



Merge conflicts and how to handle them

Childhood Cancer
Data  **Lab**

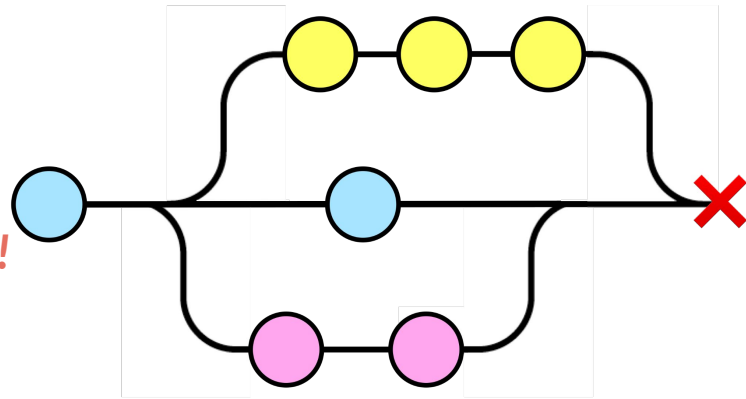
x



Merge conflicts can happen!

- If a given file has been *heavily* modified, `git` may not be able to merge the different file versions across branches together automatically
 - This is especially a problem if there are many branches floating around getting merged into each other
 - Imagine if each of these branches modified the same file in drastically incompatible ways.....

→ You will have to *manually fix the merge conflicts!*



histologies_metadata.tsv

```
1 Biospecimen_ID primary_site
2 BS_HZV4WDTB Frontal Lobe;Parietal Lobe
3 BS_E1SWA20C Peripheral Whole Blood
4 BS_KB9GJDCS Cerebellum/Posterior Fossa;Ventricles
5 BS_2EJWS3SD Peripheral Whole Blood
6 BS_6YMJ621P Skull
```

main

update-metadata-fields

```
1 Biospecimen_ID primary_site
2 BS_HZV4WDTB Frontal Lobe|Parietal Lobe
3 BS_E1SWA20C Peripheral Whole Blood
4 BS_KB9GJDCS Cerebellum/Posterior Fossa;Ventricles
5 BS_2EJWS3SD Peripheral Whole Blood
6 BS_6YMJ621P Skull
```

```
1 Biospecimen_ID primary_site
2 BS_HZV4WDTB Frontal and Parietal Lobes
3 BS_E1SWA20C Peripheral Whole Blood
4 BS_KB9GJDCS Cerebellum/Posterior Fossa;Ventricles
5 BS_2EJWS3SD Peripheral Whole Blood
6 BS_6YMJ621P Skull
```

What happens when you merge a branch with conflicts?

```
$ git merge update-metadata-fields
```

```
Auto-merging histologies_metadata.tsv
```

```
CONFLICT (content): Merge conflict in histologies_metadata.tsv
```

```
Automatic merge failed; fix conflicts and then commit the  
result.
```

```
$ git status
```

```
On branch main
```

```
You have unmerged paths.
```

```
(fix conflicts and run "git commit")
```

```
...
```

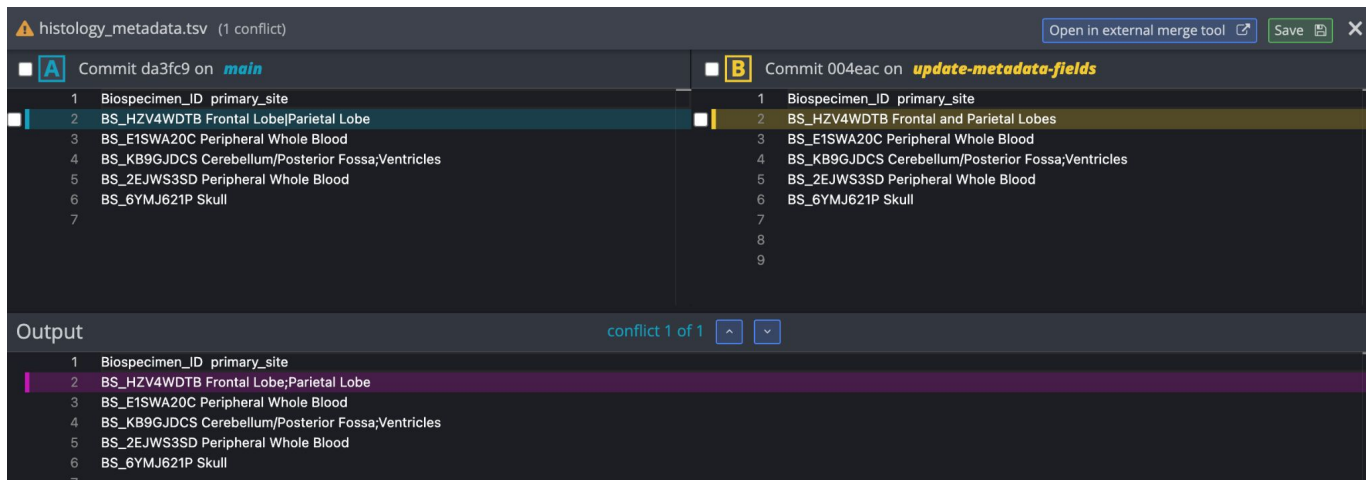


A file with merge conflicts

```
1  Biospecimen_ID  primary_site
   Accept Current Change | Accept Incoming Change | Accept Both Changes | Compare Changes
2  <<<<<<< HEAD (Current Change)
3  BS_HZV4WDTB Frontal Lobe|Parietal Lobe
4  =====
5  BS_HZV4WDTB Frontal and Parietal Lobes
6  >>>>>>> update-metadata-fields (Incoming Change)
7  BS_E1SWA20C Peripheral Whole Blood
8  BS_KB9GJDSC Cerebellum/Posterior Fossa;Ventricles
9  BS_2EJWS3SD Peripheral Whole Blood
10 BS_6YMJ621P Skull
```

Resolving a conflict

- Edit by hand to create the “correct” merge results
 - remove the conflict marker lines: `<<<<<<`, `=====`, and `>>>>>>`
 - commit the changes new changes (along with the rest of the merge results)
- Use GitKraken or VSCode (or your tool of choice) to help out!



Avoiding merge conflicts

- Keep your branches short and focused
 - The sooner you merge your changes into the base branch, the less likely you will end up with merge conflicts (or create conflicts for your collaborators)
 - Stacking pull requests can help if there are related changes to be made
 - Avoid “recreational” edits
- Communication!
 - Well-scoped issues and pull requests that avoid large changes
 - GitHub assignments to know who is working on what
- Try to resolve conflicts yourself by merging the base branch into your feature branch before you file a PR