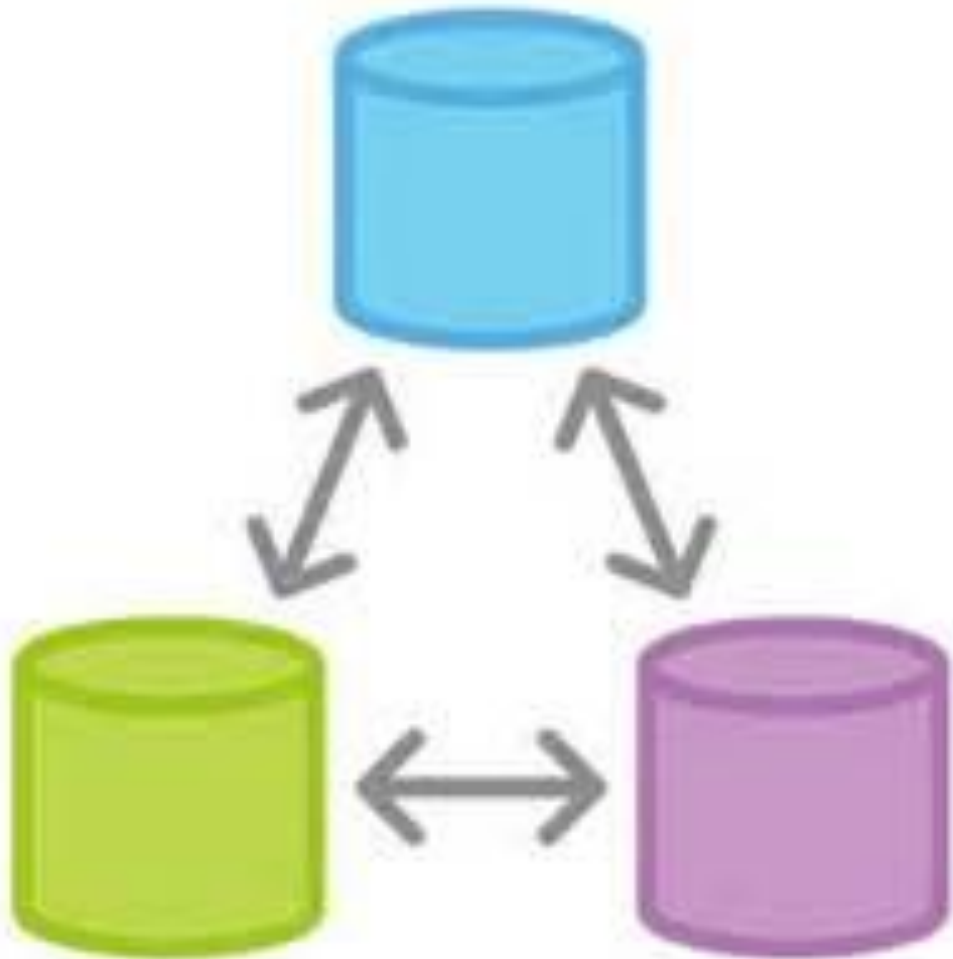
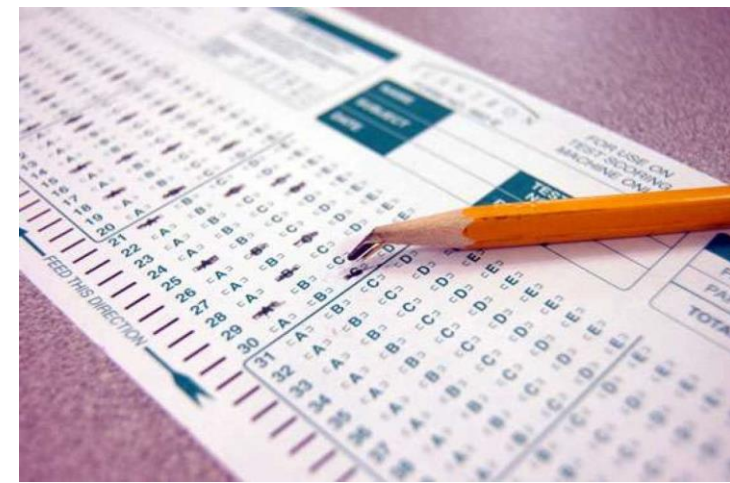


Lecture 5 Remotes



Midterm Next Week



- No stressing allowed!
- 50 minutes in-class. You probably won't need the whole time.
- You can use the Git man pages and the lecture slides, but no googling
- Questions **very** similar to the homework questions

Last year's midterm (which didn't include remotes):

<https://www.andrew.cmu.edu/course/98-174/f17/midterm/midterm.html>

Homework 4 Review

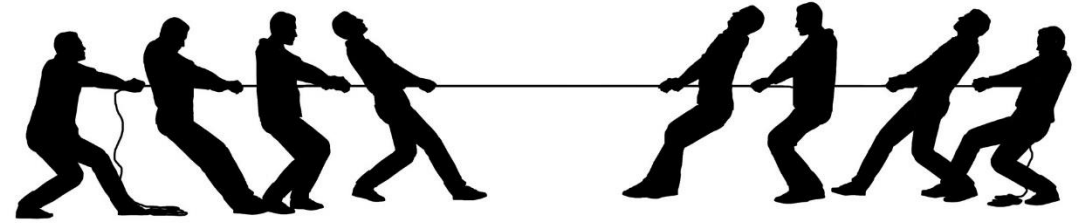


What We've Learned So Far

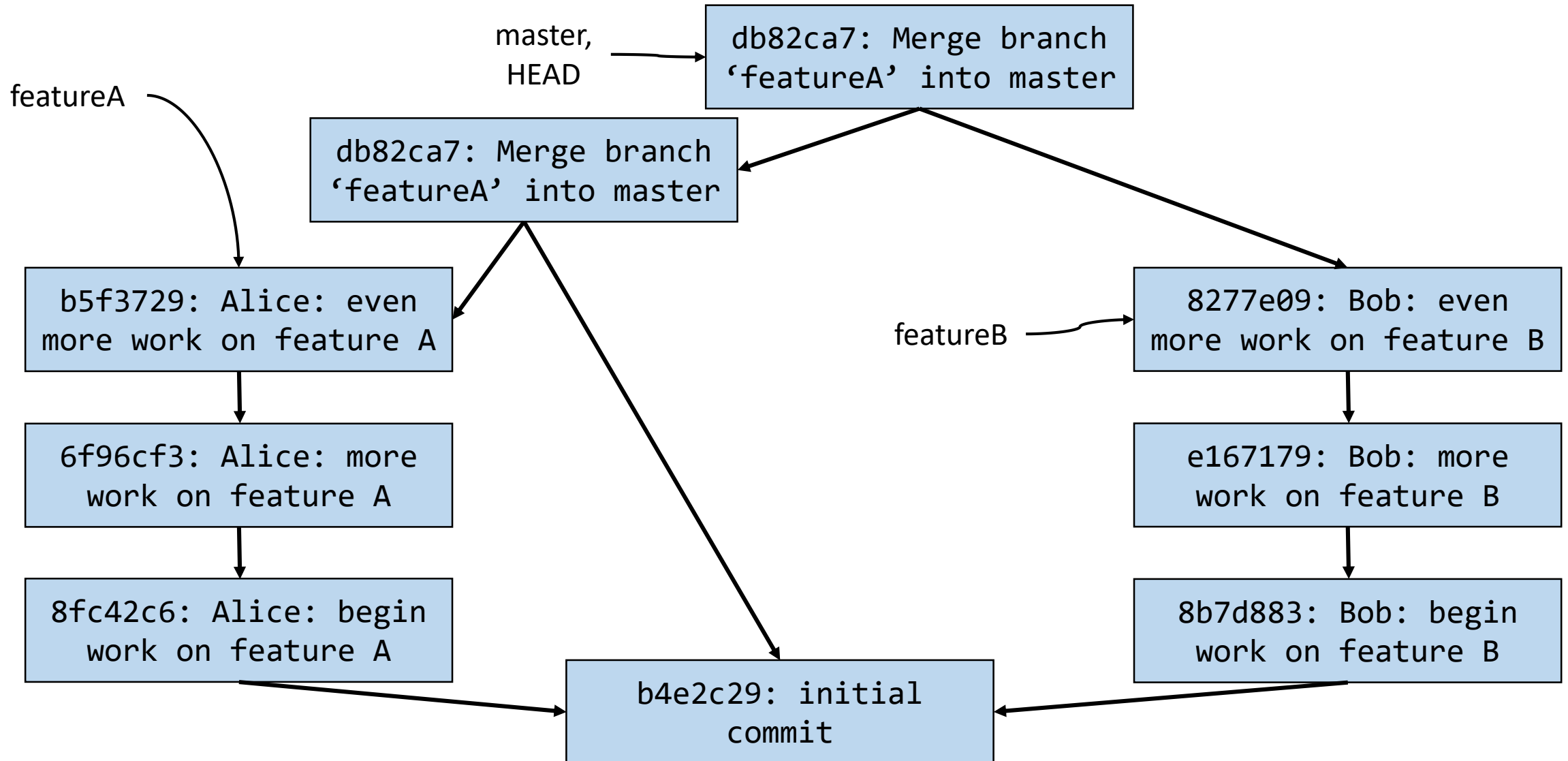
- Creating and cloning repositories
git init, git clone
- Linear commit histories and diffs
git log, git show, git diff
- Using the working directory and staging area and making commits
git add, git reset, git checkout, git commit
- Using branches
git branch, git checkout, git merge
- How Git's model for commit histories works

Today

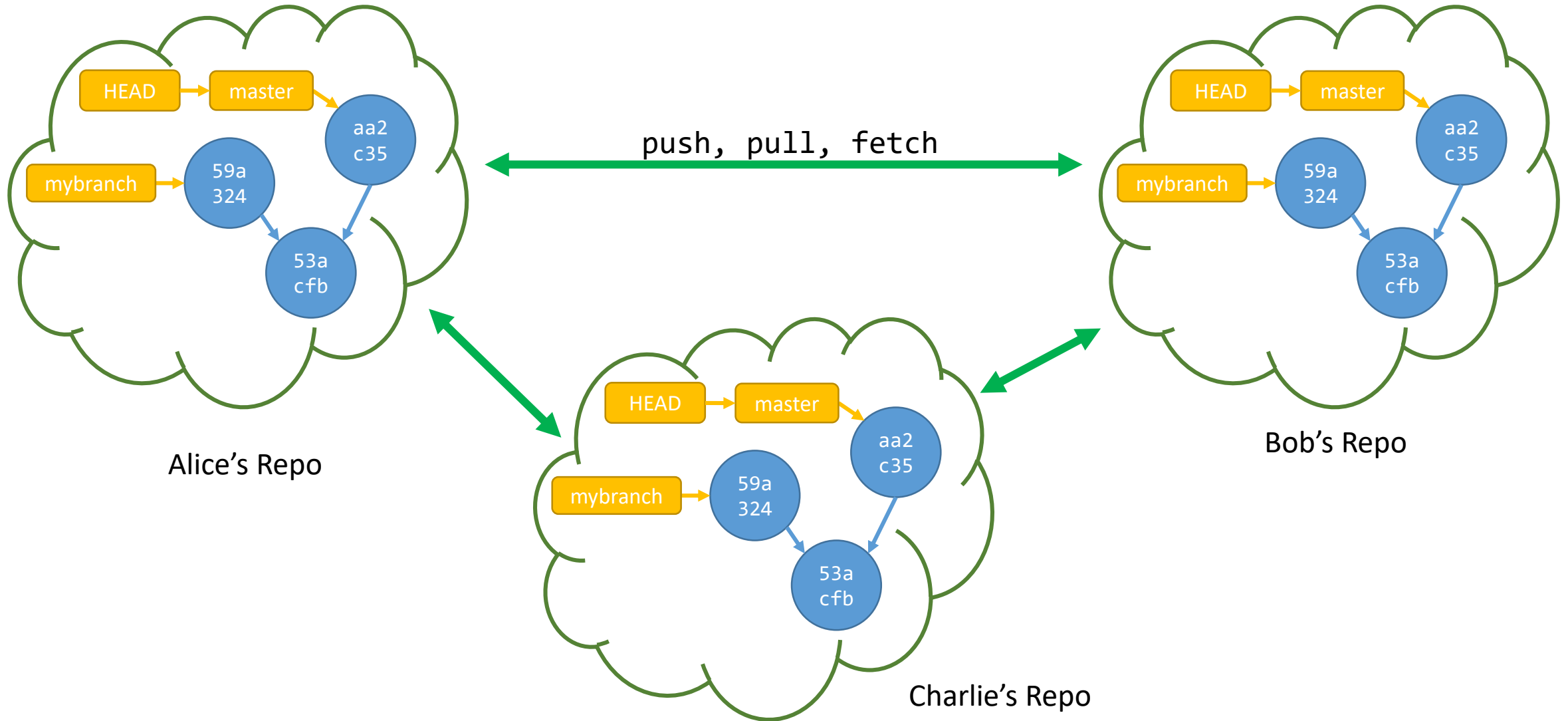
- Remotes
- `git remote`
- `git fetch`
- `git pull`
- `git push`
- Github



Last Time: Branches



From the First Lecture: Git is a DVCS



Flashback: Cloning a Repo

Downloads the repo, puts you on the master branch

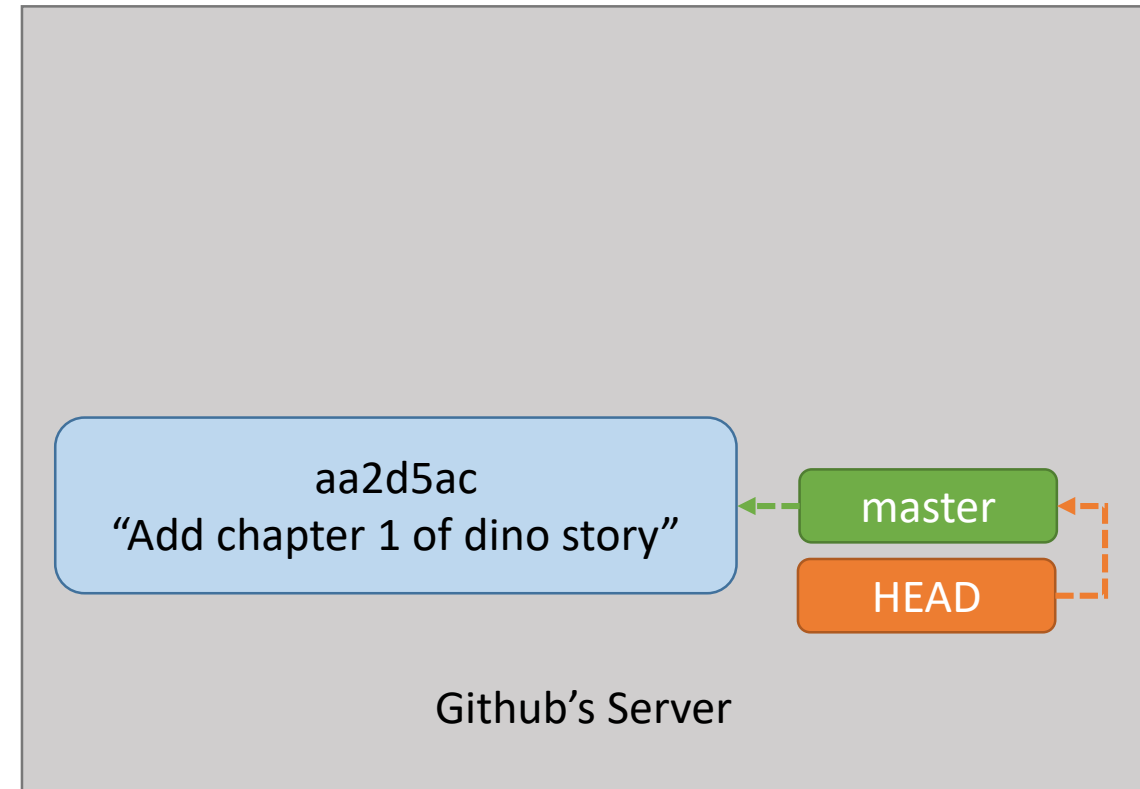
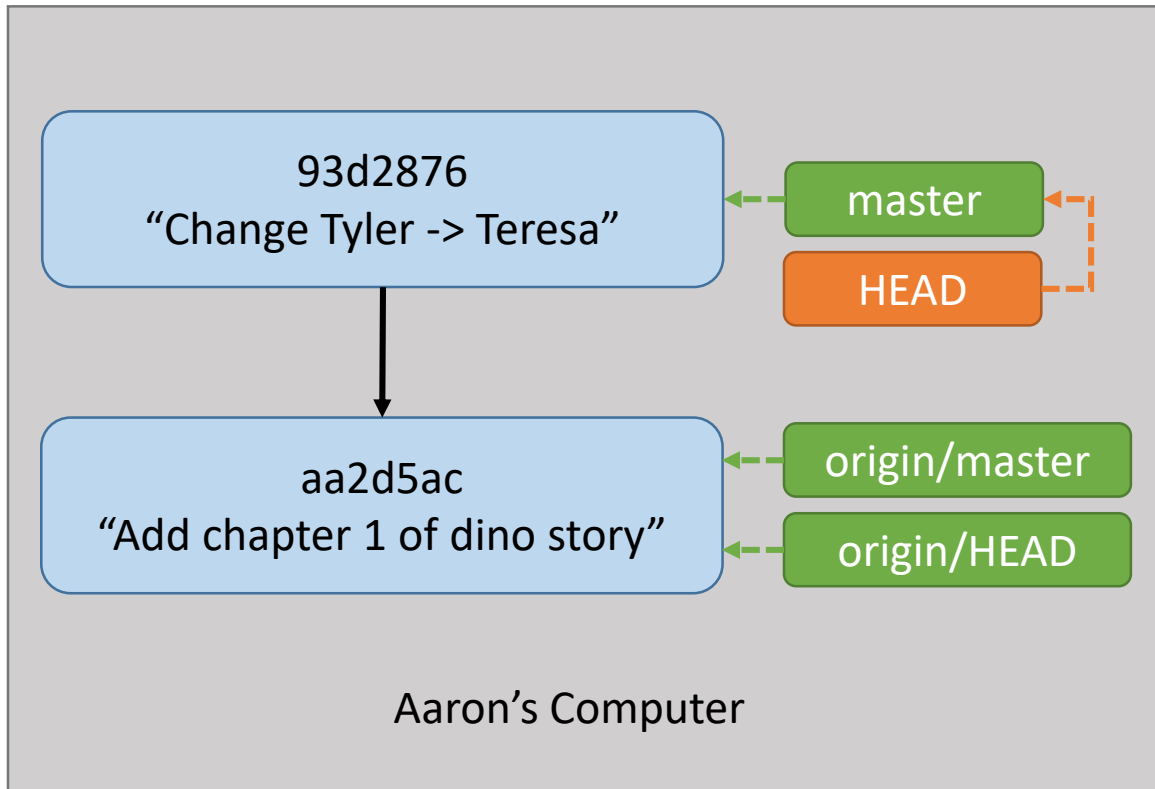
```
$ git clone https://github.com/aperley/dino-story.git
```


Committing and Pushing Back to Github

```
$ git status
On branch master
Your branch is ahead of 'origin/master' by 1 commit.
  (use "git push" to publish your local commits)
nothing to commit, working tree clean
```

```
$ git log --decorate --all --graph --abbrev-commit
* commit 93d2876 (HEAD -> master)
 | Author: Aaron Perley <aaron.perley@gmail.com>
 | Date: Thu Feb 22 14:58:44 2018 -0500
 |
 | Change Tyler->Teresa
* commit aa2d5ac (origin/master, origin/HEAD)
 | Author: Aaron Perley <aaron.perley@gmail.com>
 | Date: Thu Feb 22 14:50:19 2018 -0500
 |
 | Add chapter 1 of dino-story
```

Committing and Pushing Back to Github



Listing Remote Branches

```
$ git branch -a
* master
remotes/origin/HEAD -> origin/master
remotes/origin/master
```

Pushing

```
$ git push origin master
```

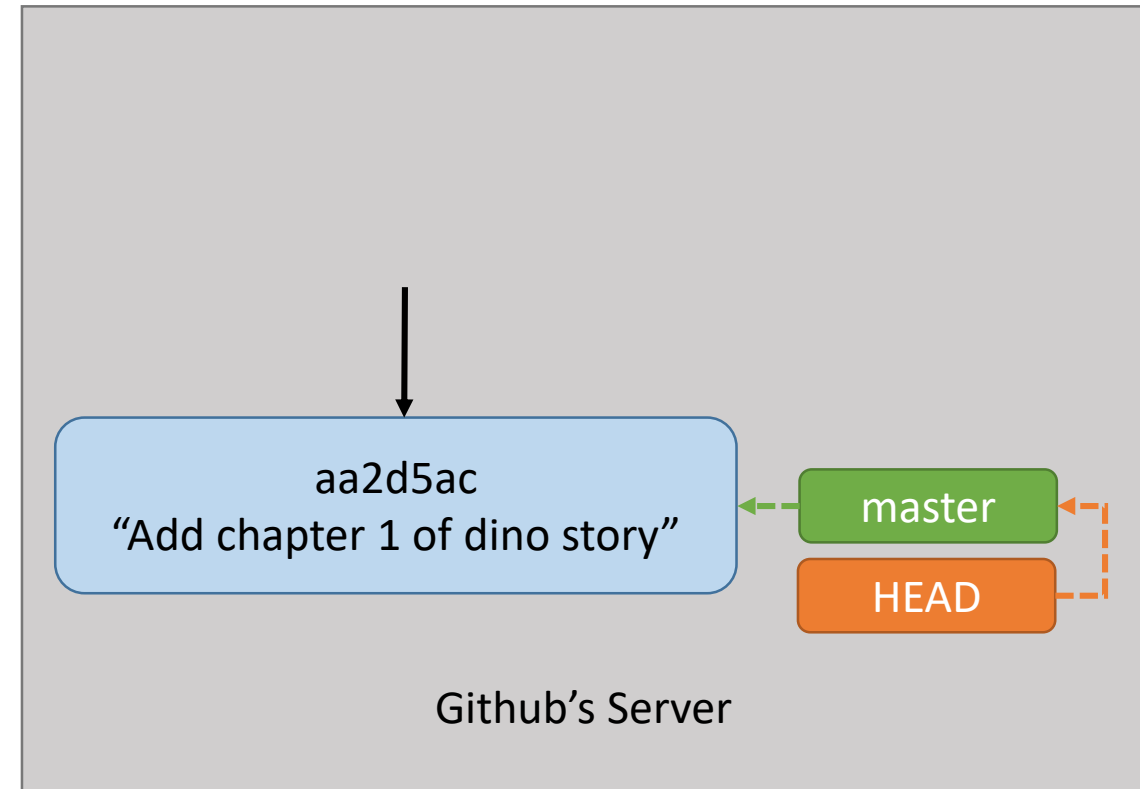
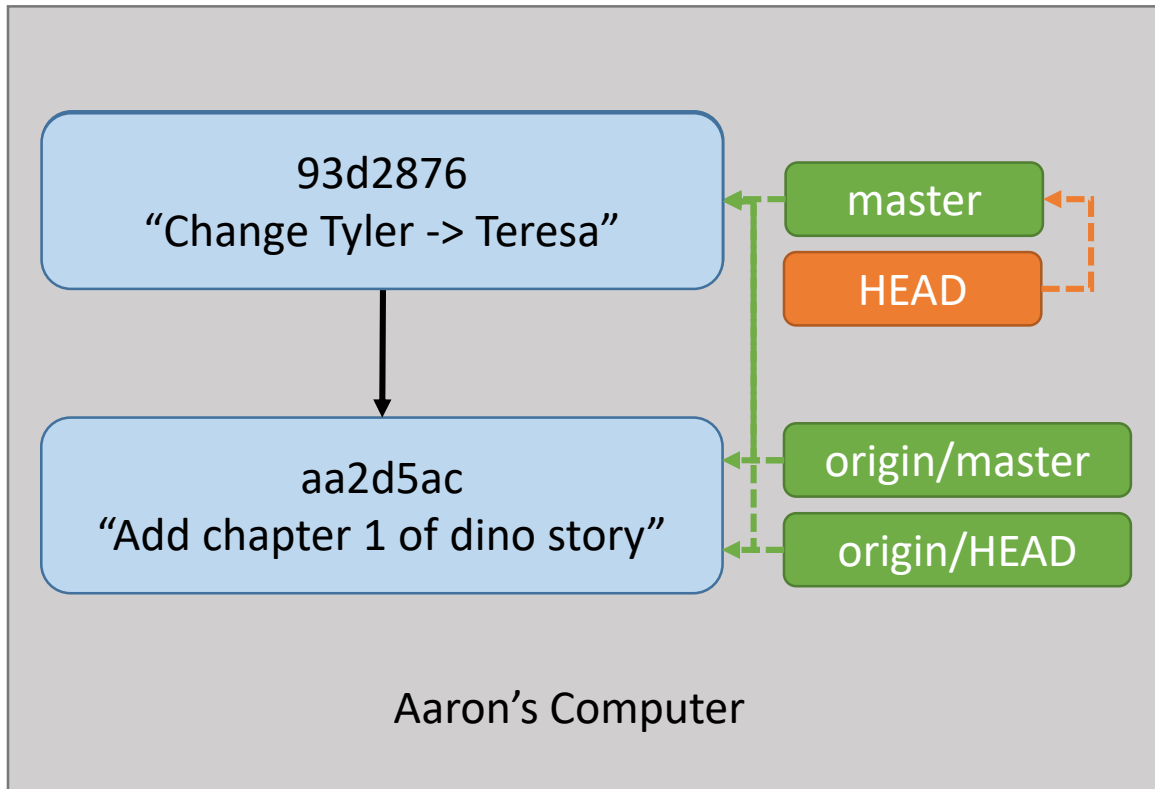


Pushes the local branch called `master` to the branch called `master` on the remote named `origin`

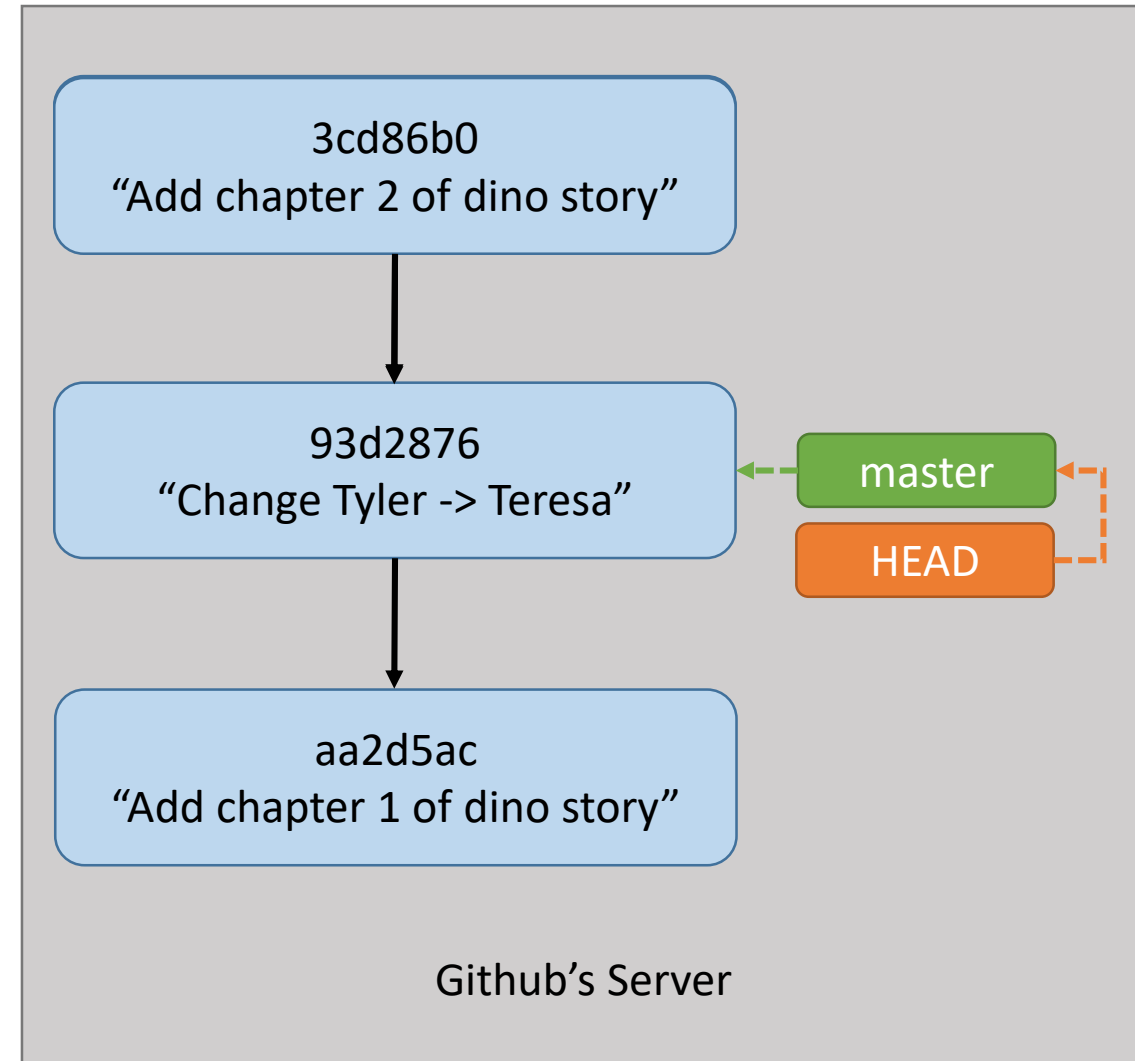
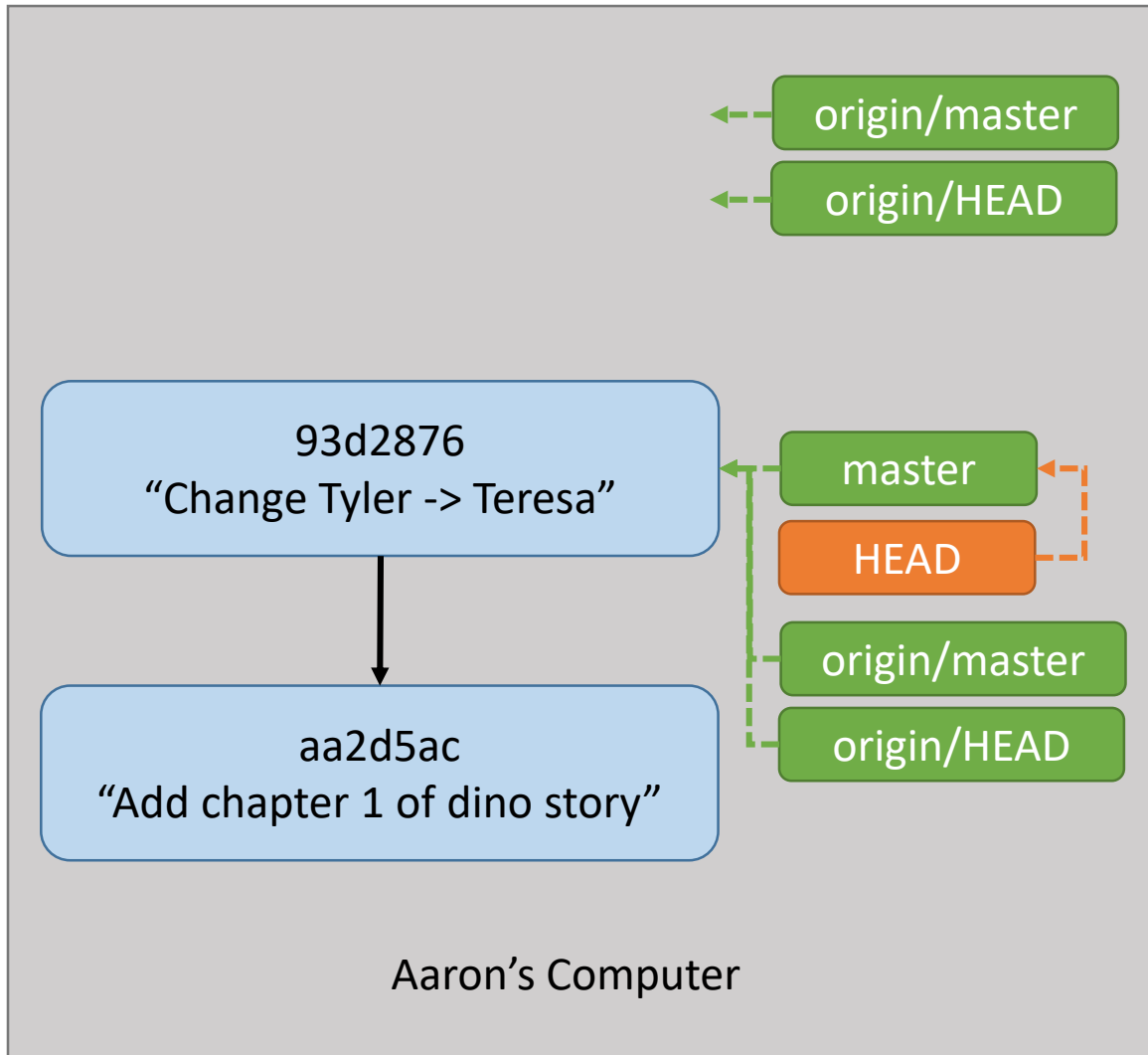
This is how we move where remote branches **point to**

```
$ git remote -v  
origin https://github.com/aperley/dino-story.git (fetch)  
origin https://github.com/aperley/dino-story.git (push)
```

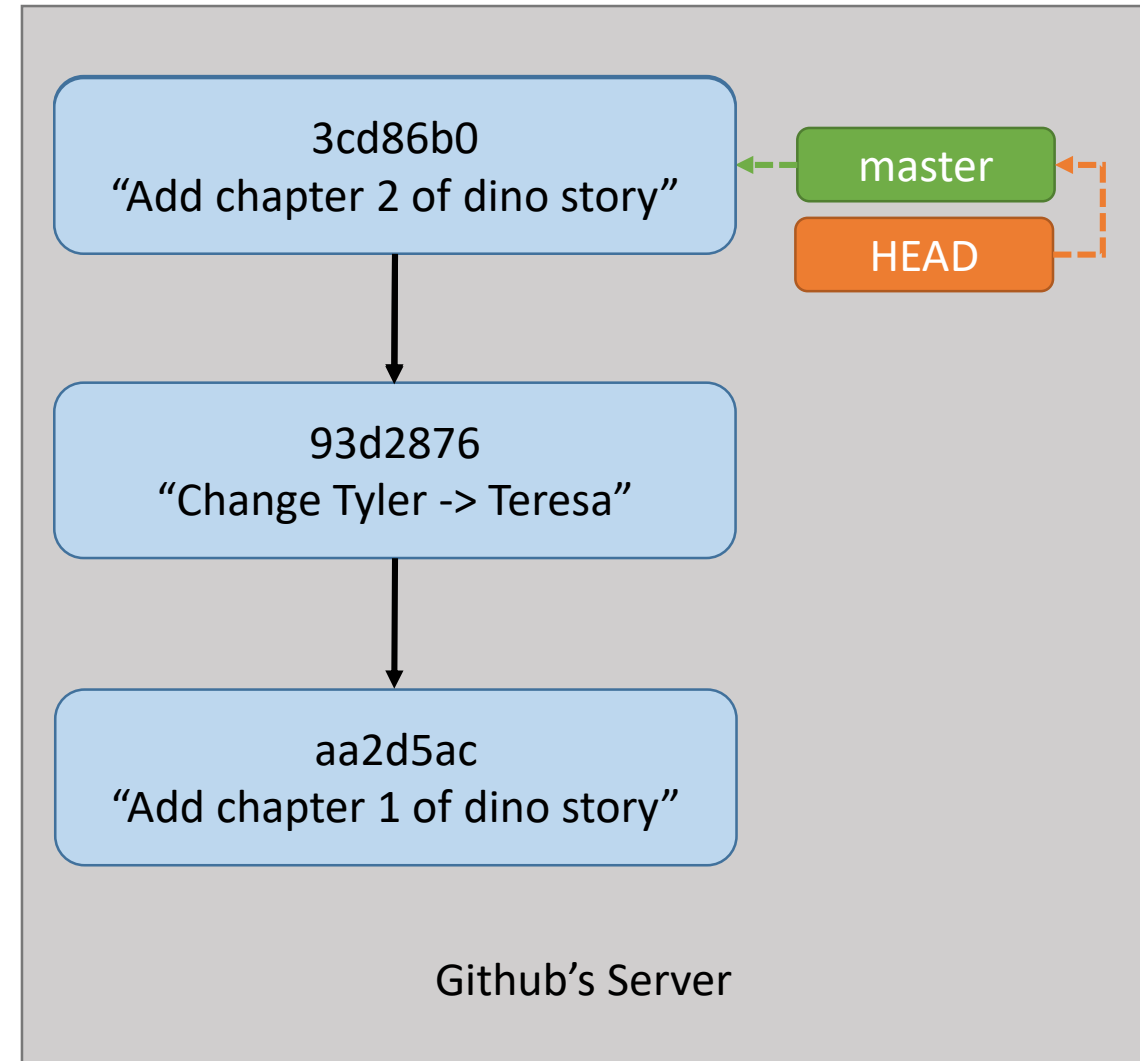
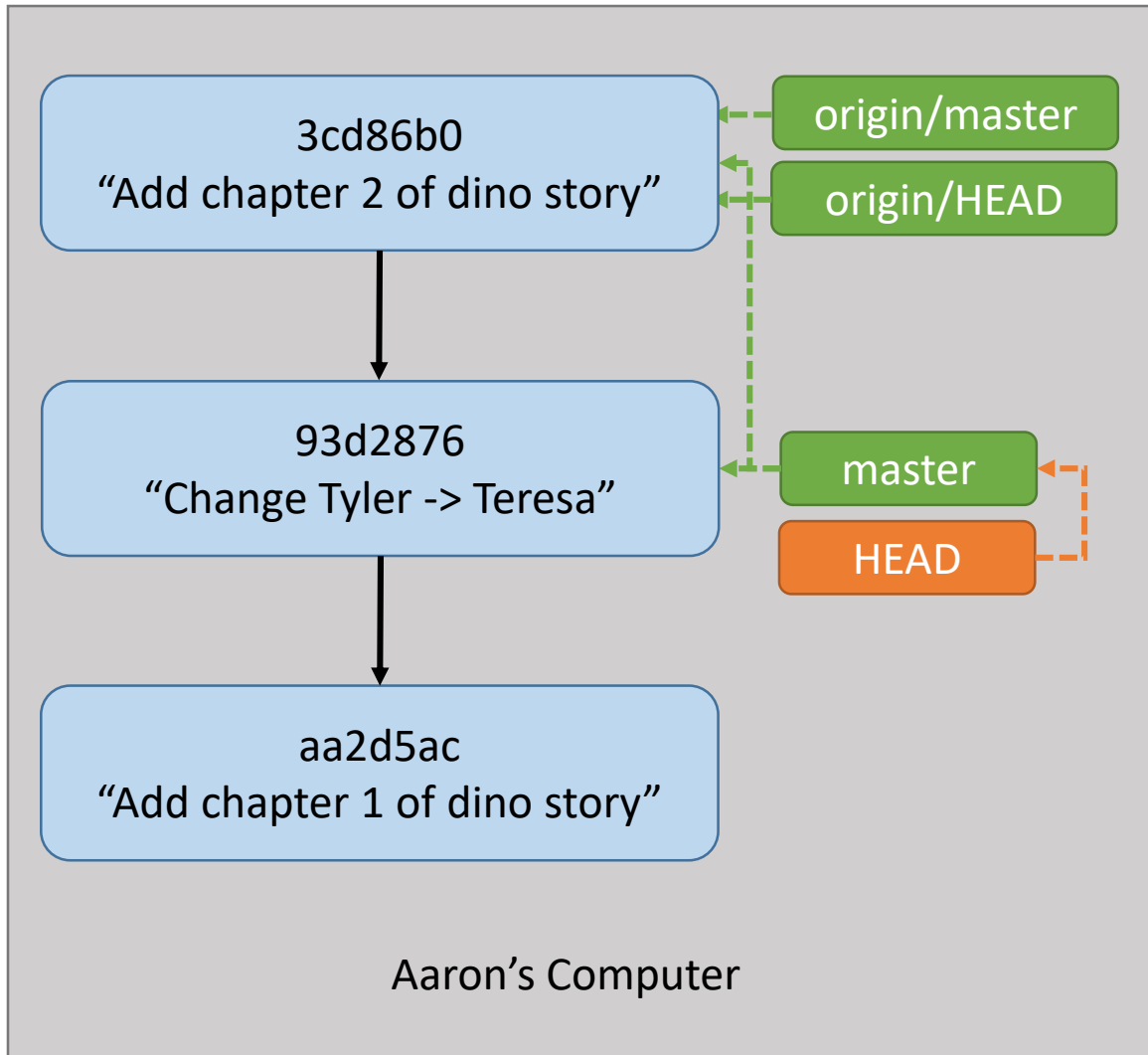
Pushing Back to Github



Fetching



Keeping Local Branches Up To Date



Fetching and Merging

```
$ git fetch origin
```

Fetch all updates from the remote named `origin`

Downloads new commits, moves `origin/<branch>` pointers

Cannot move local branches!

```
$ git merge origin/master
```

Merges (fast-forwards, hopefully!) the local `master` to the commit pointed to by `origin/master`

How to get a local branch for another remote branch?

```
$ git checkout --track origin/experiment
```

Realizes that you don't have a local branch called experiment, so creates it and switches to it.

--track will show information in `git status` about whether branches are "ahead" or "behind" each other

Summary

- Configuring remotes:
 - `git remote [-v]` – lists remotes [verbosely]
 - `git remote add <remotename> <remoteurl>` - configure a new remote
 - `git branch -r` or `-a` – lists branches including remote tracking
- Fetching:
 - `git fetch <remotename>` - downloads updates to all remote-tracking branches to match the remote
 - `git pull <remotename>` - runs ``git fetch``, then merges in updates to the current branch
- Pushing:
 - `git push <remotename> <branchname>` - uploads changes in your branches to the remote

Activity / Homework!

1. Create a GitHub account (if you don't have one)
2. Fork my dino-story repo: <https://github.com/aperley/dino-story>
(forking: <https://help.github.com/articles/fork-a-repo/>)
3. Clone your fork
4. Add your name to the byline (“By: Aaron”) and push the change to the master branch on your fork on GitHub
5. Checkout the chapter-2 branch and create a commit adding your own chapter 2
6. Merge the byline change from the master branch into the chapter-2 branch
7. Push the chapter-2 branch to the chapter-2 branch on your fork on GitHub