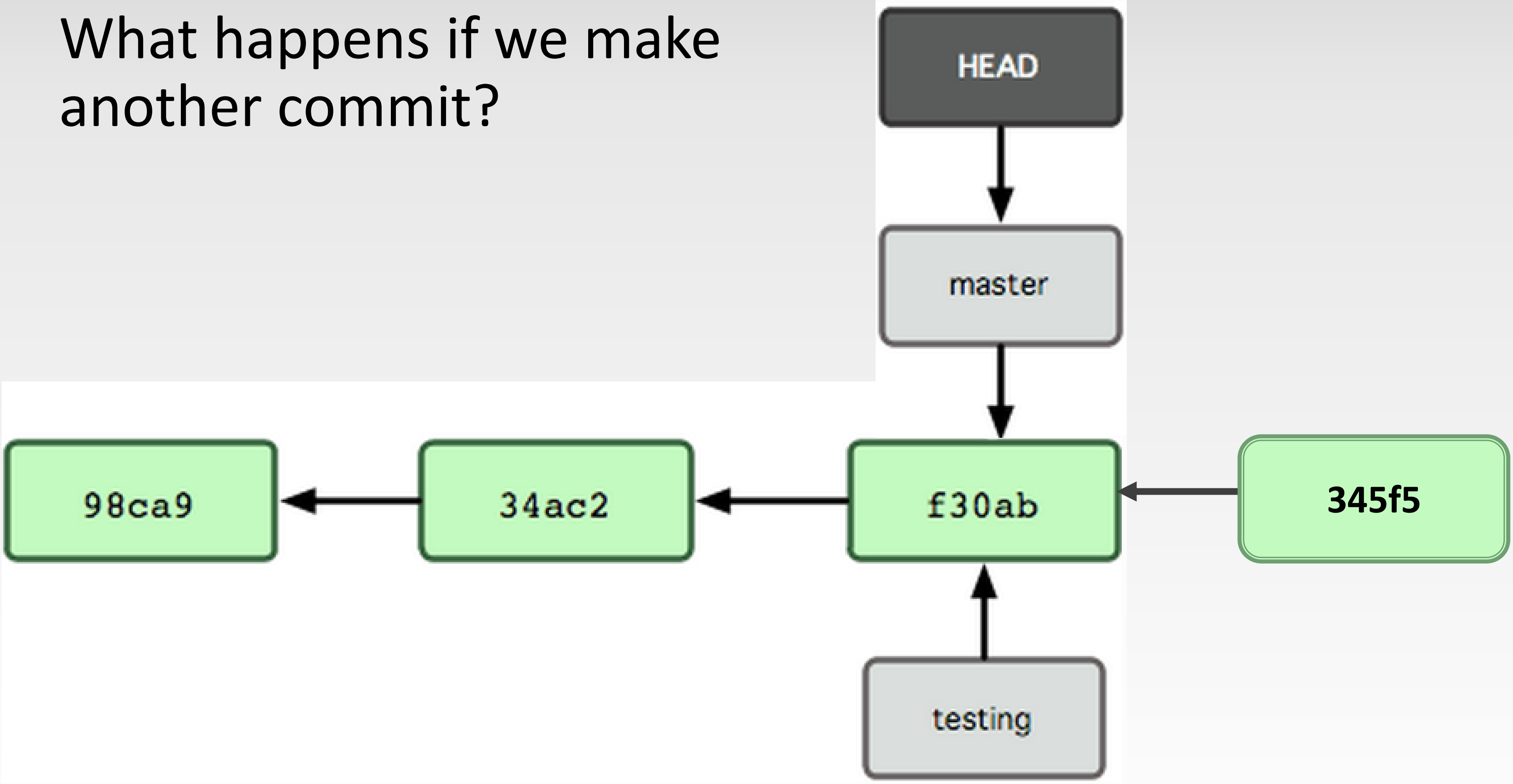
Where is current commit?

- HEAD



New Commit

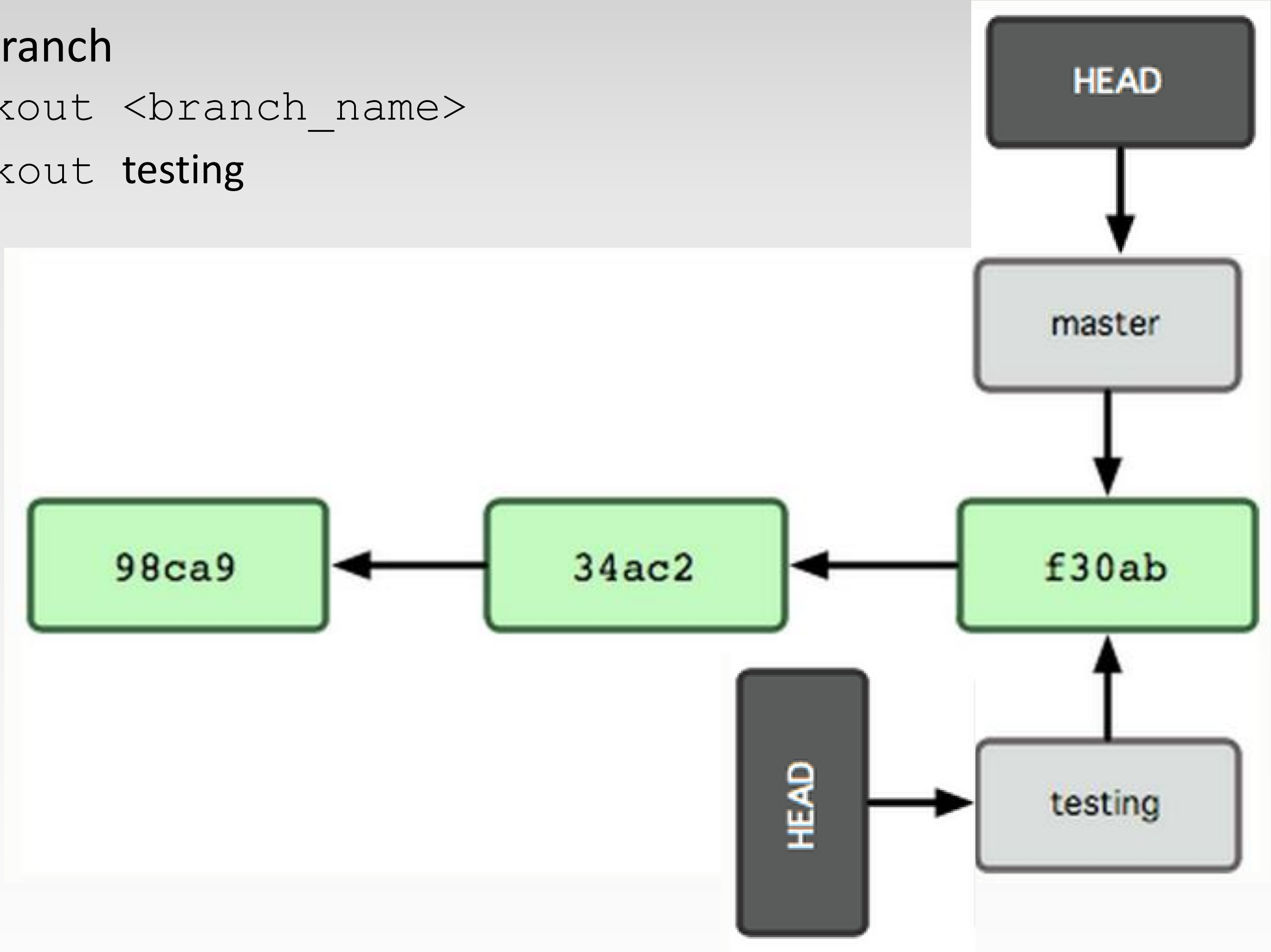
What happens if we make another commit?



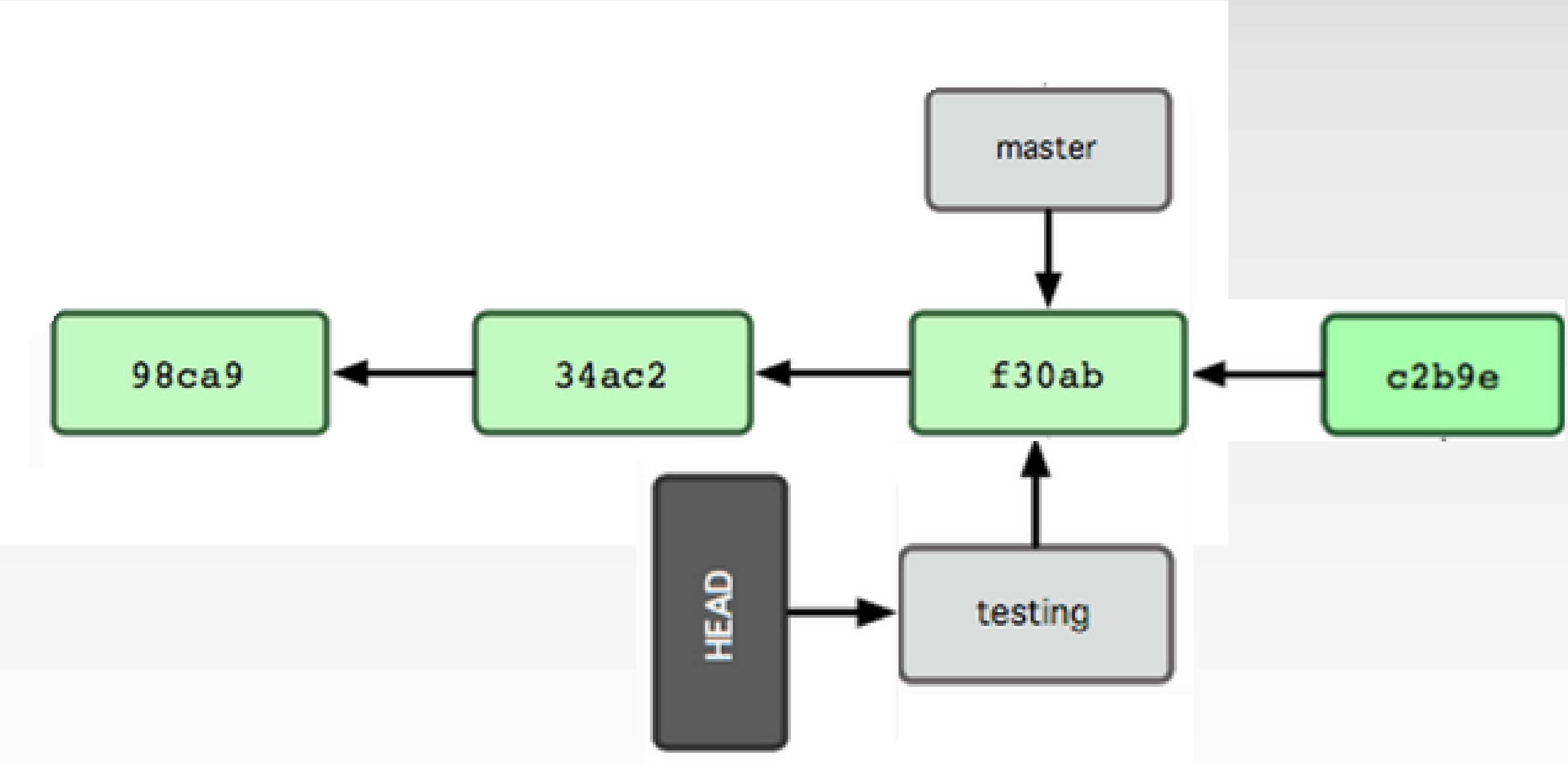
Switching to New Branch

Check out new branch

- `$ git checkout <branch_name>`
- `$ git checkout` testing



Commit After Switch



Why Branching?

- Experiment with code without affecting main branch
- Separate projects that once had a common code base
- 2 versions of the project

Homework 9

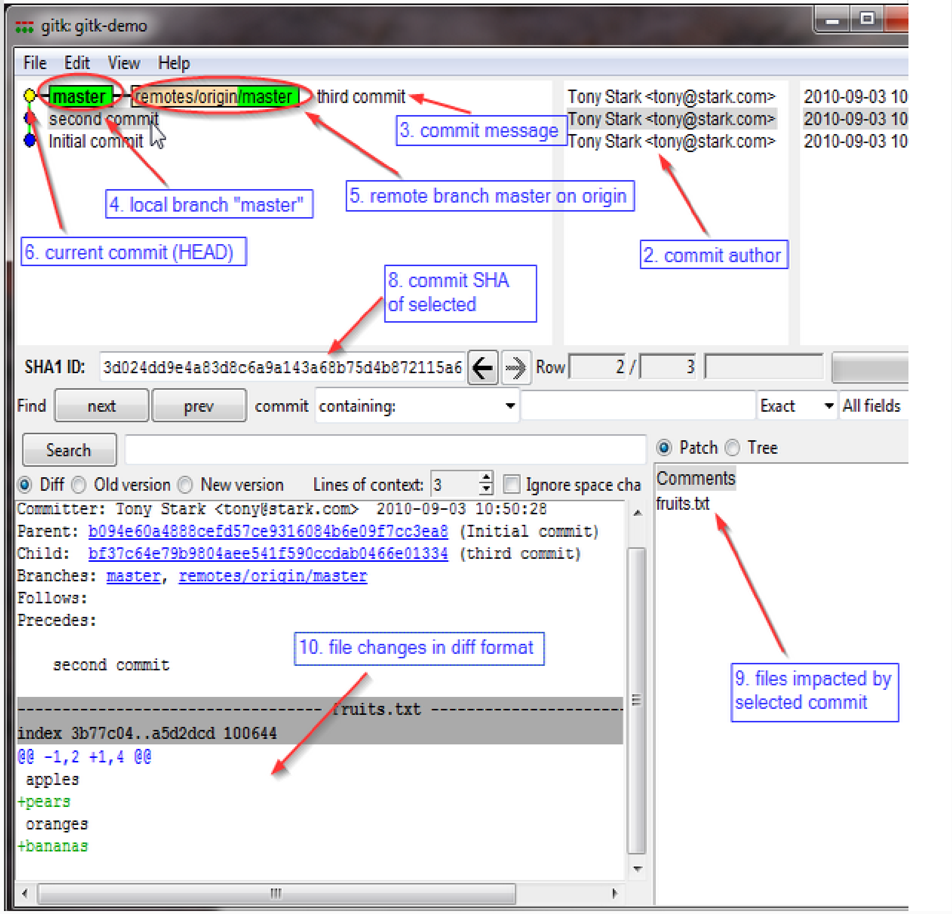
Publish patch you made in lab 9

- Create a new branch "quote" of version 3.0
  - Branch command + checkout command **(git branch quote v3.0; git checkout quote)**
  - `$ git checkout v3.0 -b quote`
- Use patch from lab 9 to modify this branch
  - Patch command
  - `$ patch -pnum < quote-3.0-patch.txt`
- Modify ChangeLog file in diffutils directory
  - Add entry for your changes similar to entries in ChangeLog
- Commit changes to the new branch
  - `$ git add .`   `$ git commit -F <Changelog file>`
- Generate a patch that other people can use to get your changes
  - `$ git format-patch -[num] --stdout > formatted-patch.txt`
- Test your partner's patch
  - Check out version 3.0 into a temporary branch `partner`
  - Apply patch with `git am` command: `$ git am < formatted-patch.txt`
  - Build and test with $ `make check`
  - Make sure partner's name is in HW9.txt for #8

Gitk

A repository browser

- Visualizes commit graphs
- Used to understand the structure of the repo
- Tutorial: http://lostechies.com/joshuaflanagan/2010/09/03/use-gitk-to-understand-git/



```
master  remotes/origin/master  third commit      Tony Stark <tony@stark.com>  2010-09-03 10
second commit                                    Tony Stark <tony@stark.com>  2010-09-03 10
Initial commit                                   Tony Stark <tony@stark.com>  2010-09-03 10
```

SHA1 ID: 3d024dd9e4a83d8c6a9a143a68b75d4b872115a6 Row 2 / 3

● Diff ○ Old version ○ New version Lines of context: 3 □ Ignore space cha

```
Committer: Tony Stark <tony@stark.com>  2010-09-03 10:50:28
Parent: b094e60a4888cefd57ce9316084b6e09f7cc3ea8 (Initial commit)
Child:  bf37c64e79b9804aee541f590ccdab0466e01334 (third commit)
Branches: master, remotes/origin/master
Follows:
Precedes:

    second commit

---------------------------------- fruits.txt ----------------------------------
index 3b77c04..a5d2dcd 100644
@@ -1,2 +1,4 @@
 apples
+pears
 oranges
+bananas
```

● Patch ○ Tree

Comments
fruits.txt

2. commit author

3. commit message

4. local branch "master"

5. remote branch master on origin

6. current commit (HEAD)

8. commit SHA of selected

9. files impacted by selected commit

10. file changes in diff format

Gitk

SSH into the server with X11 enabled

- ssh -X for OS with terminal (OS X, Linux)
- Select “X11” option if using putty (Windows)

Run gitk in the ~eggert/src/gnu/emacs directory

- Need to first update your PATH
  - $ export PATH=/usr/local/cs/bin:$PATH
- Run X locally before running gitk
  - Xming on Windows, Xquartz on Mac