'Git'-ing better: Collaborating on your research with version control and GitHub

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Welcome back!

Purpose:

To review Git in more detail, give you more practice exercises that mimic what you may do in your day-to-day research activities, and show you how GitHub can be used for collaboration.

Caveat: We aren't here to teach statistics

Need help with stats? Use these resources!

- U of T Statistical Consulting Services (click here)
- `http://www.stackoverflow.com`
- `http://stats.stackexchange.com`

Notes and help during this workshop

Go to this website:

`https://etherpad.mozilla.org/dnsWorkshops`

Version control refresher

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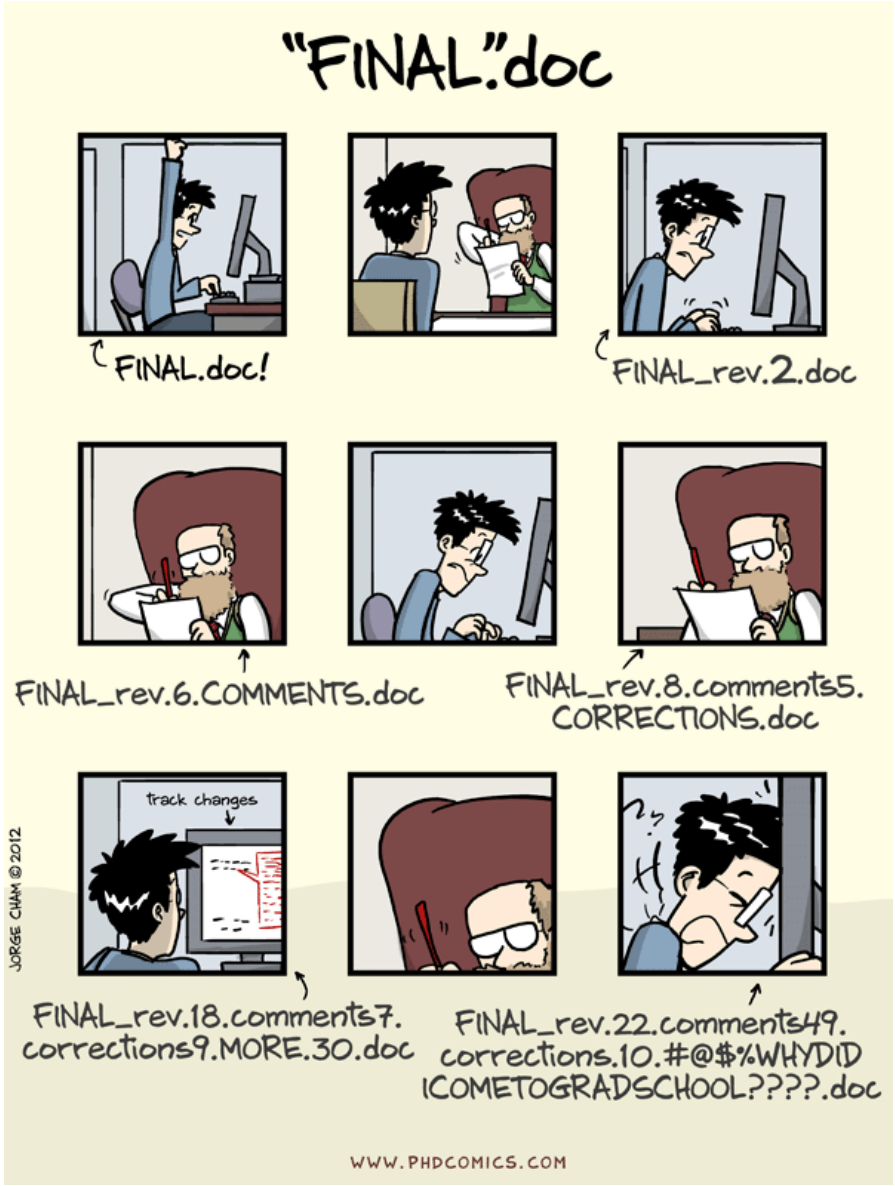

Figure 1:

What is version control[1] (VC)

- Keeps a history of everything done in a folder
- Like a big track changes or logbook (basic science)
- Can revert to previous change, try new things out
- Don't have to worry about losing what you wrote!

[1] See the Git website (click here) for more detail.

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Importance of VC!

- Future of journals and retractions
- Requests for data and code
- Transparency, scientific rigor
- Protect against accusations of fraud

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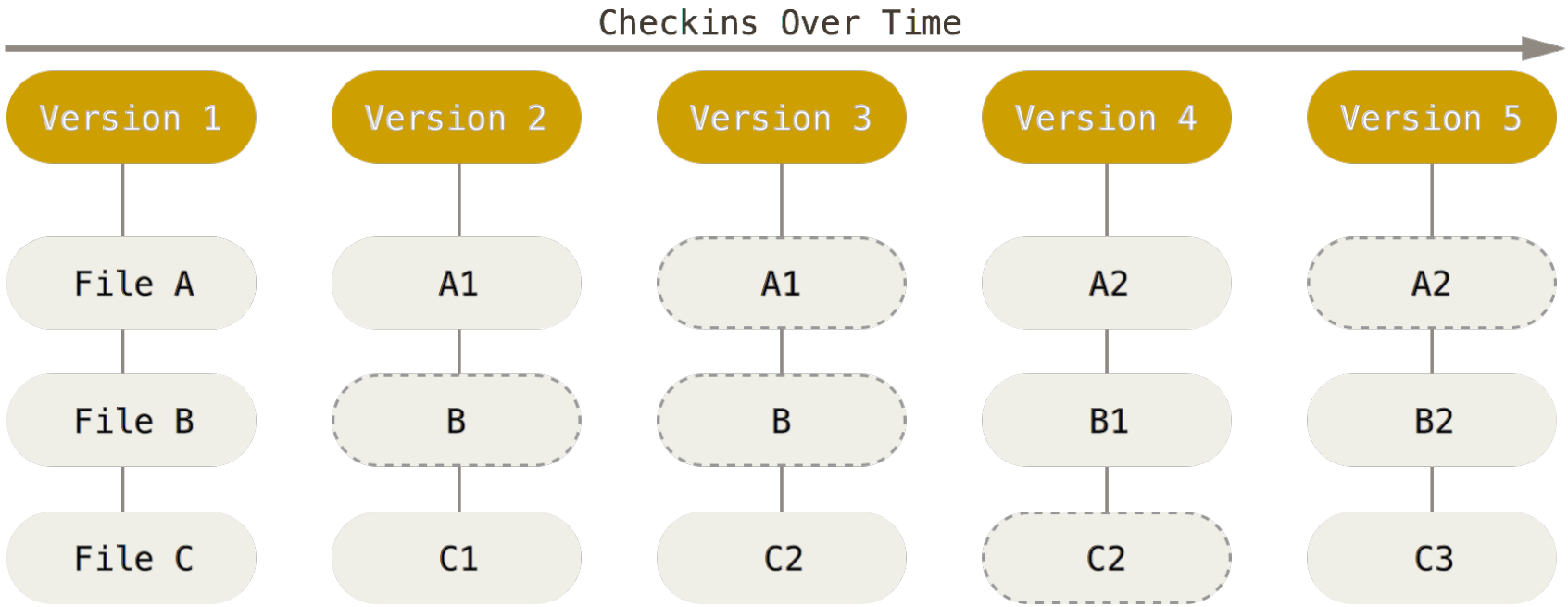
Visualization of VC[2]



[2]Taken from the Git site (click here)

Using Git

Before we start…The command line is **not** something to be afraid of!! Open up the terminal (Mac/Linux) or Git Bash (Windows).

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Open up your terminal (Mac or Linux) or Git-Bash (Windows).

```
git config --global user.name "Your Name"
git config --global user.email "you@some.domain"
git config --global color.ui "auto"
git config --global core.editor "your_editor"
git config --list
```

Download our GitHub repository

GitHub[3] is a place to store your git repo for several reasons:

1. As a backup
2. To use across computers
3. To share with others

[3] Or `http://BitBucket.org`

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In your terminal/Git-Bash, run:

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cd ~
git clone \
    https://github.com/codeasmanuscript/gitWorkshop.git
cd gitWorkshop/part2
```

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Check out the `cheatsheet.html` file.

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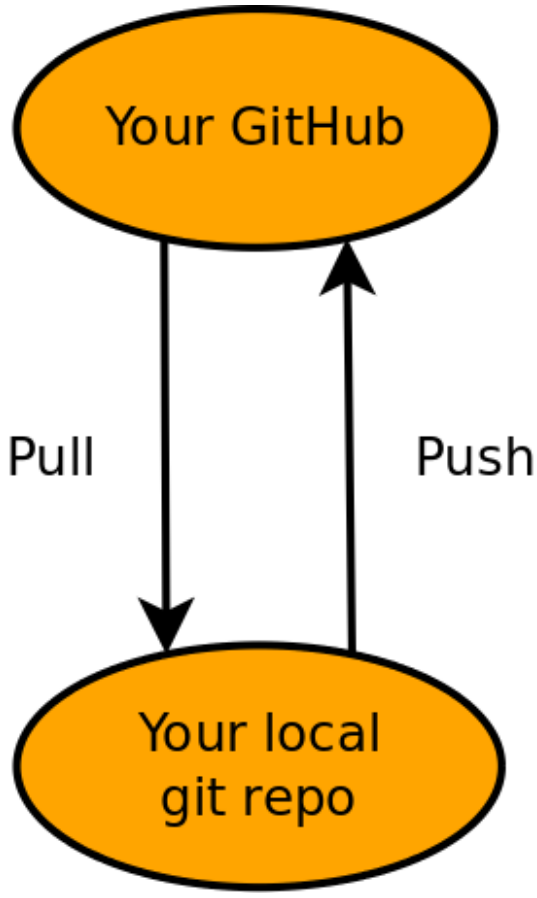
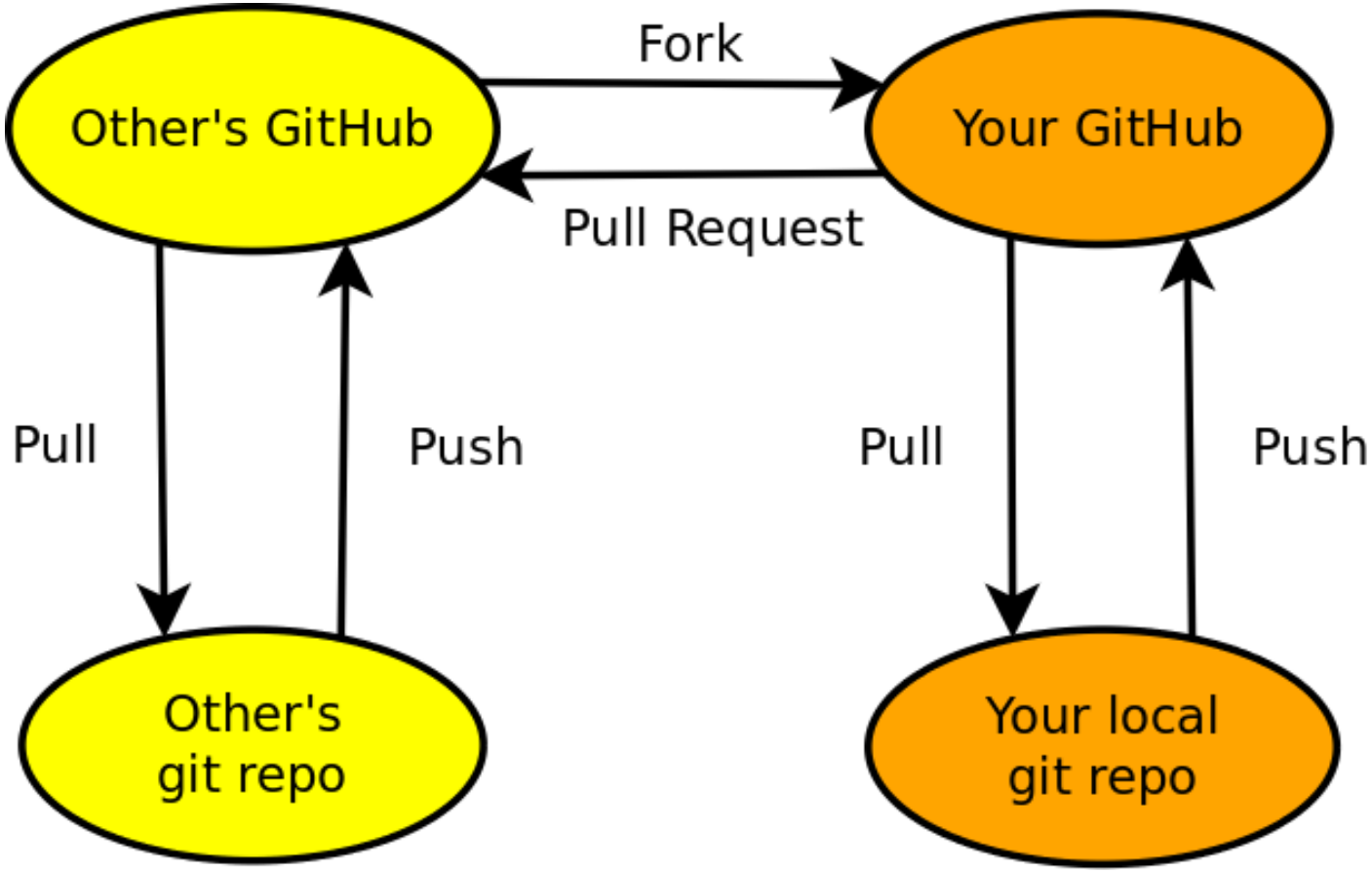
Create a GitHub account

How GitHub works



How GitHub Forking (collaboration) works



Live coding – Create git repo from scratch and push to GitHub

Tip: Most of the time you don't really need to remember the code, just google search it! Or use our cheatsheet!! :D

Main Exercise – Collaborate on a project

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1. Create a git repository in a new folder or your own research folder
2. Create a SAS (or R) file to practice in or add your own files
3. Run basic stats (means) or change a file in your own folder
4. Add and commit your changes to Git
5. Create a GitHub repo and push your changes to it*
6. Fork a friend's repo on GitHub (or someone fork yours) and clone onto your computer
7. Change a friend's files
8. Push the changes and make a pull request
9. Check out your own pull requests!