Reproducible research workflows for psychologists

Collaborate with Git & GitHub

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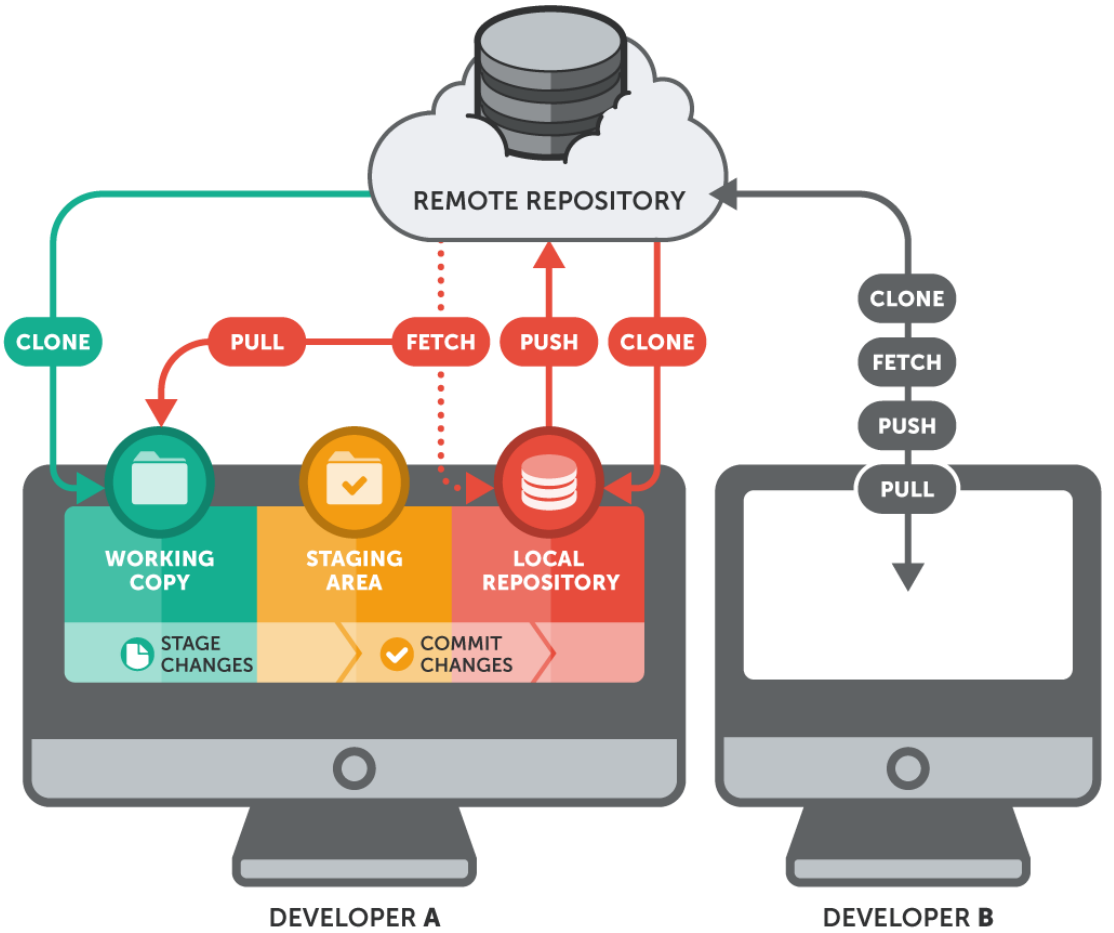
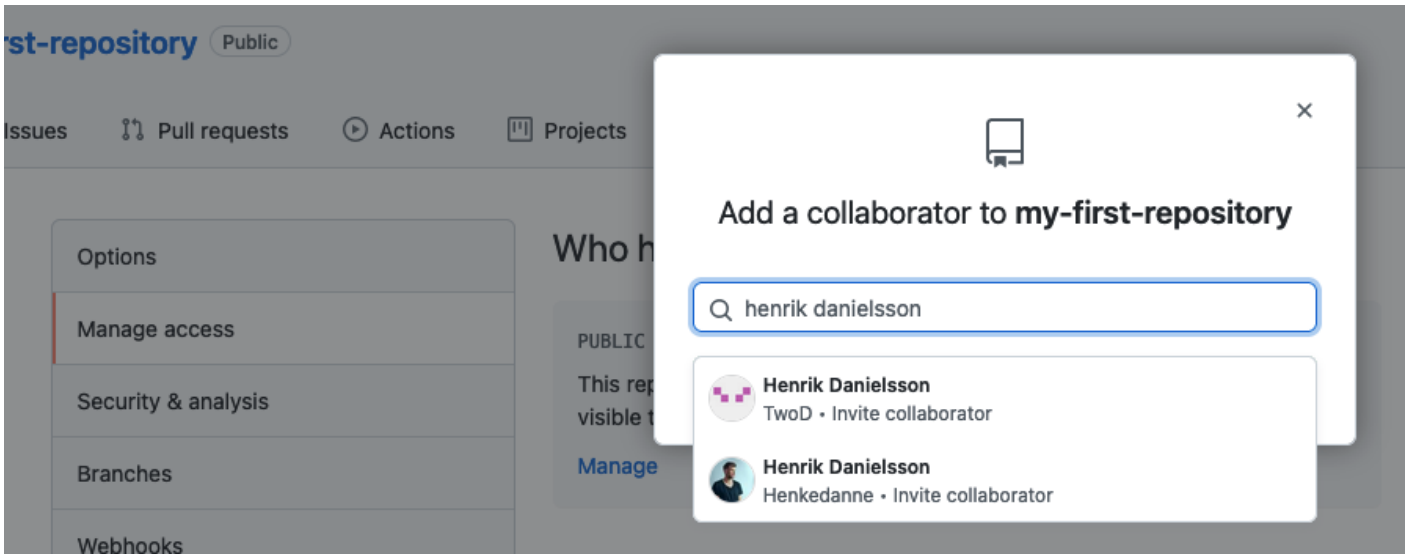
Git


REMOTE REPOSITORY
CLONE
PULL
FETCH
PUSH
CLONE
CLONE
FETCH
PUSH
PULL
WORKING COPY
STAGING AREA
LOCAL REPOSITORY
STAGE CHANGES
COMMIT CHANGES
DEVELOPER A
DEVELOPER B

Collaboration

Add collaborators

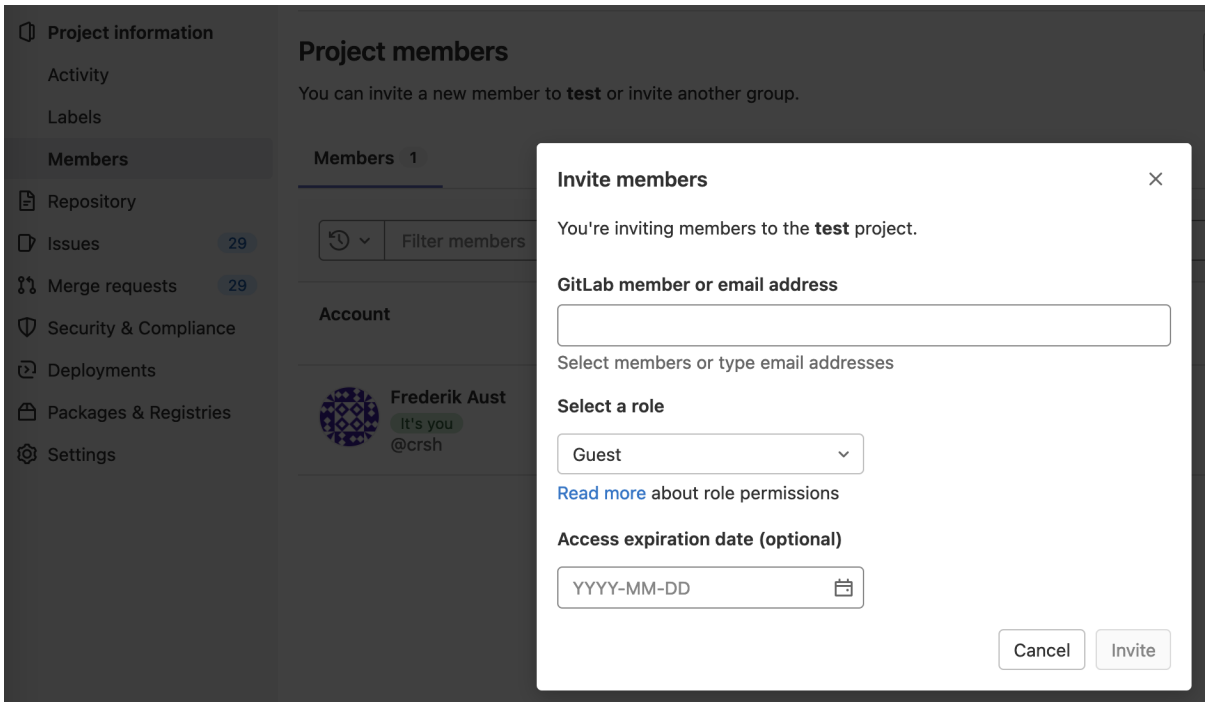
`Settings > Manage access > Add people`



Collaboration

Add collaborators

`Project information > Members > Invite members`



Collaboration

GitHub provides a lot of collaboration features

- Edit files in browser
- Change highlighting and commenting
- Interactive revise-and-resubmit workflow
  - See example
- Issue tracker (to-do list and discussion)
- …

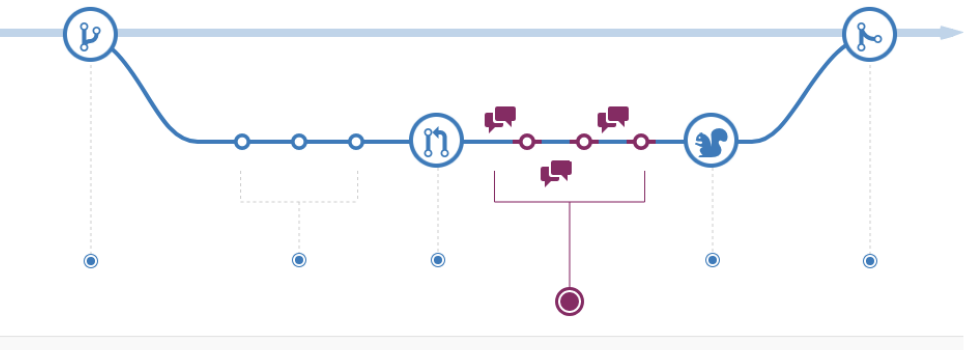
Collaboration

Workflows for collaboration

1. "Publishing" changes without prior review
    - Push directly to `main` branch on GitHub
2. Suggest changes with review (*pull request*)
    - Create a new *branch* ("parallel universe" of repository)

Edit on GitHub or in RStudio on your computer

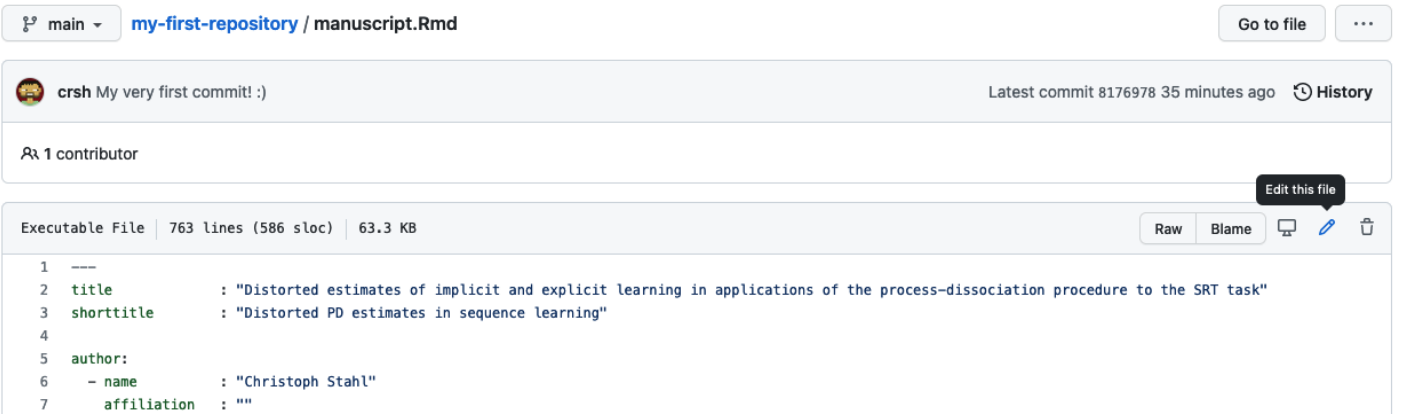
Pull requests



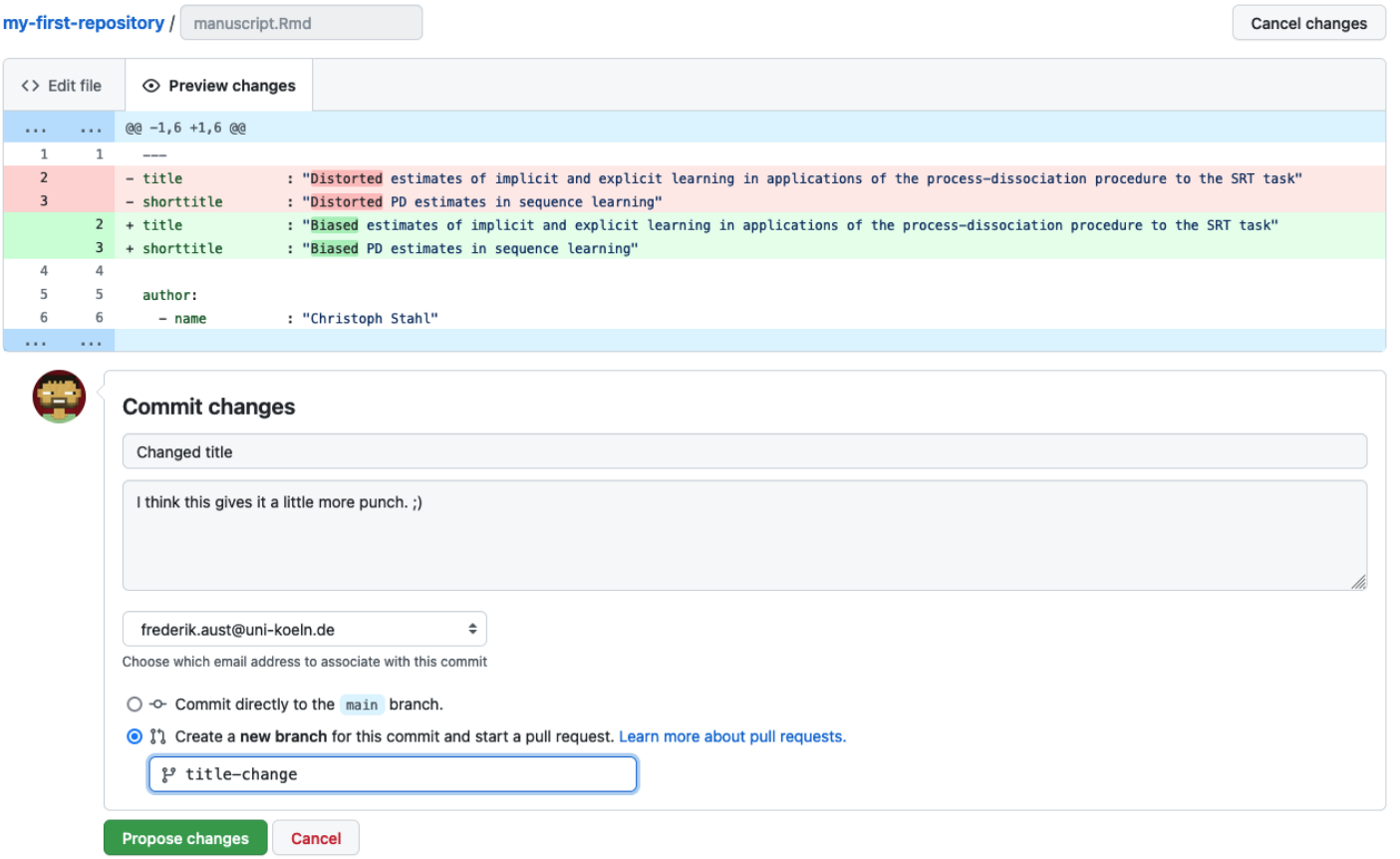
1. Pull current state of repository
2. Create new *branch* ("parallel universe")
3. Make changes, stage, commit, & push
4. Discuss and revise changes
5. Merge changes

Editing on GitHub

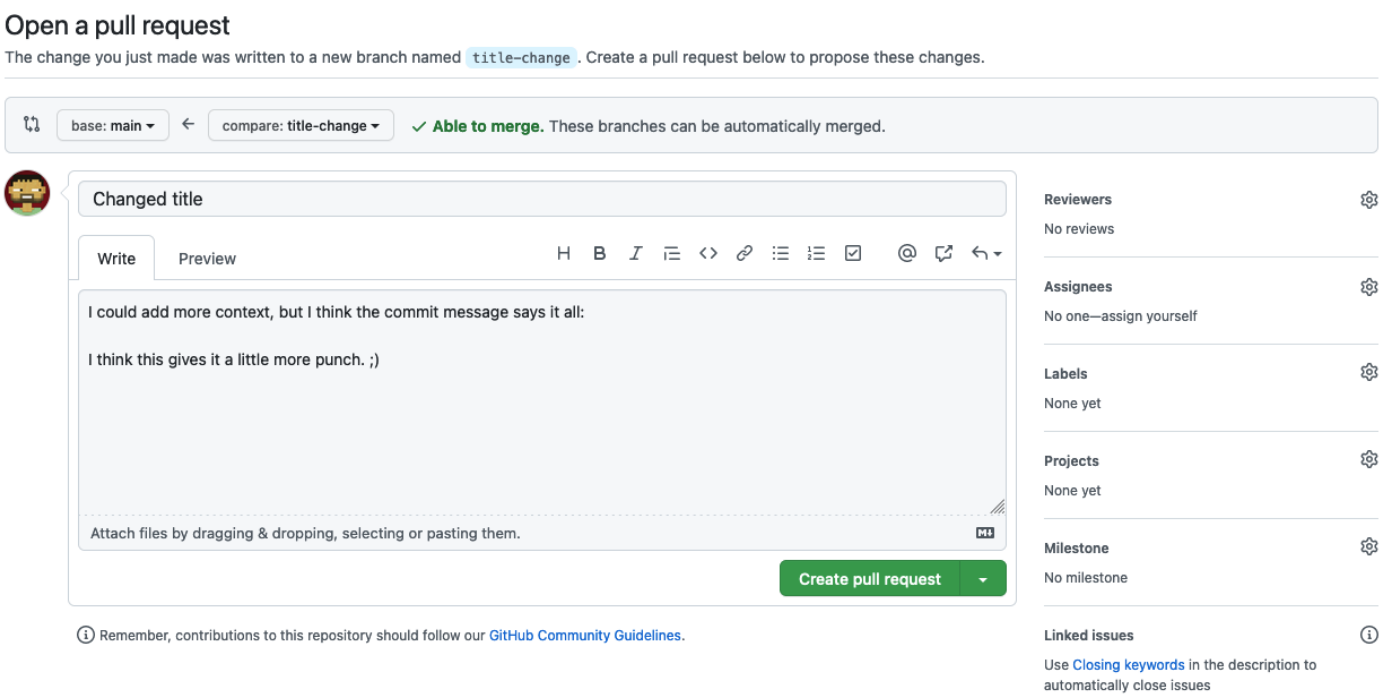
Small changes (to one file) in the browser on GitHub



Editing on GitHub



Editing on GitHub



Editing on GitHub

Reviewers can provide

- comments on specific changes

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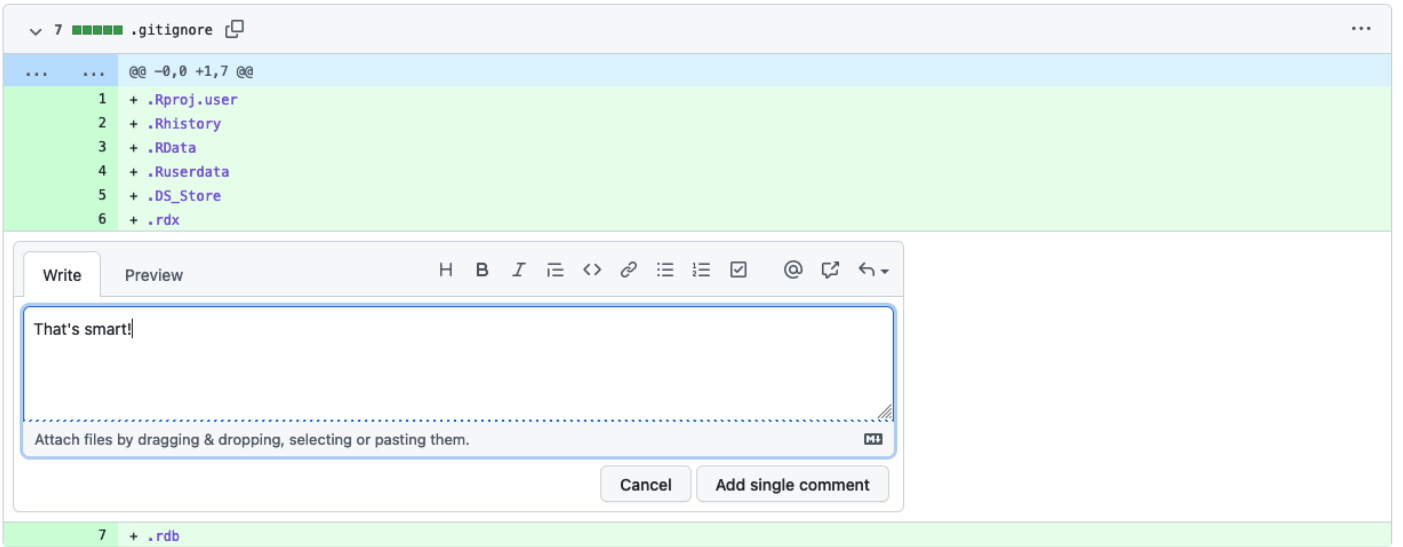
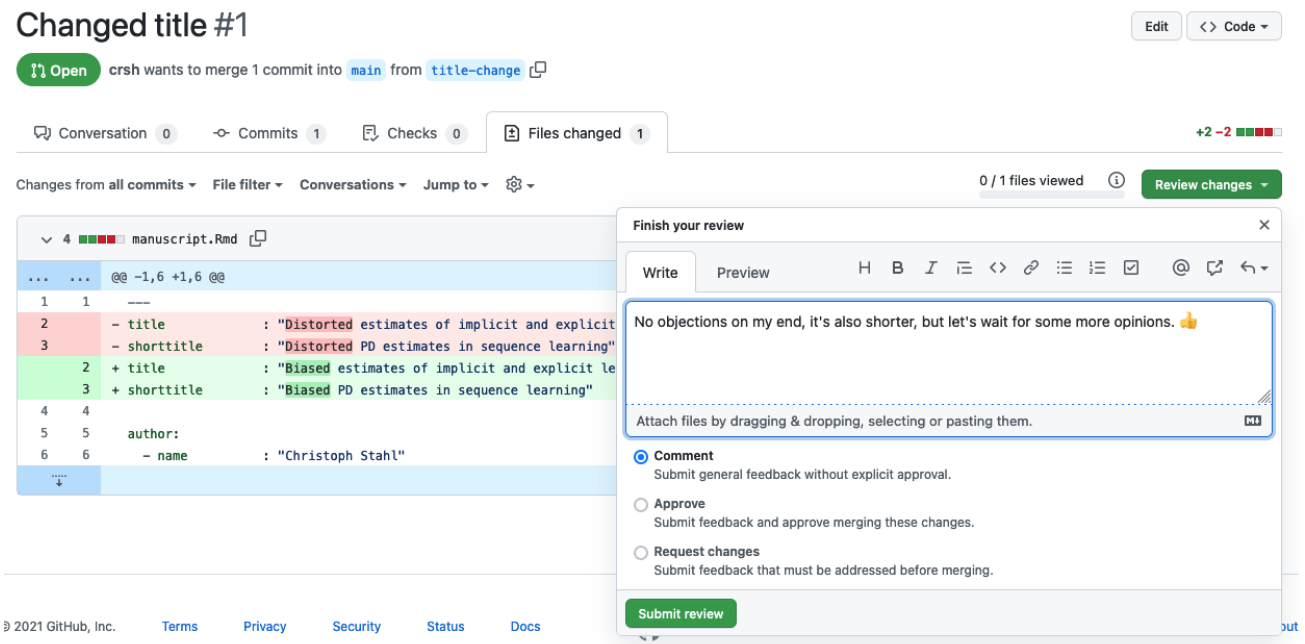


Editing on GitHub

Reviewers can provide

- comments on specific changes
- higher level comments on the entire pull request

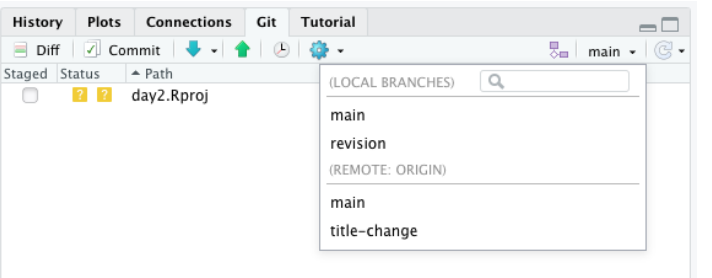


Editing on your computer

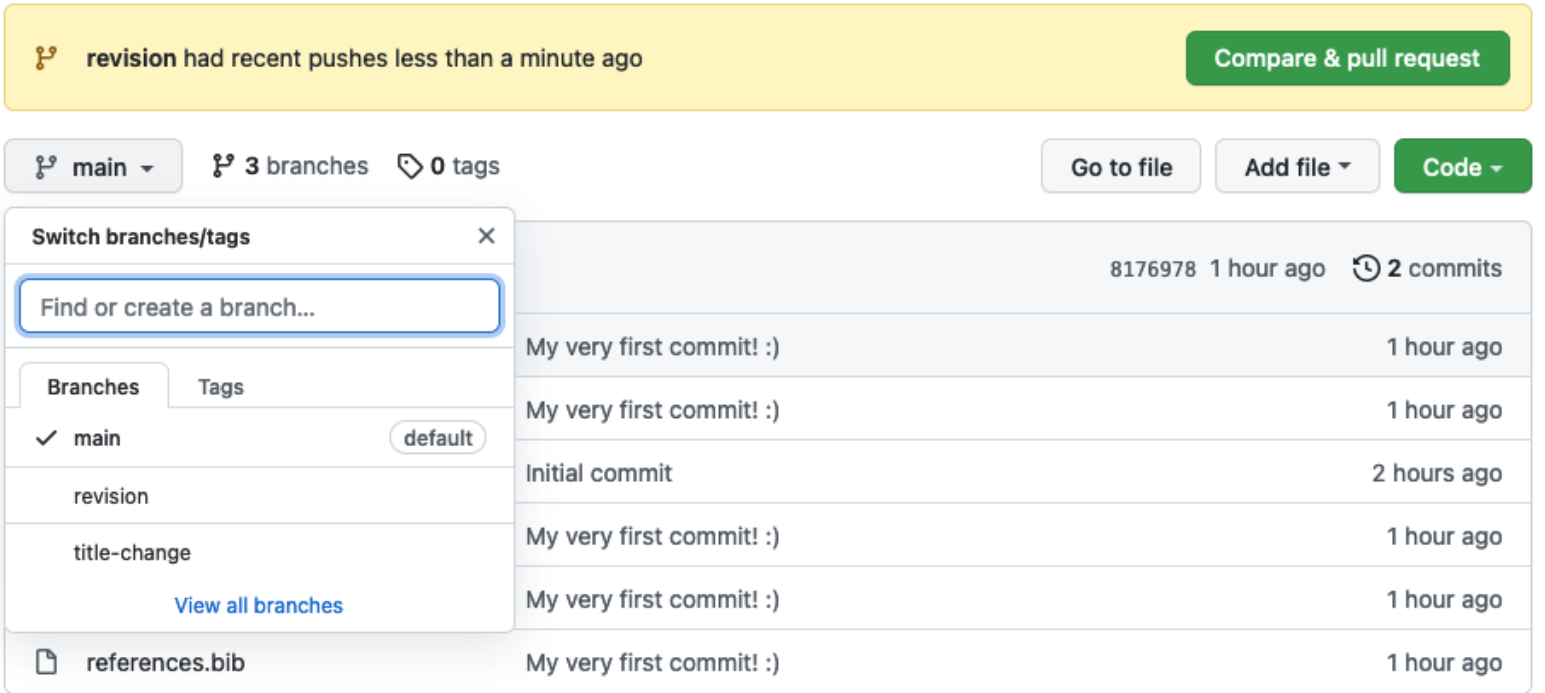
Larger changes across multiple files in RStudio

1. Pull current state of remote repository
2. Switch to new *branch* ("parallel universe")
3. Make changes, stage, commit, & push

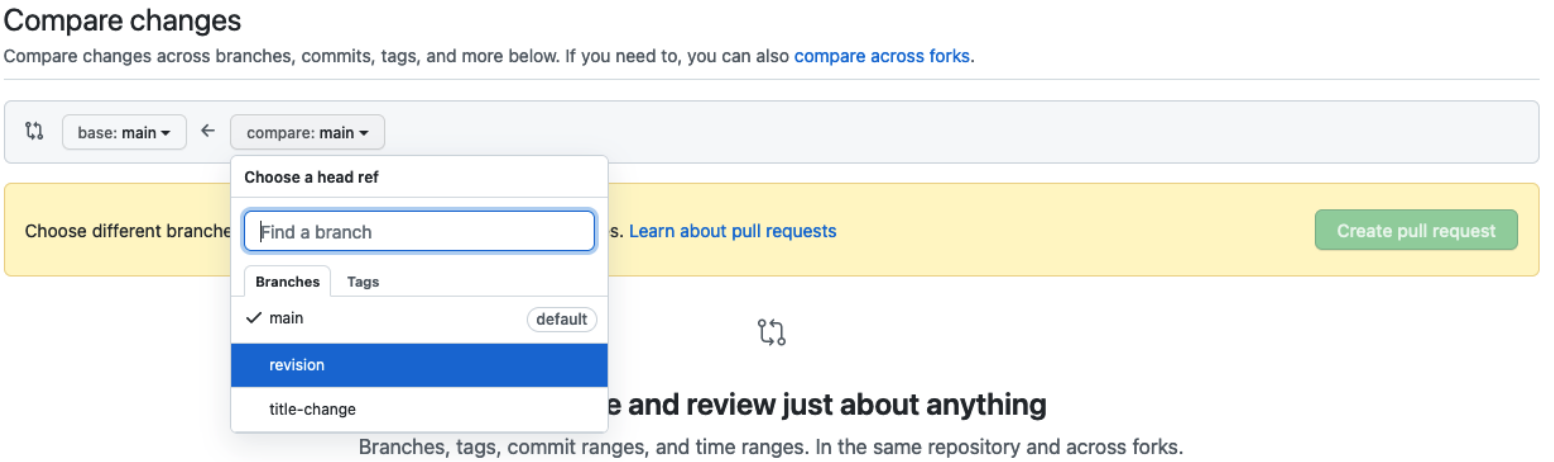
```
git pull
git branch revision
git checkout revision
git status
git add .
git commit -m "My changes"
...
git push origin revision
```



Editing on your computer



Editing on your computer

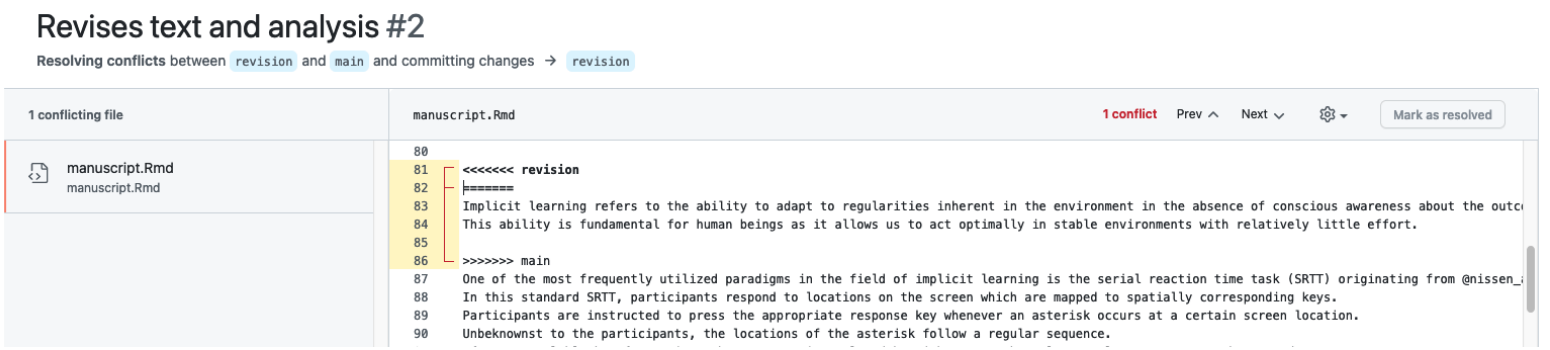


Merge conflicts 😱

Competing changes to *the same line of text*

Merge conflicts 😱

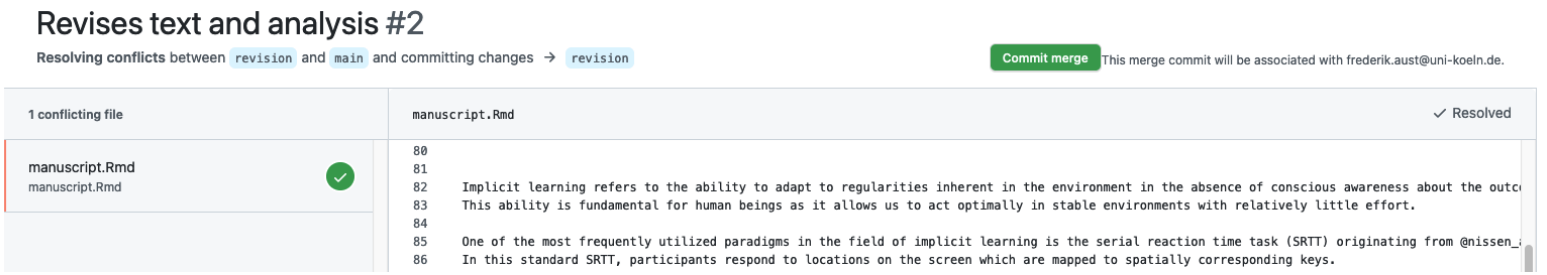
Review competing changes marked by `<<<<<<<` and `>>>>>>>`



Again, this can be done on GitHub or in RStudio

Merge conflicts 😱

Stage and commit conflict resolution




```
git add .
git commit -m "Resolved merge conflict by doing something"
```

Exercise time

Exercise

Solutions