

Git: Rebase Your Expectations

How to fixup your life

Josh Larson

April 14, 2021

Photo Syncing

Server



Laptop



Photo Syncing

Server



Laptop

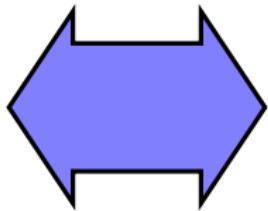


Photo Syncing

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Laptop

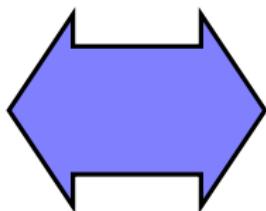


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Laptop

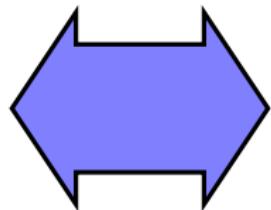


Photo Syncing

Server



Laptop

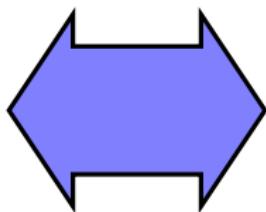


Photo Syncing

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Laptop

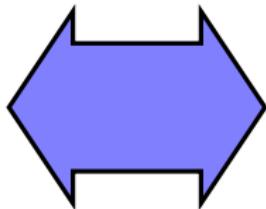


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Laptop

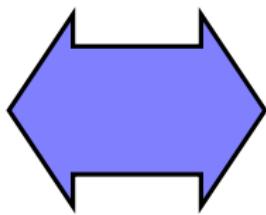


Photo Syncing

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Laptop

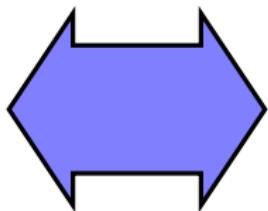


Photo Syncing

Server



Laptop

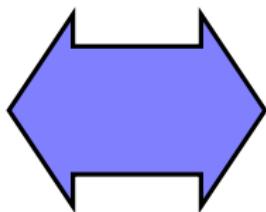


Photo Versions

- ▶ Changes

Photo Versions

- ▶ Changes

Photo Versions

- ▶ Changes
 - ▶ Add merchmart and shell

Photo Versions

- ▶ Changes
 - ▶ Add merchmart and shell



Photo Versions

- ▶ Changes
 - ▶ Add merchmart and shell
 - ▶ Add skyline

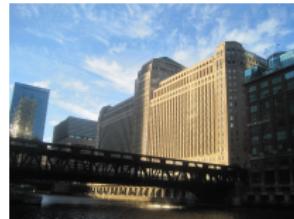


Photo Versions

- ▶ Changes
 - ▶ Add merchmart and shell
 - ▶ Add skyline



Photo Versions

- ▶ Changes
 - ▶ Add merchmart and shell
 - ▶ Add skyline
 - ▶ Remove merchmart



Photo Versions

- ▶ Changes
 - ▶ Add merchmart and shell
 - ▶ Add skyline
 - ▶ Remove merchmart



Photo Versions

Server



Laptop



Photo Versions

Server

- ▶ Add 2 images



Laptop

- ▶ Add 2 images



Photo Versions

Server

- ▶ Add 2 images
- ▶ Add merchmart



Laptop

- ▶ Add 2 images



Photo Versions

Server

- ▶ Add 2 images
- ▶ Add merchmart



Laptop

- ▶ Add 2 images
- ▶ Add merchmart



Photo Versions

Server

- ▶ Add 2 images
- ▶ Add merchmart



Laptop

- ▶ Add 2 images
- ▶ Add merchmart



Photo Versions

Server



Laptop



Photo Versions

Server

- ▶ Add 3 images



Laptop

- ▶ Add 3 images



Photo Versions

Server

- ▶ Add 3 images



Laptop

- ▶ Add 3 images
- ▶ Remove merchmart



Photo Versions

Server

- ▶ Add 3 images
- ▶ Remove merchmart



Laptop

- ▶ Add 3 images
- ▶ Remove merchmart



Photo Versions

Server

- ▶ Add 3 images
- ▶ Remove merchmart



Laptop

- ▶ Add 3 images
- ▶ Remove merchmart



Commits

What is a Commit?

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- ▶ a8808ba

History?

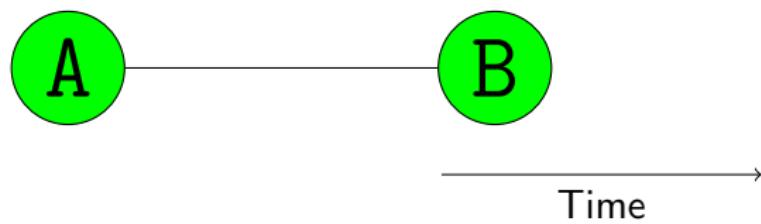
Intent

Ancestry

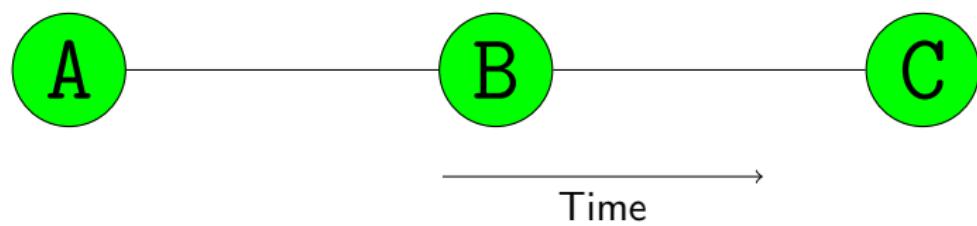
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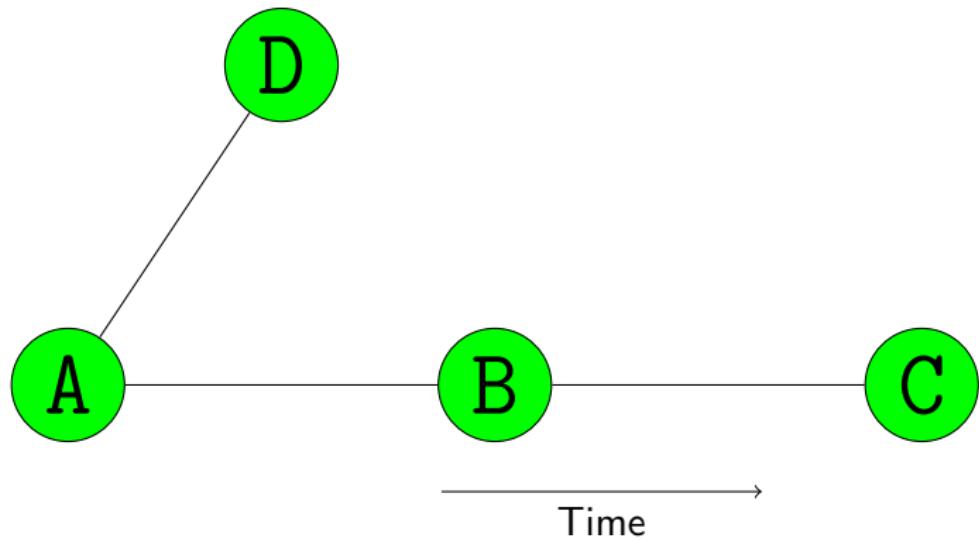
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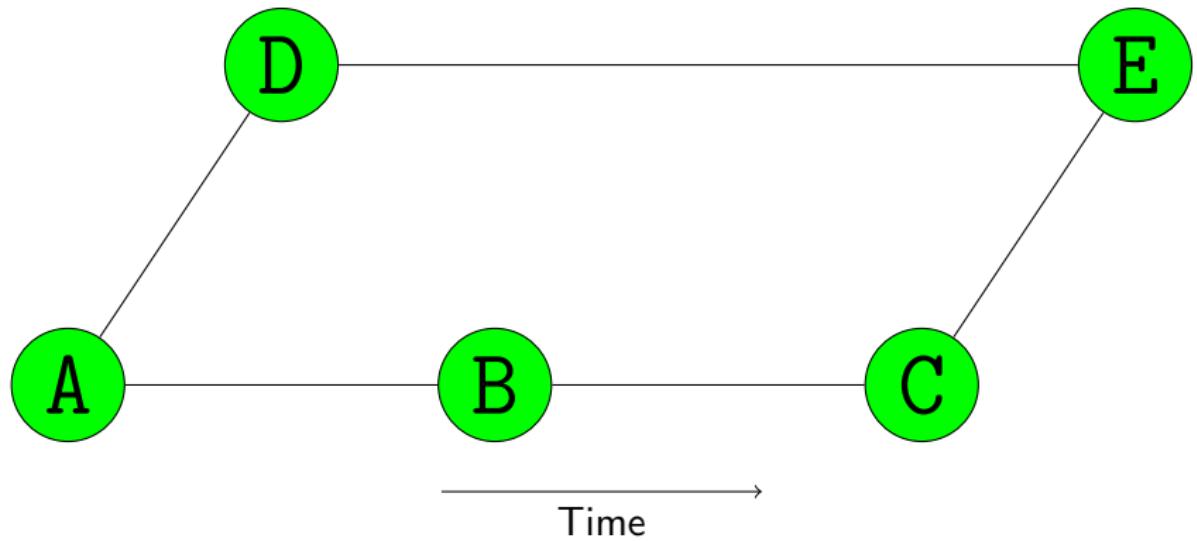
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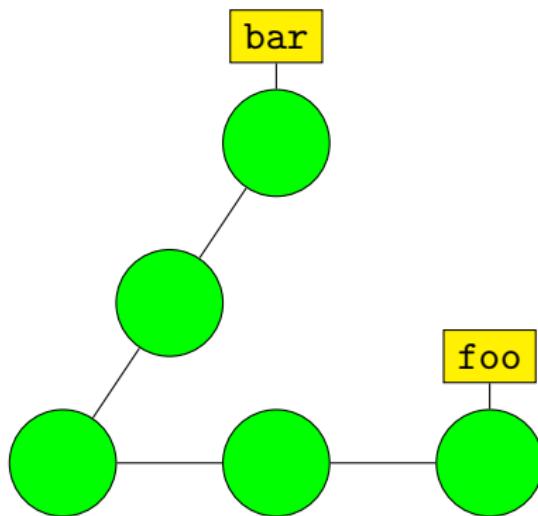
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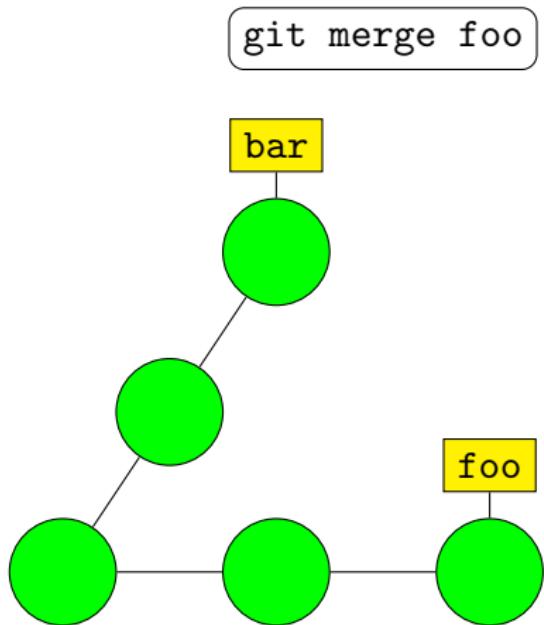
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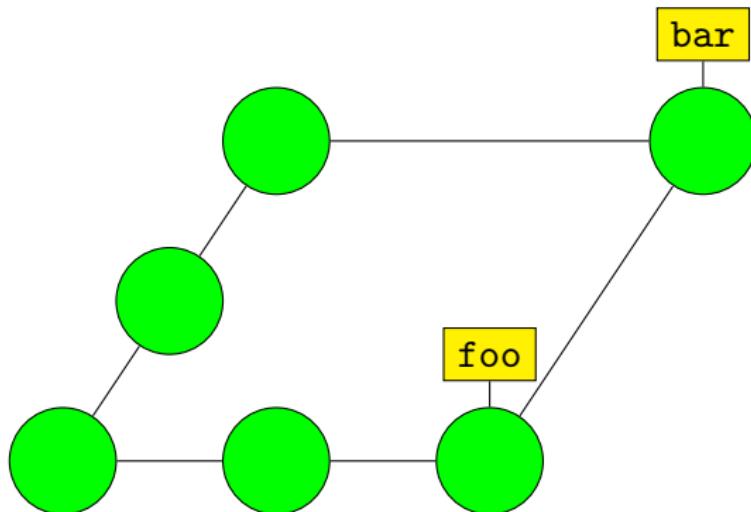
Merging



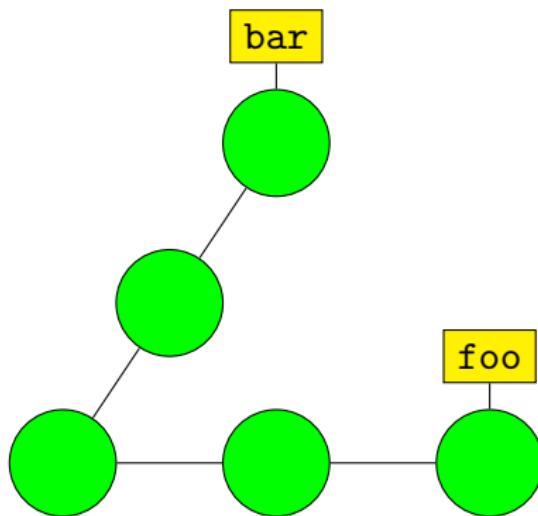
Merging



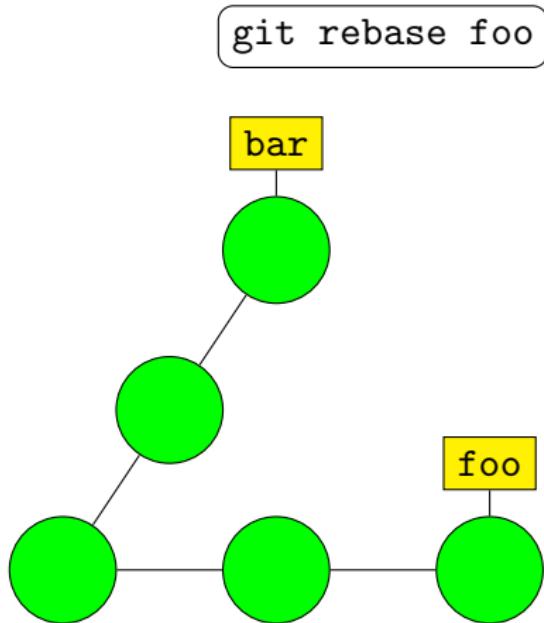
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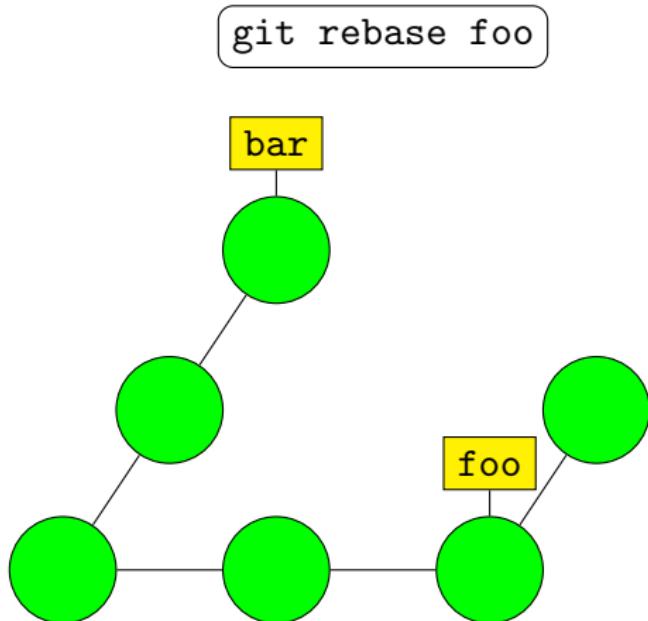
Merging



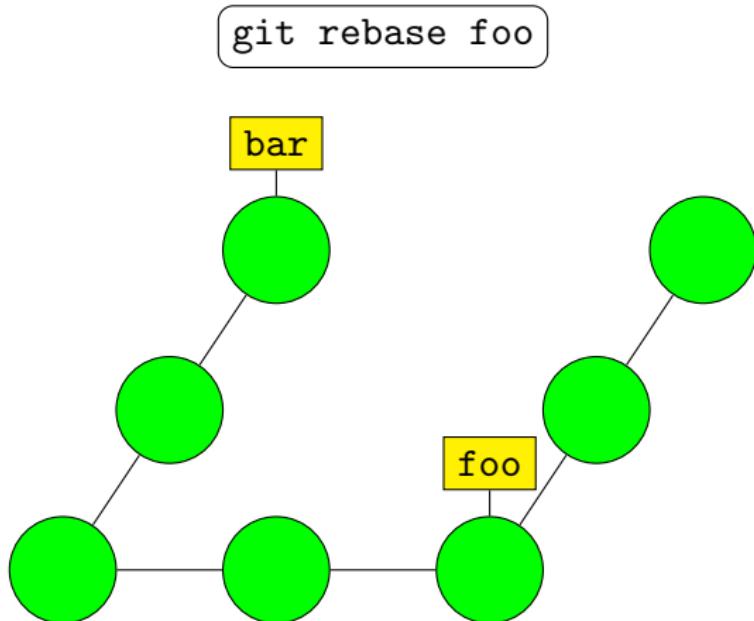
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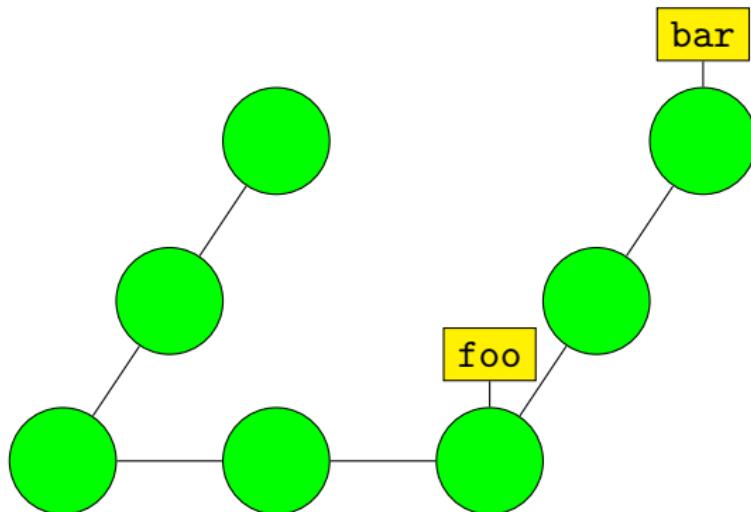
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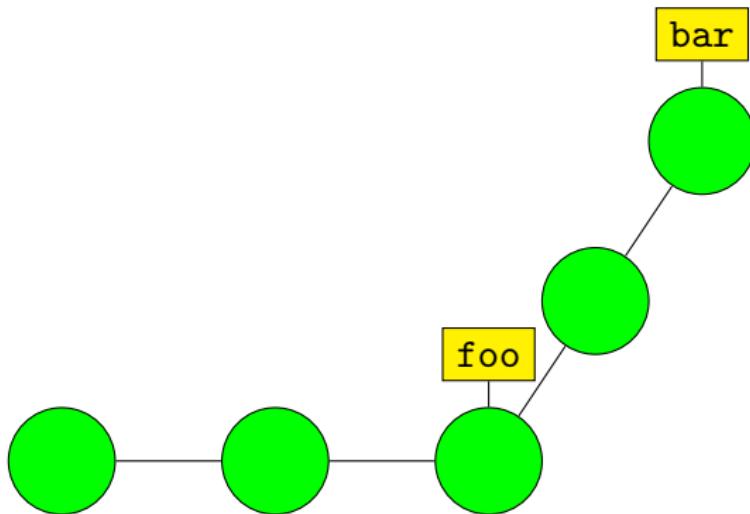
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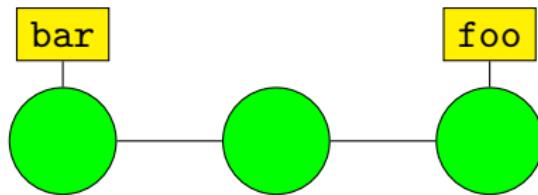
Merging



Merging

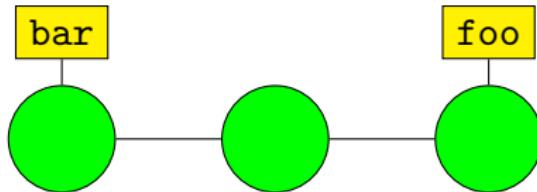


Merging

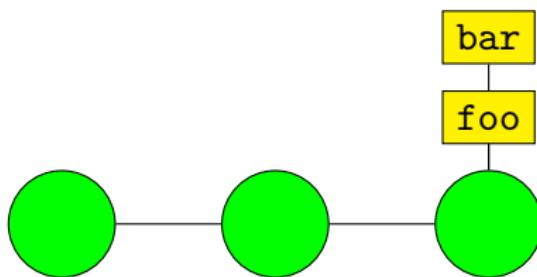


Merging

git merge foo

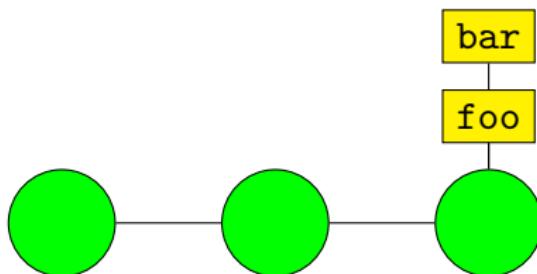


Merging



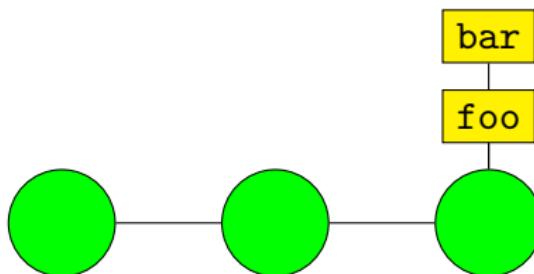
Merging

```
git rebase foo
```

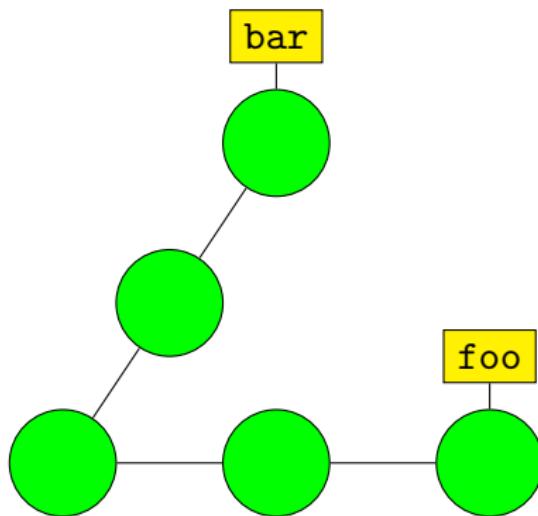


Merging

```
git merge --ff-only foo
```

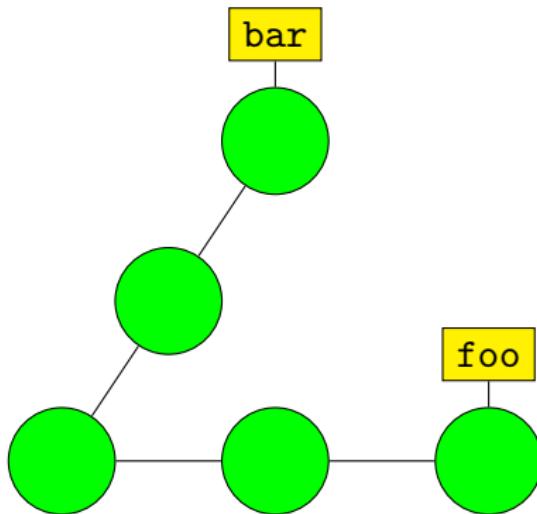


Merging

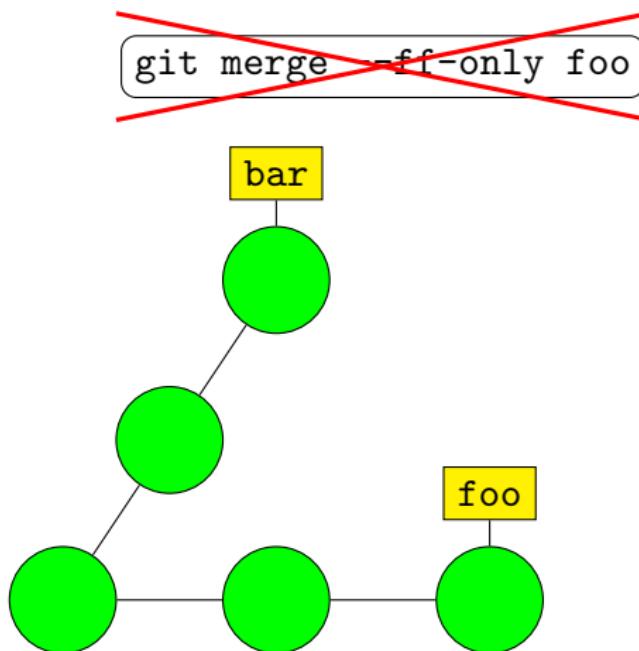


Merging

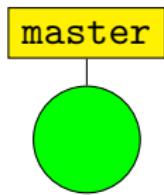
```
git merge --ff-only foo
```



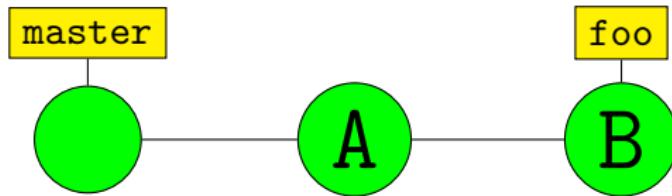
Merging



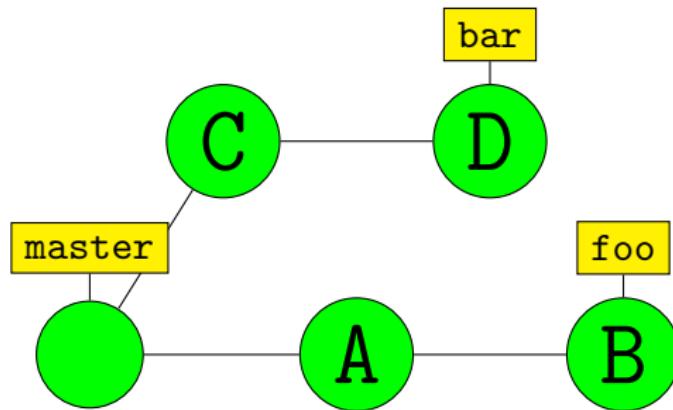
Merge Strategy



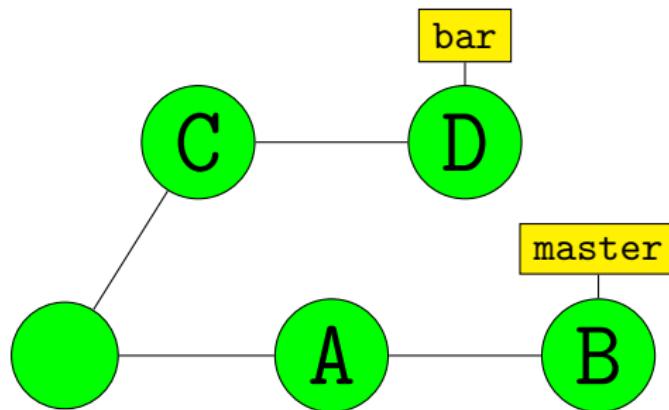
Merge Strategy



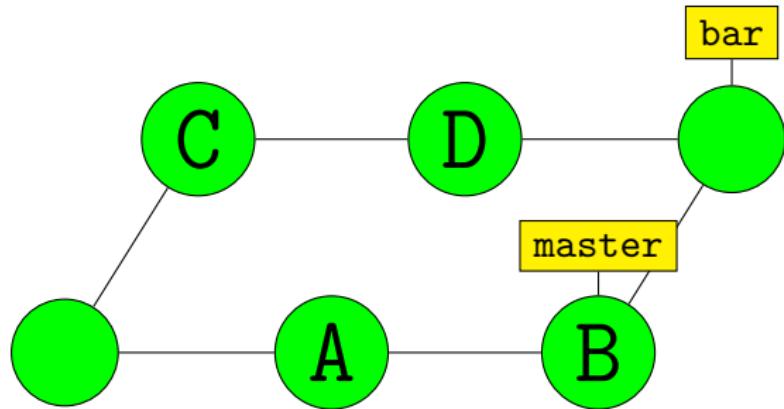
Merge Strategy



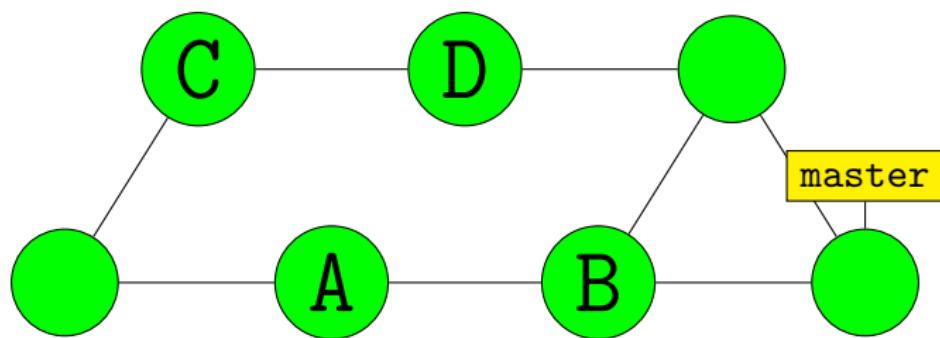
Merge Strategy



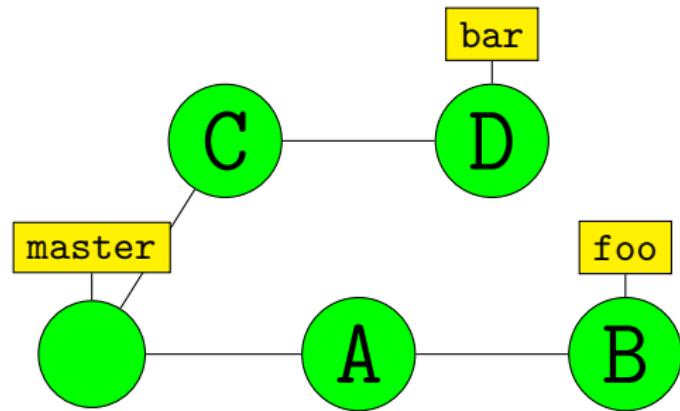
Merge Strategy



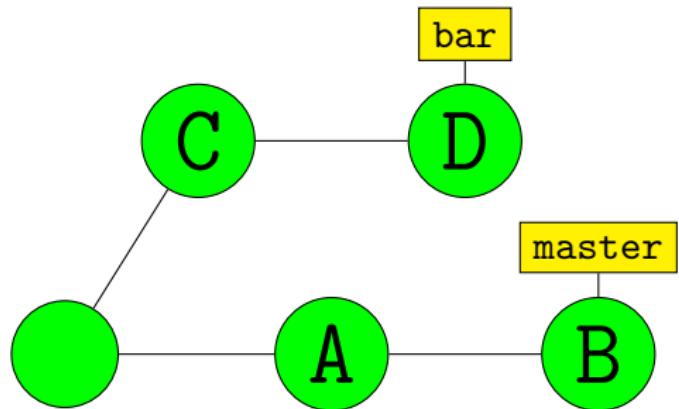
Merge Strategy



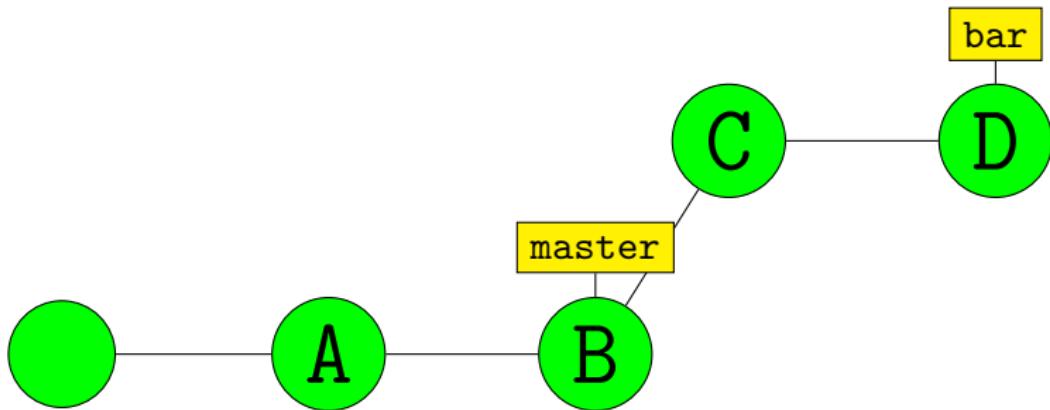
Merge Strategy (Rebase)



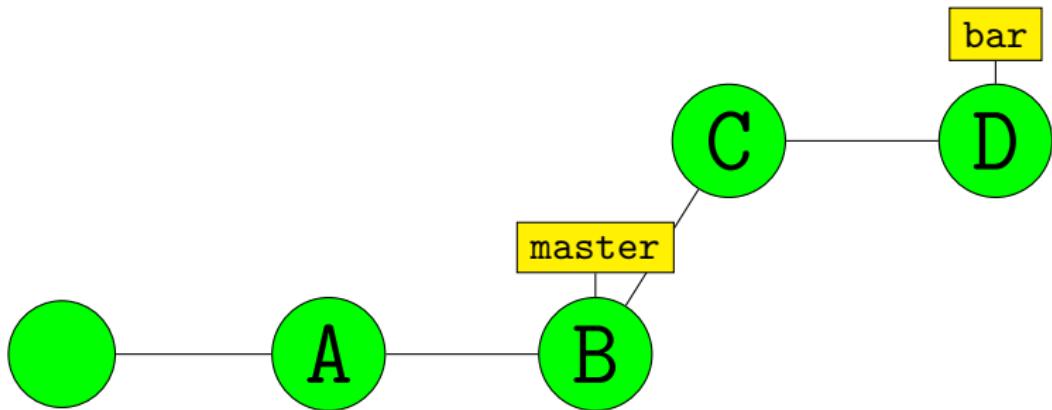
Merge Strategy (Rebase)



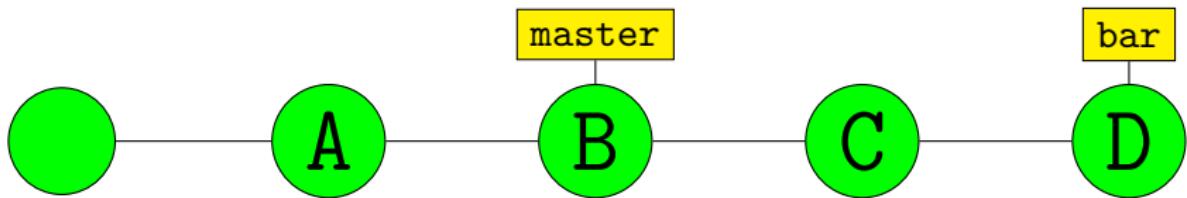
Merge Strategy (Rebase)



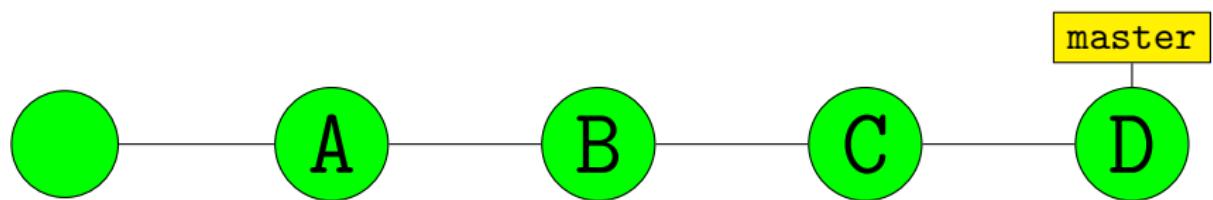
Merge Strategy (Rebase)



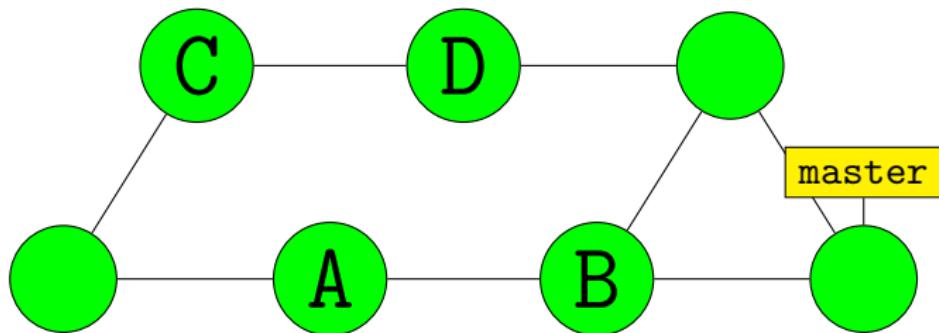
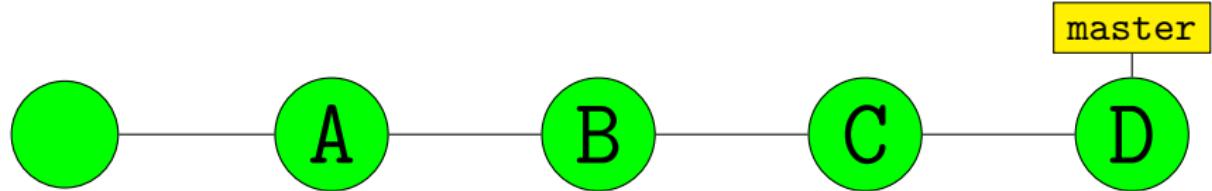
Merge Strategy (Rebase)



Merge Strategy (Rebase)



Merge Strategies



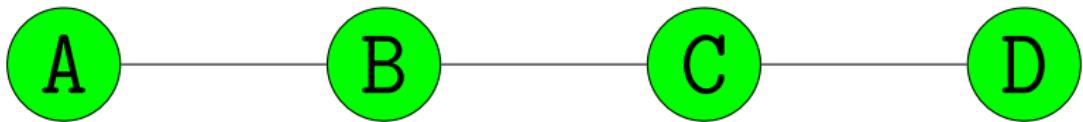
Rewriting History



```
git rebase -i A
```



pick B
pick C
pick D



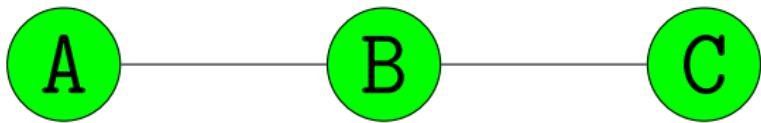
pick B
 pick C
 pick D

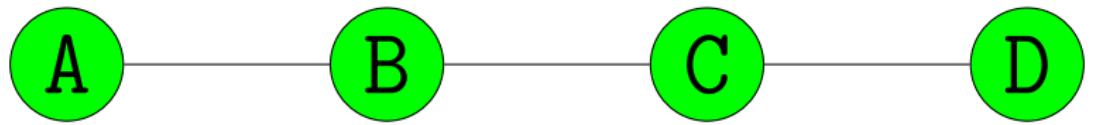
A



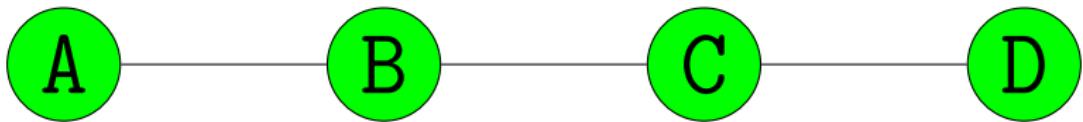
pick C
pick D

pick D

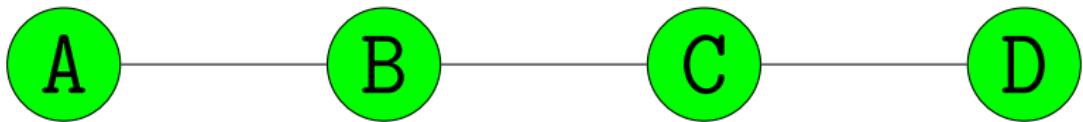




pick B
pick C
pick D



pick C
pick B
pick D



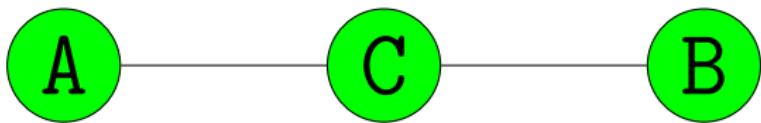
pick C
 pick B
 pick D

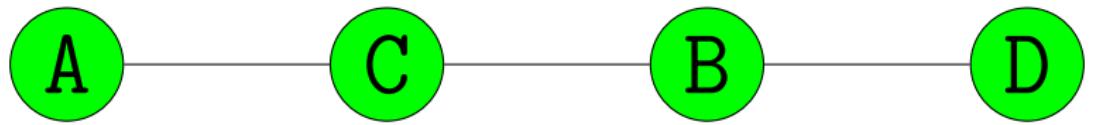
A



pick B
pick D

pick D





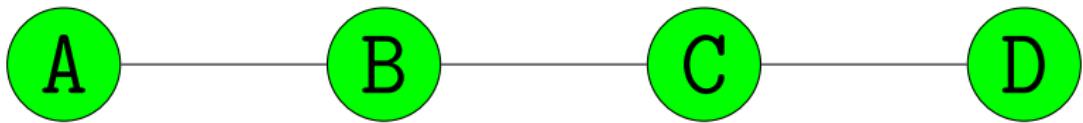
pick B
pick C
pick D



pick B
pick D
pick C



pick B
fixup D
pick C



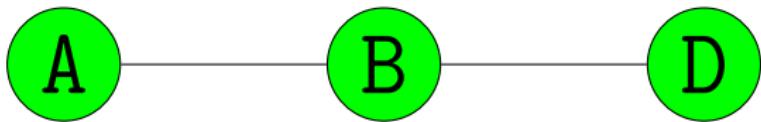
pick B
fixup D
pick C

A

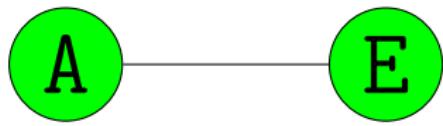
fixup D
pick C

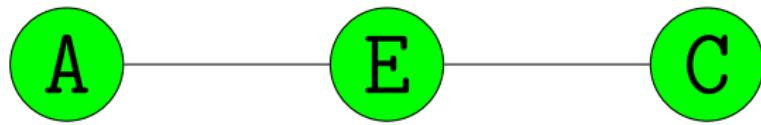


fixup
pick C



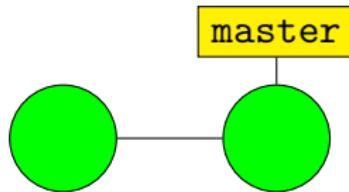
pick C



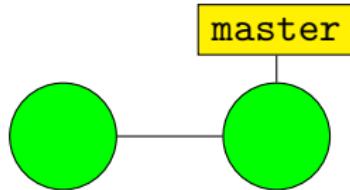


Pitfalls

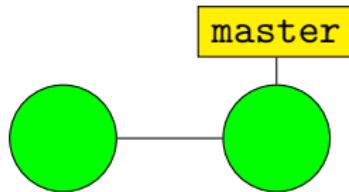
Remotes



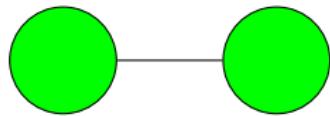
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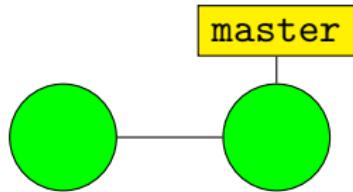


```
git clone path@to:remote/repo
```

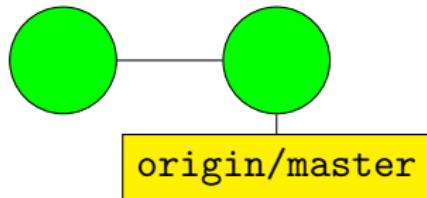


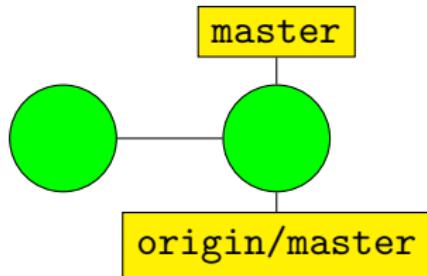
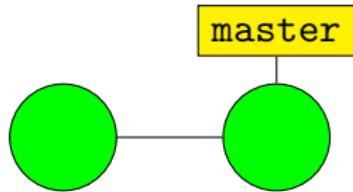
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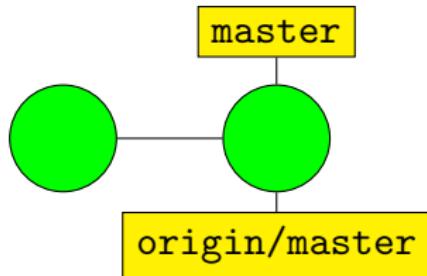
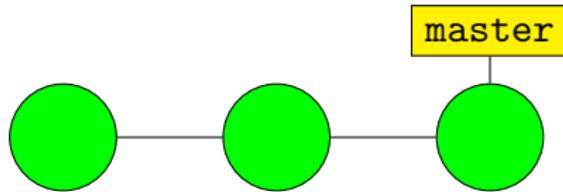


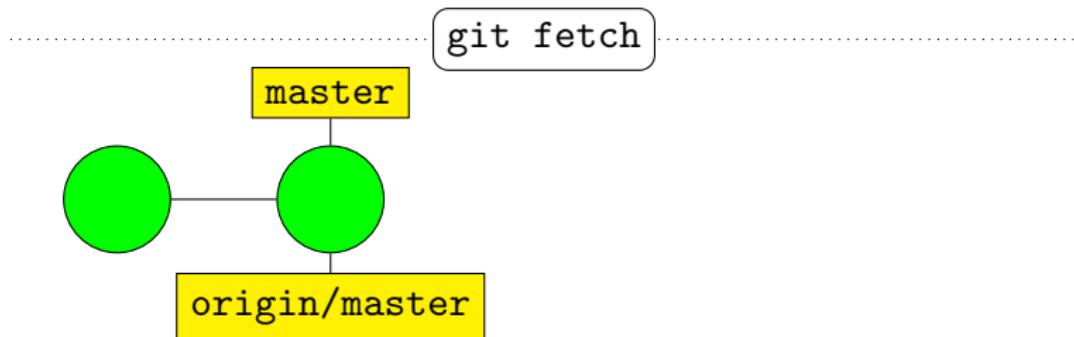
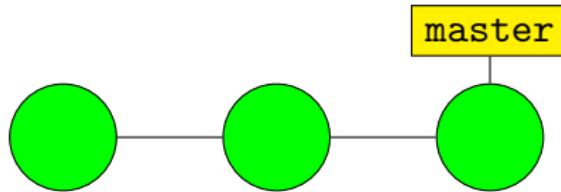


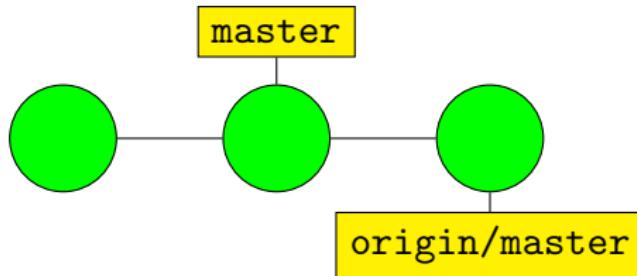
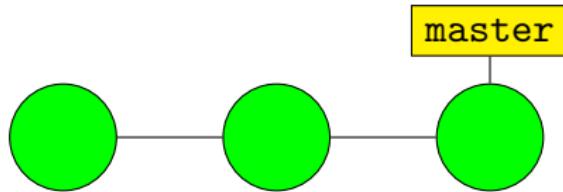
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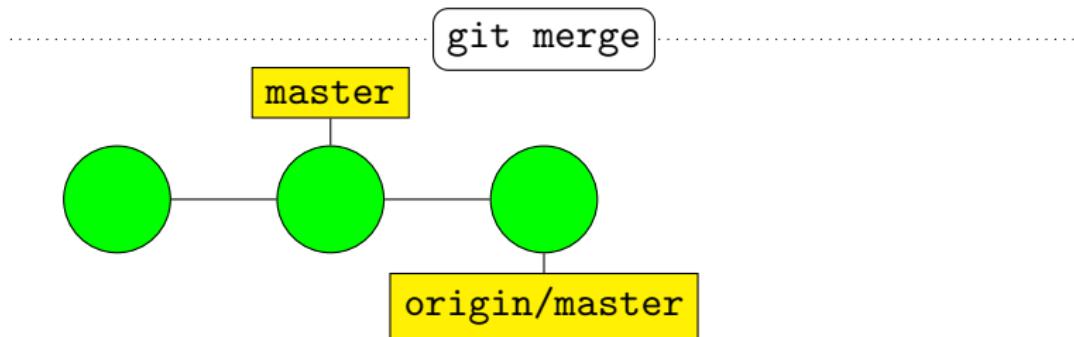
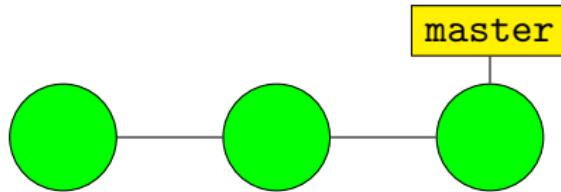


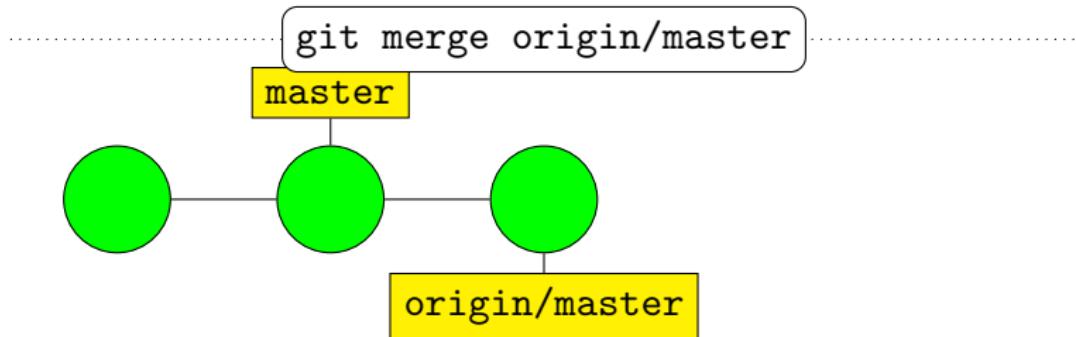
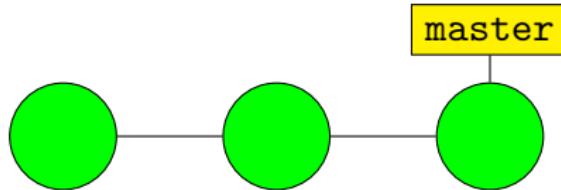


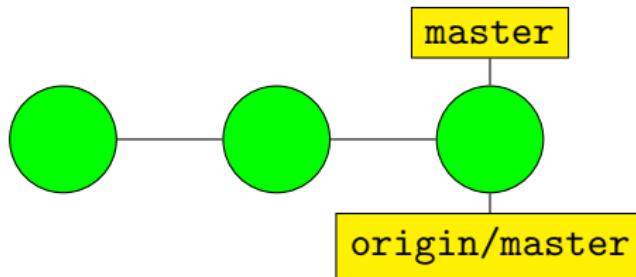
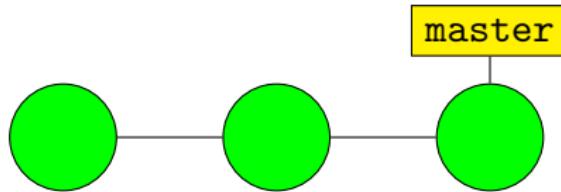




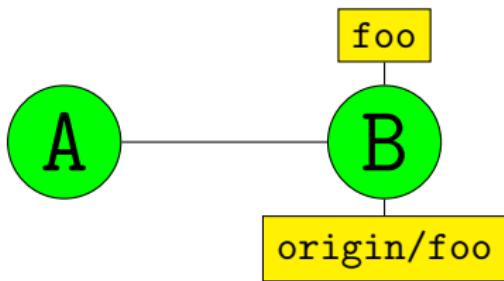


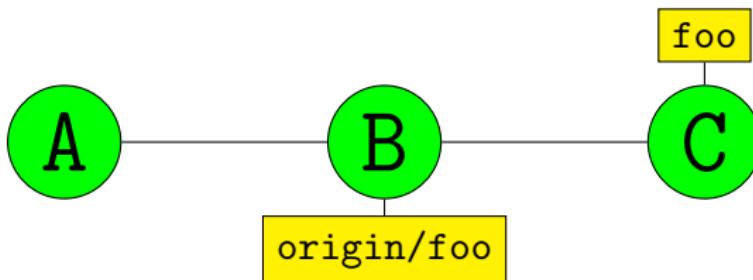


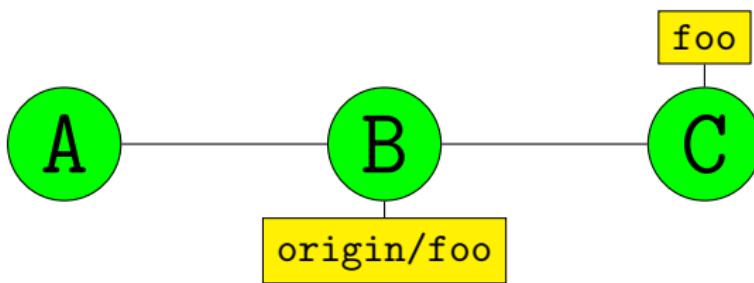
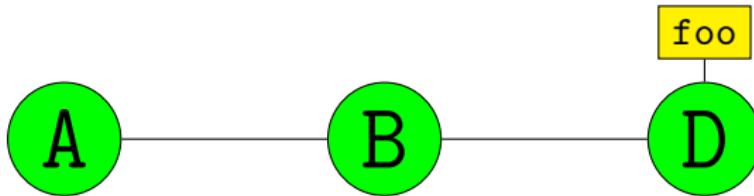


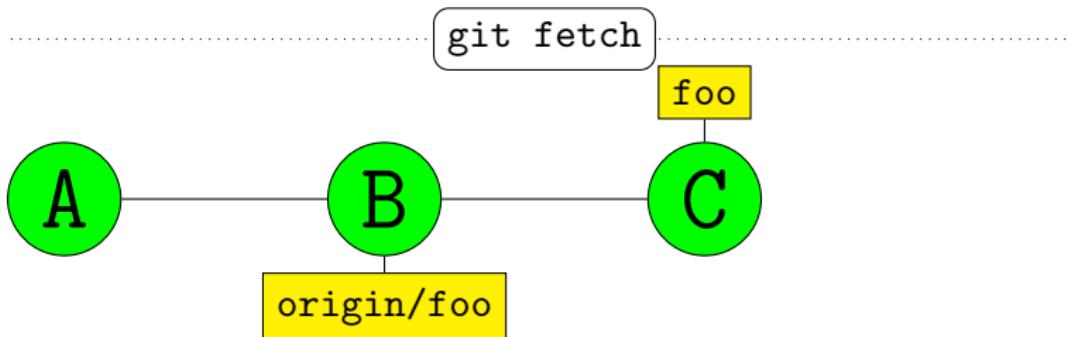
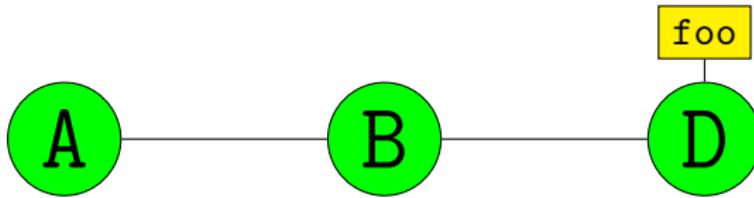


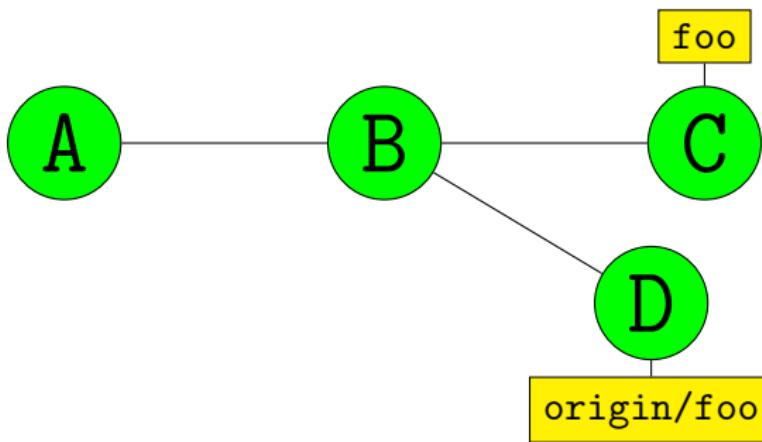
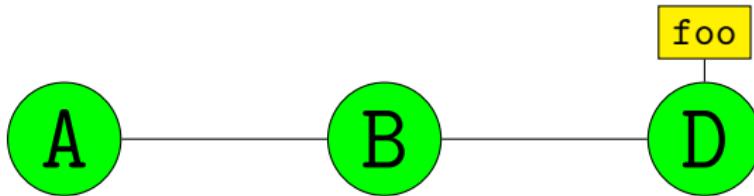
Collaborating

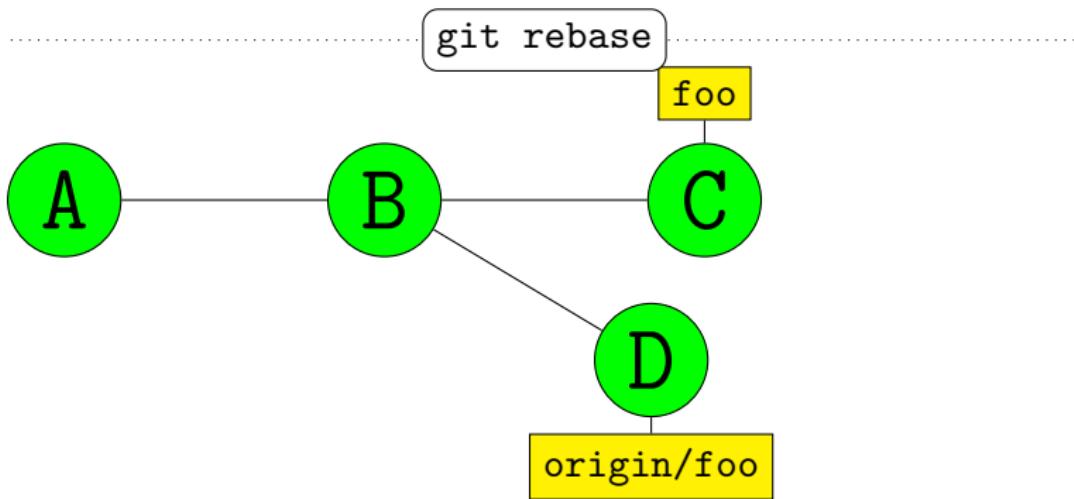
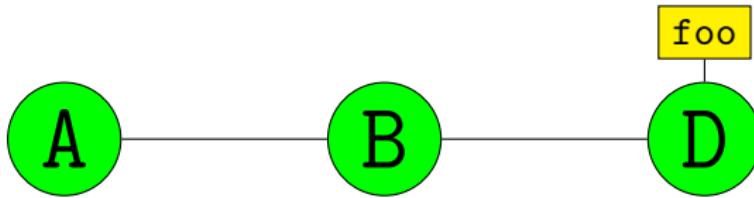


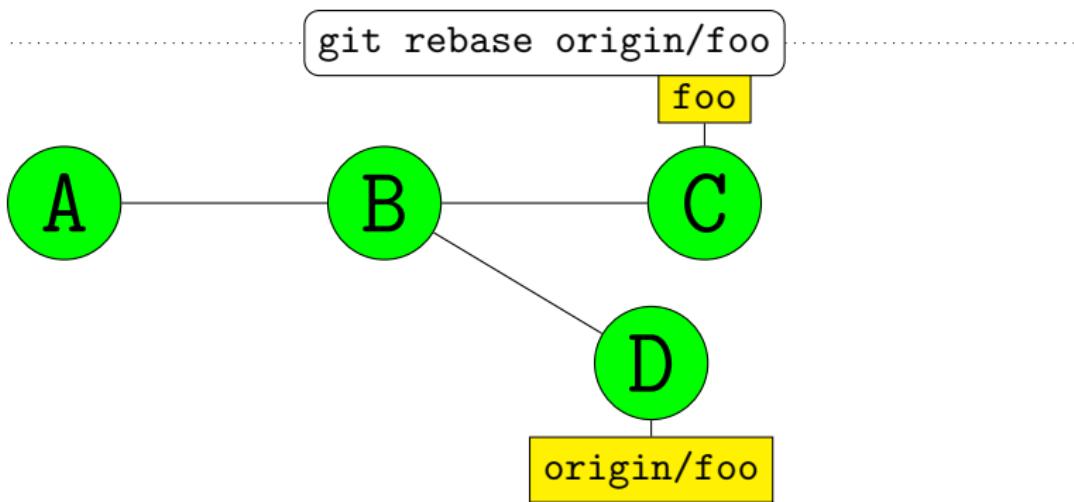
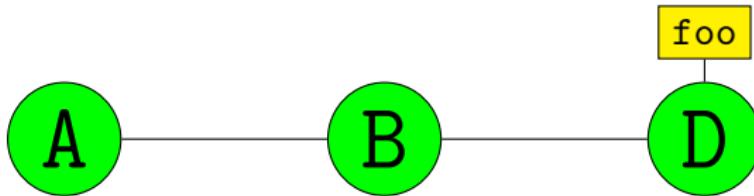


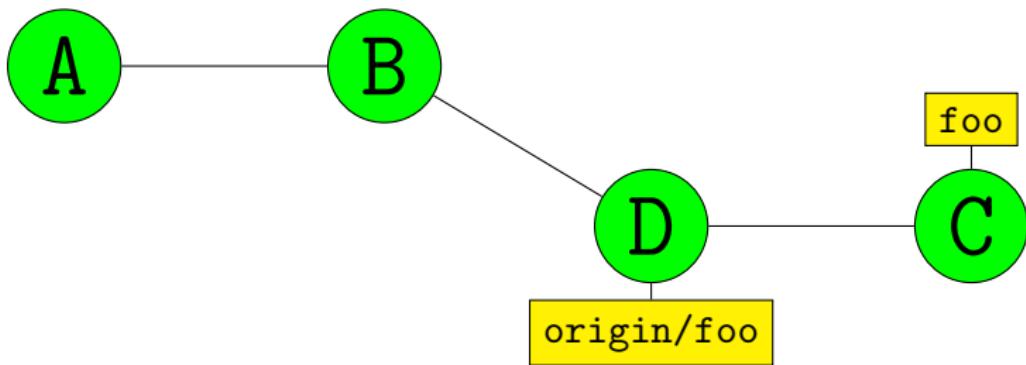
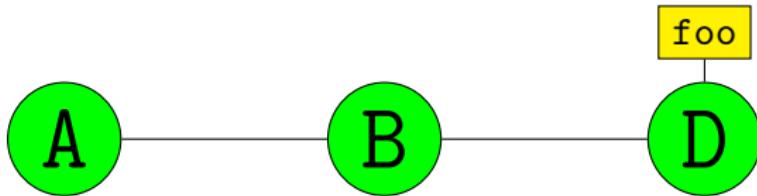


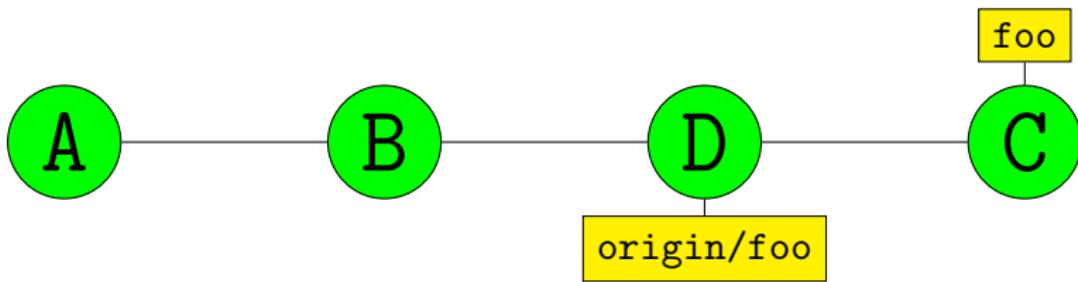
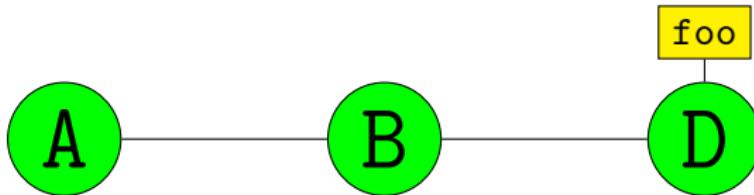


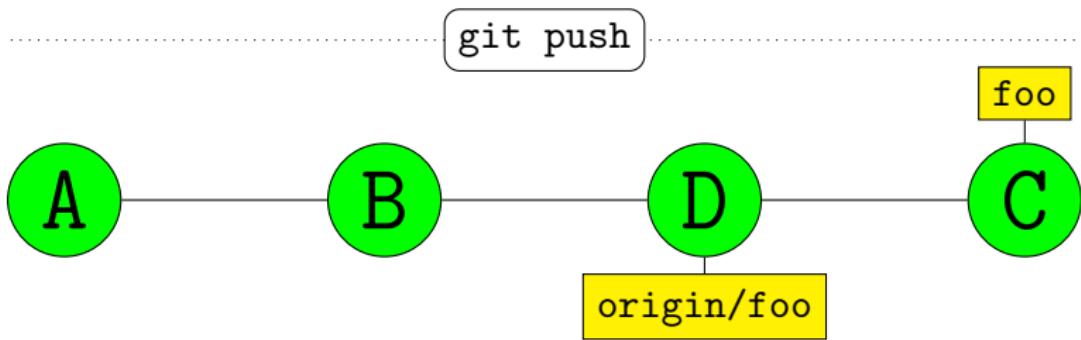
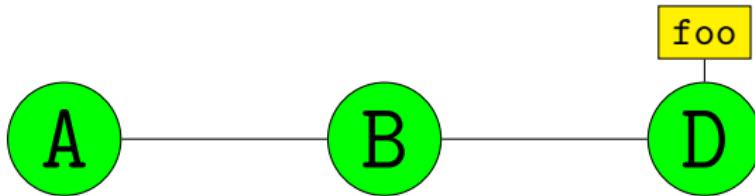


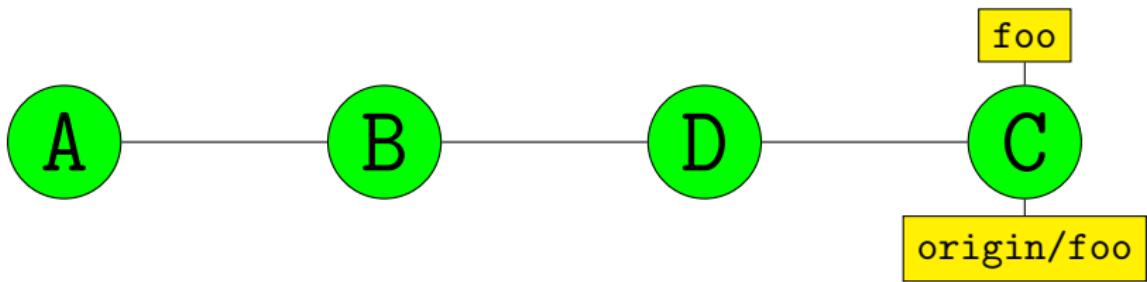


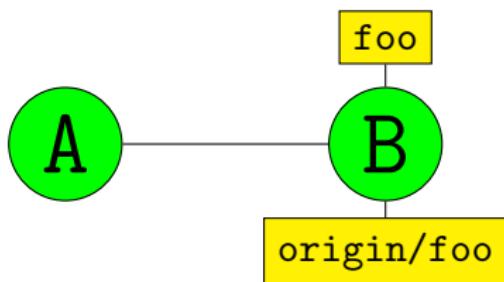


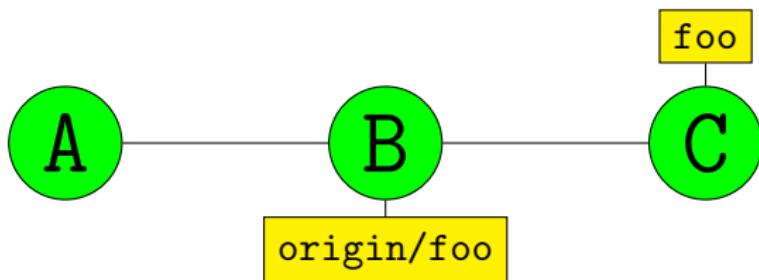


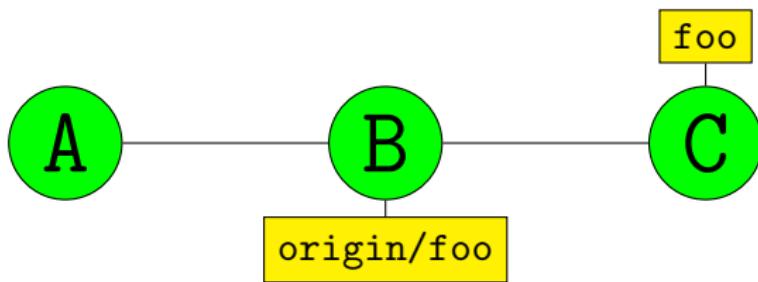
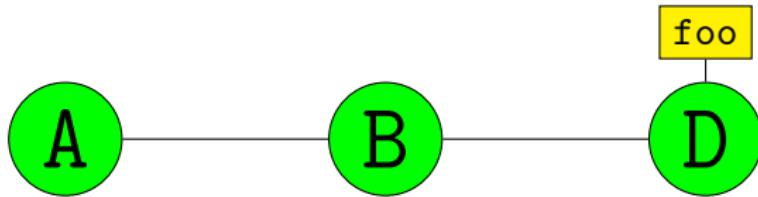


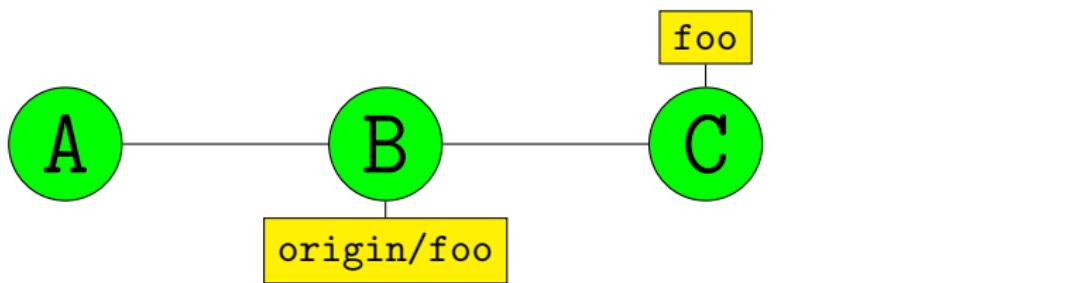


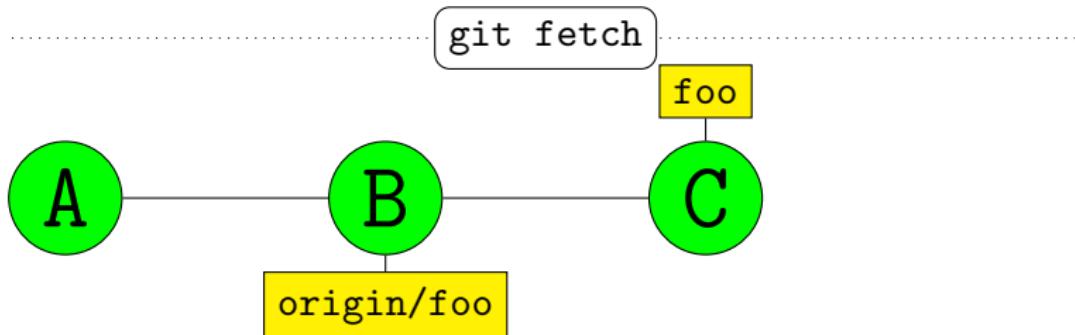


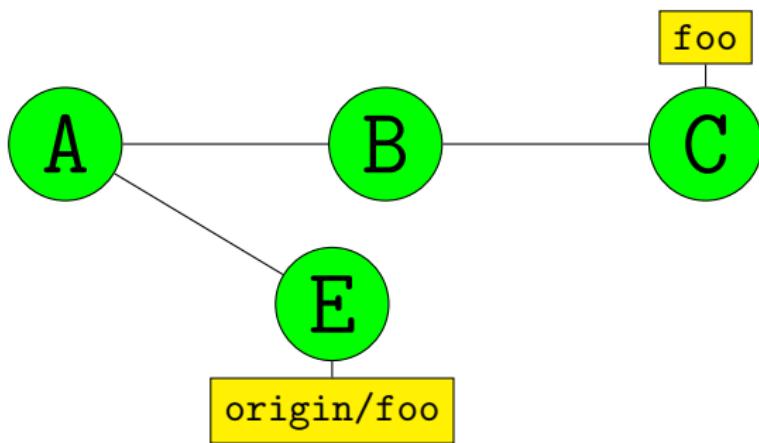


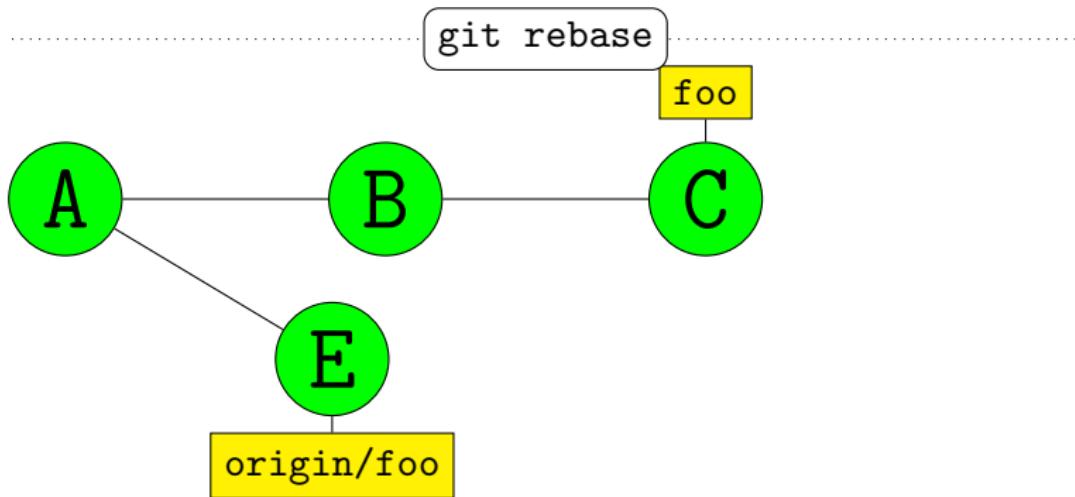


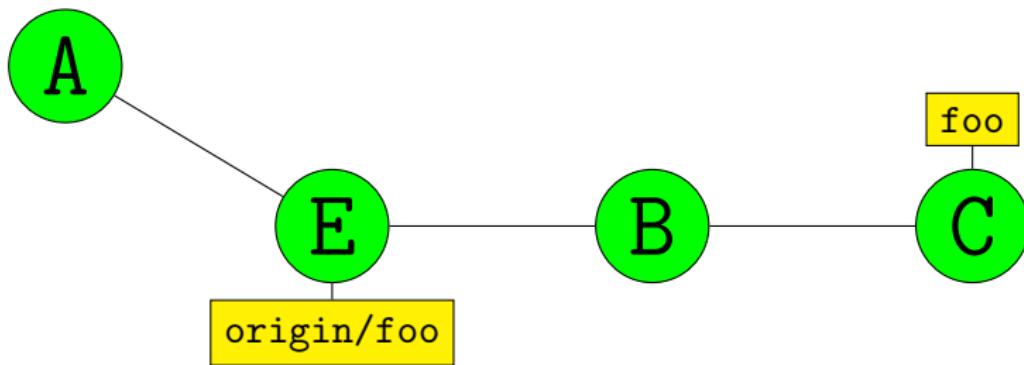


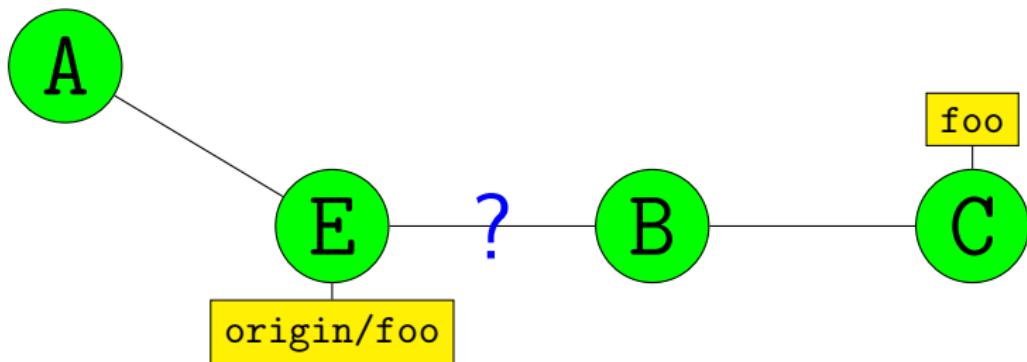








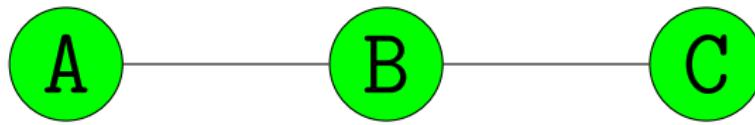




Rewriting History?

Carefully

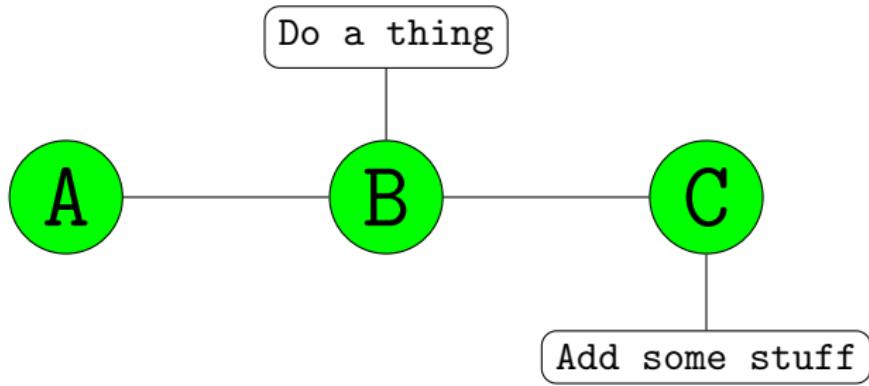
Fixup Commits

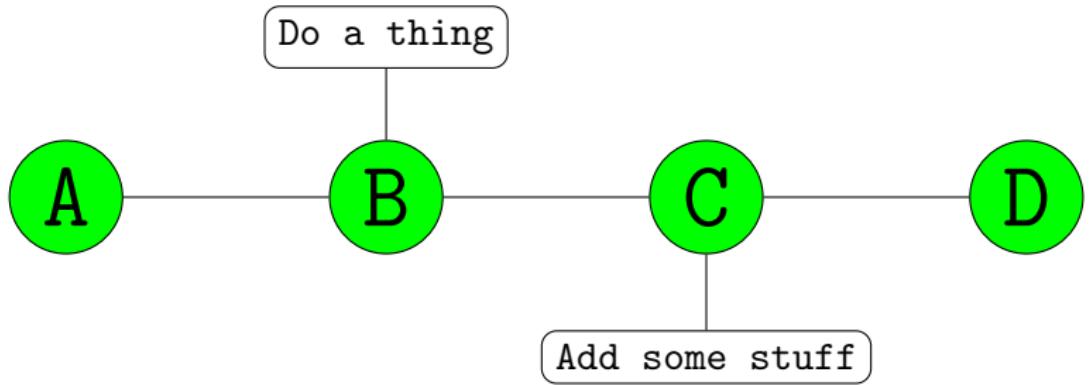


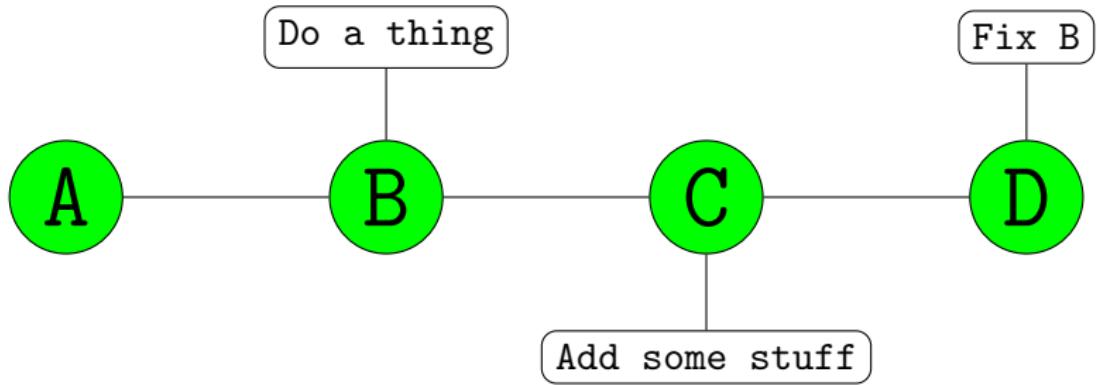
A

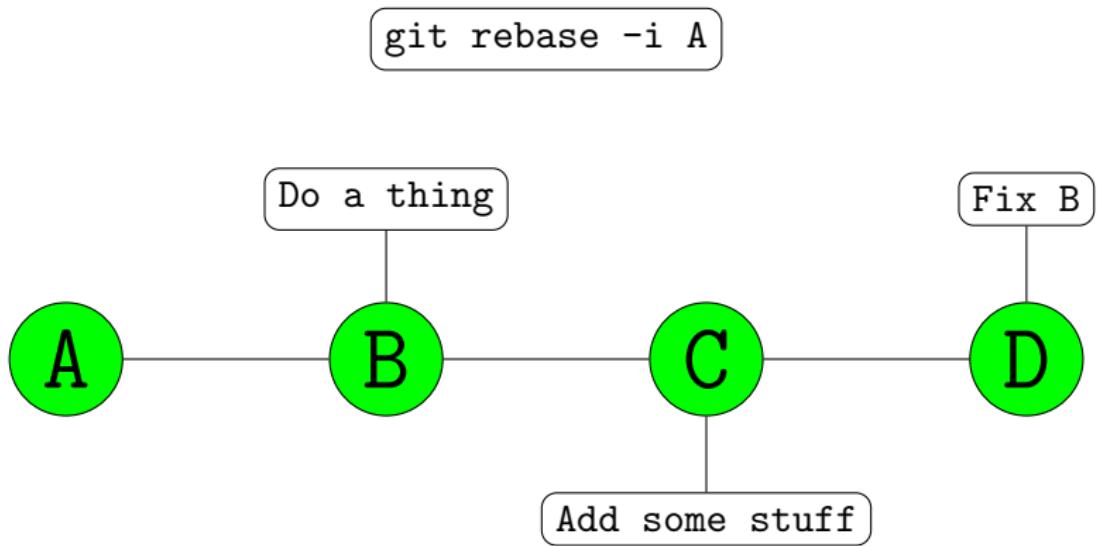
B

C

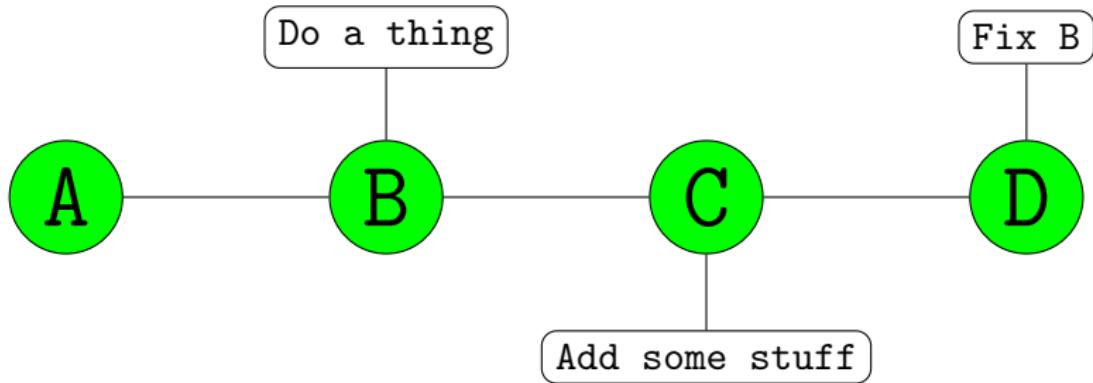




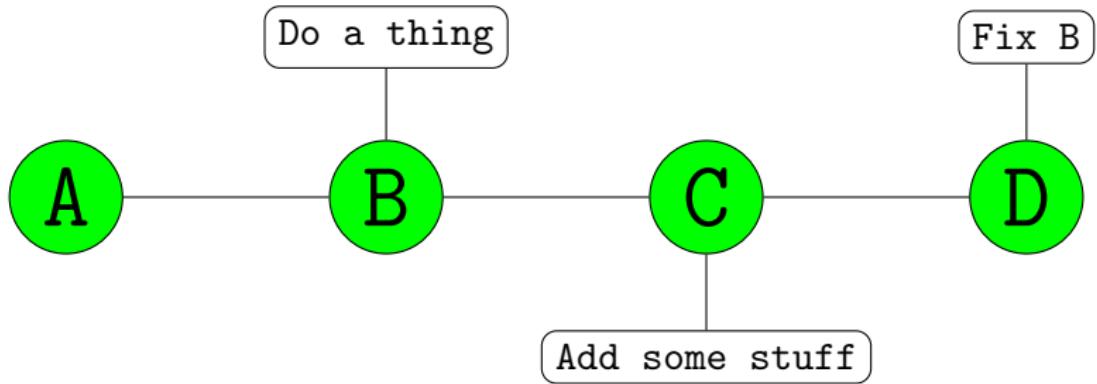




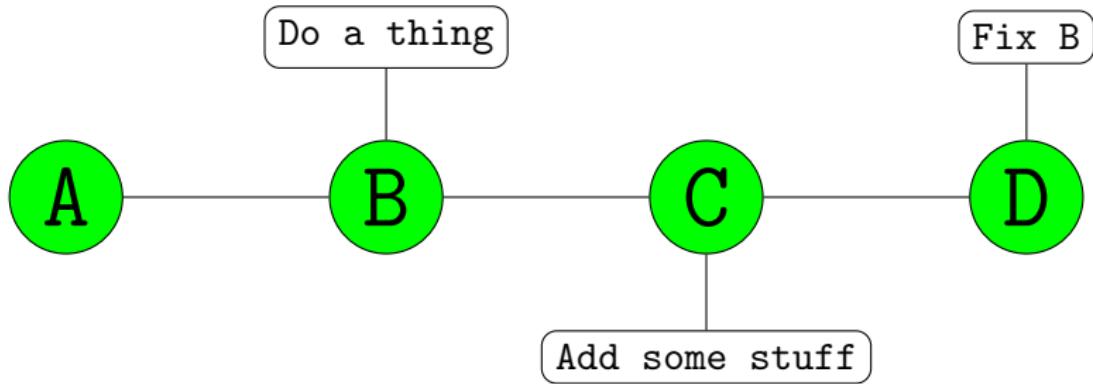
pick B - Do a thing
pick C - Add some stuff
pick D - Fix B

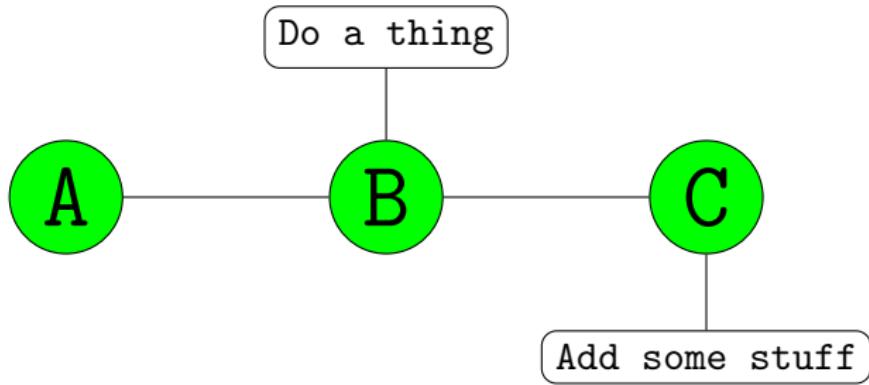


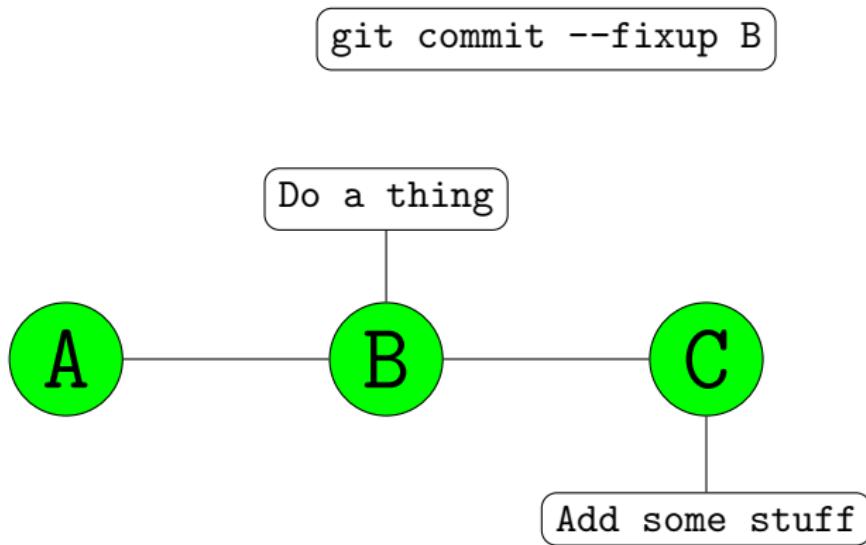
pick B - Do a thing
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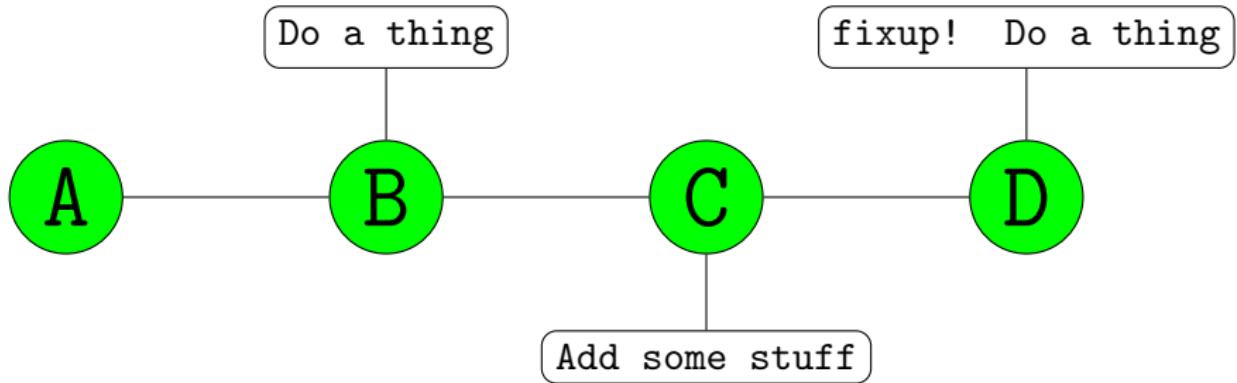


pick B - Do a thing
fixup D - Fix B
pick C - Add some stuff

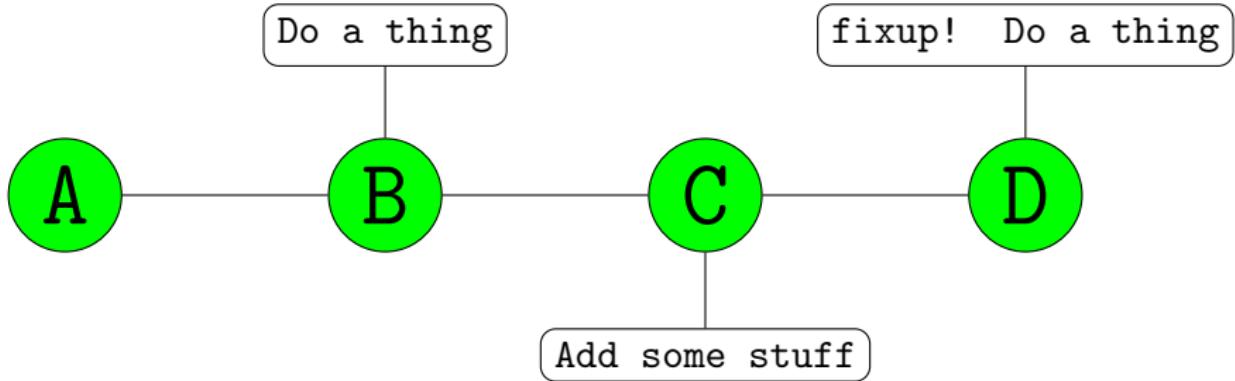




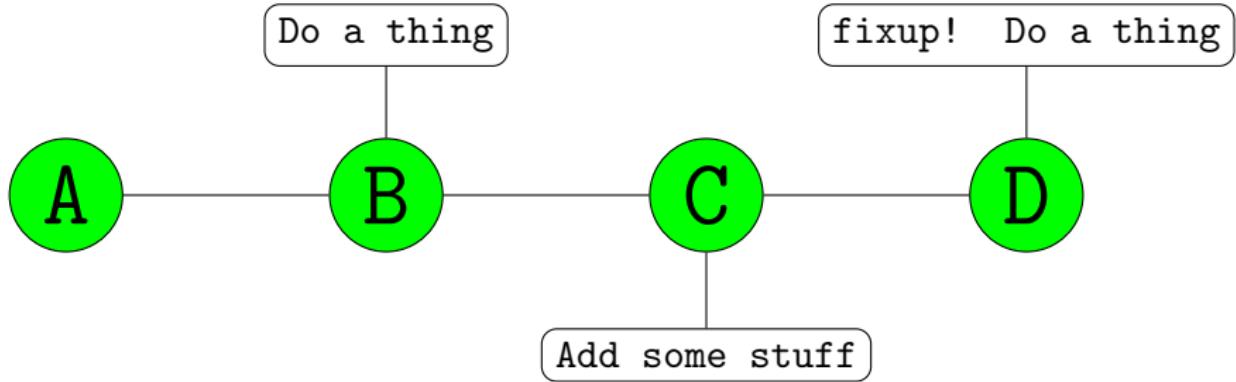




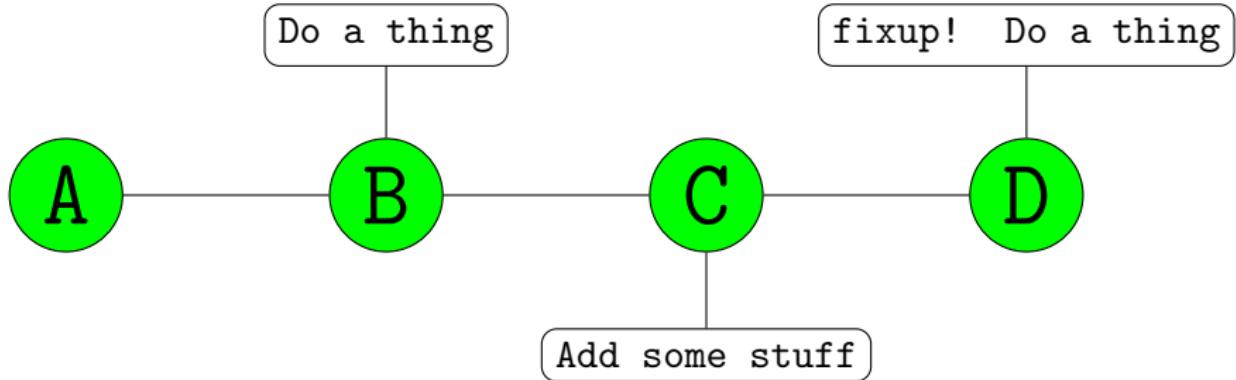
```
git rebase -i --autosquash A
```

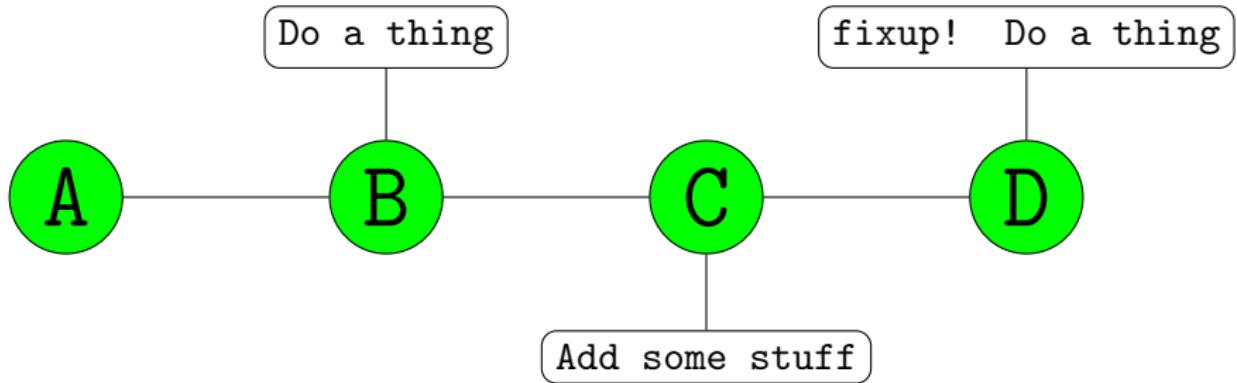


pick B - Do a thing
fixup D - fixup! Do a thing
pick C - Add some stuff

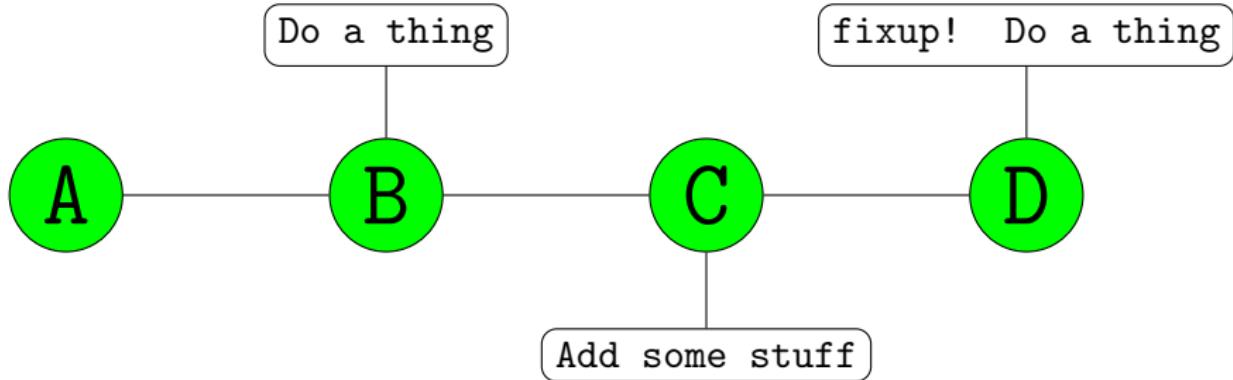


```
git config rebase.autosquash true  
git rebase -i A
```

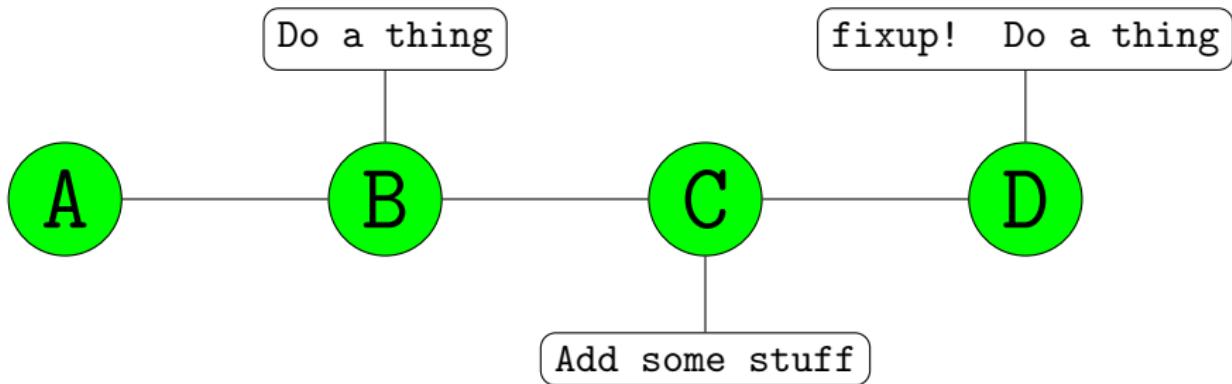




```
git rebase -i --no-autosquash A
```



pick B - Do a thing
pick C - Add some stuff
pick D - fixup! Do a thing



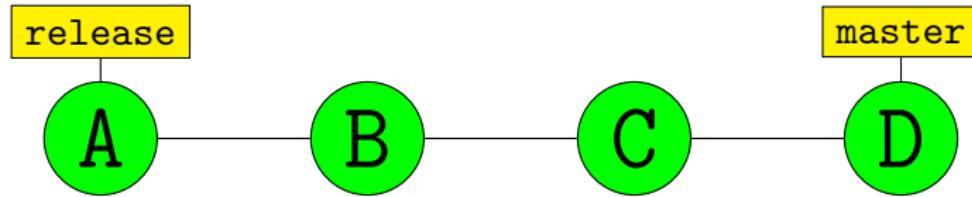
- ▶ Use --fixup commits to “amend” things during regular development.

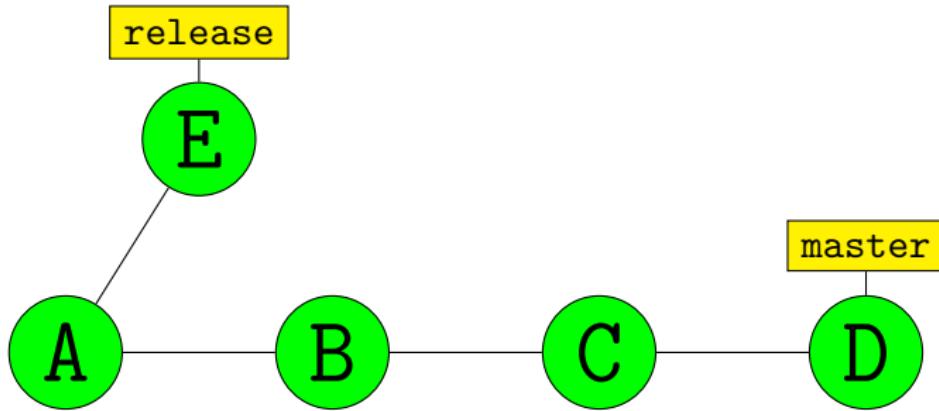
- ▶ Use --fixup commits to “amend” things during regular development.
- ▶ Coordinate with anyone else using the branch before doing a rebase --autosquash.

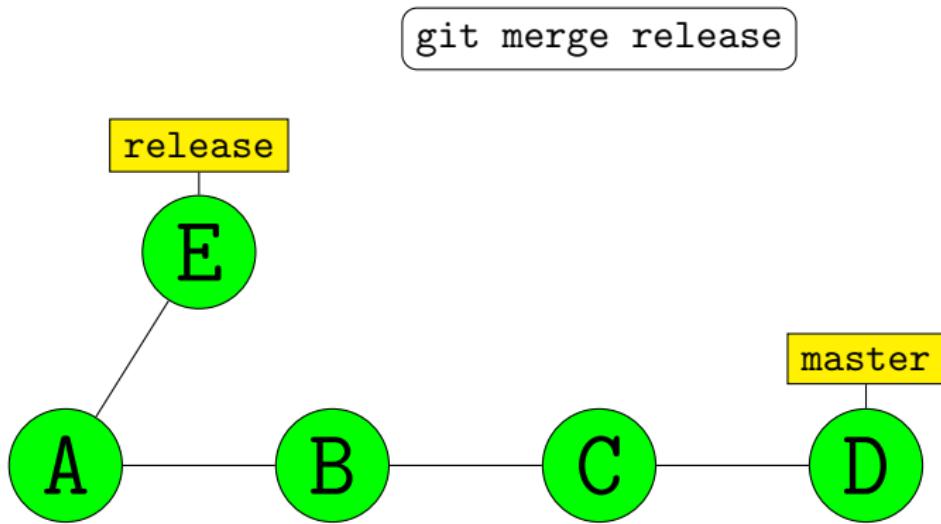
- ▶ Use `--fixup` commits to “amend” things during regular development.
- ▶ Coordinate with anyone else using the branch before doing a `rebase --autosquash`.
- ▶ Don't do it on `master`

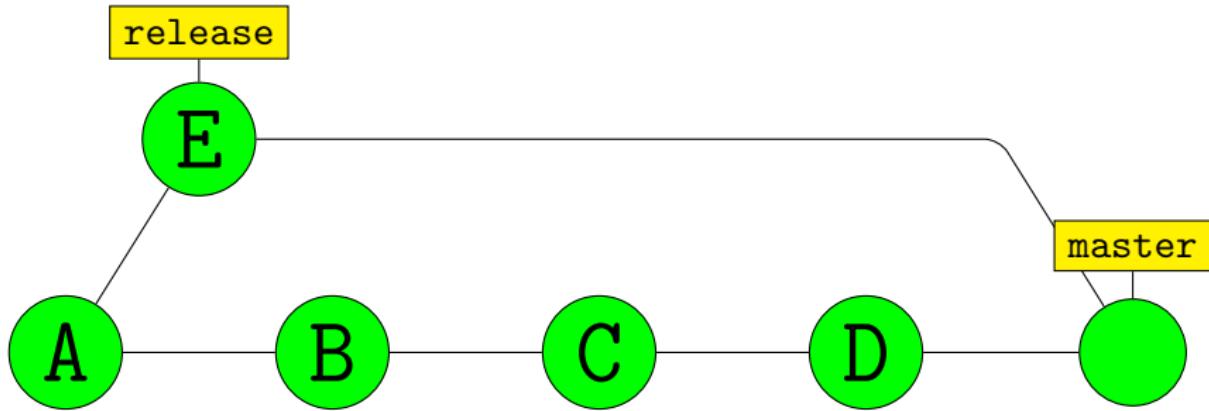
- ▶ Use `--fixup` commits to “amend” things during regular development.
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- ▶ Don't do it on `master`
- ▶ ... or `release`

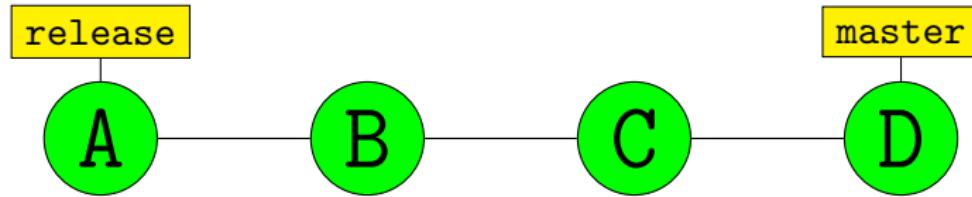
Merge Down



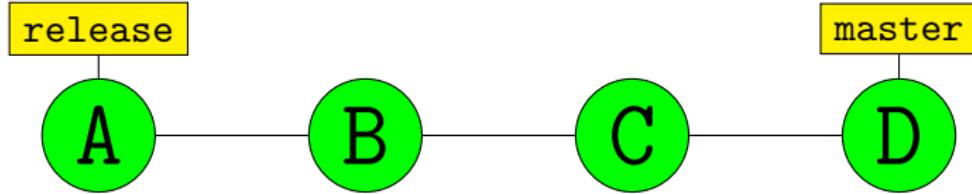


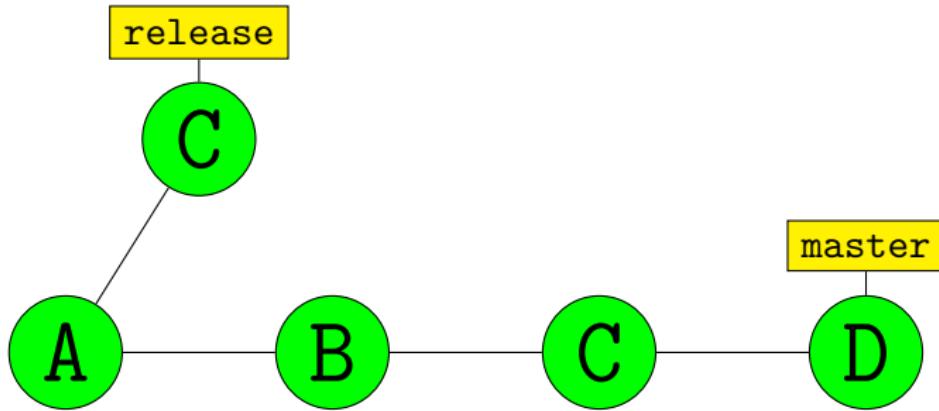


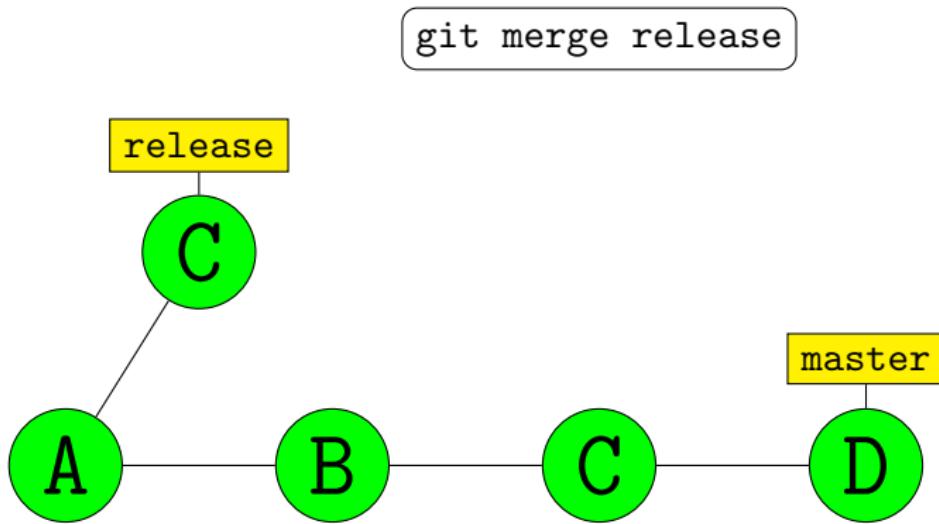


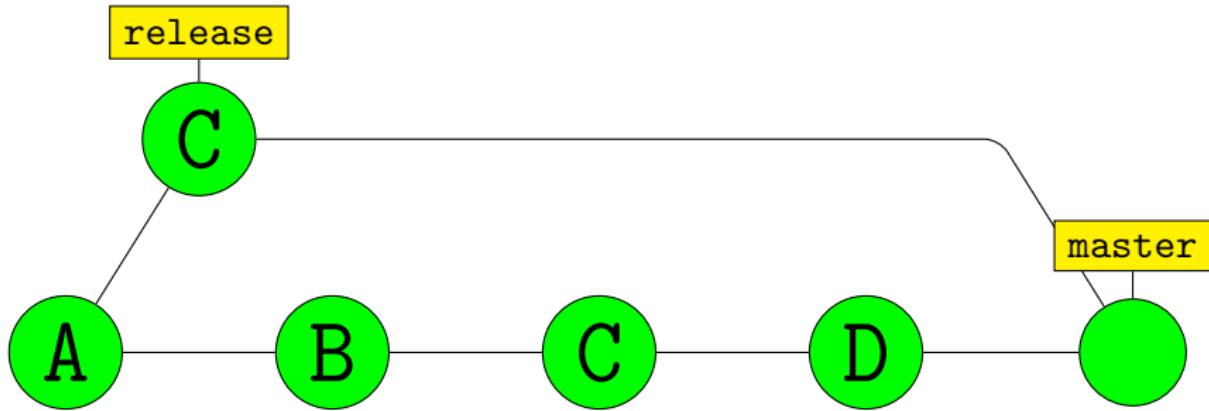


```
git cherry-pick -x C
```









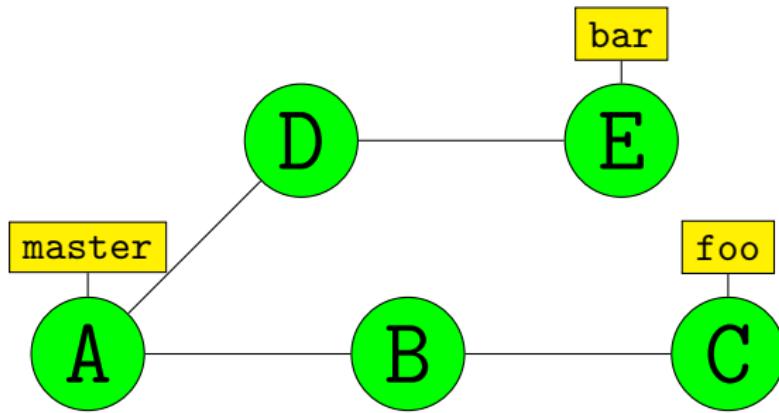
Log Thoughts

git log is useless

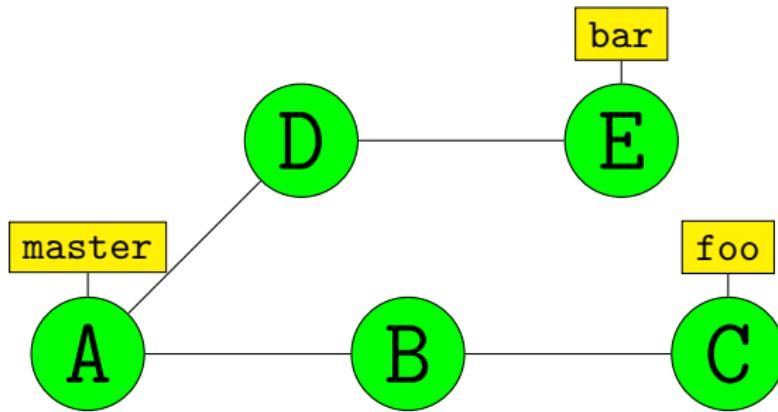
Use git log --graph

Or git hist

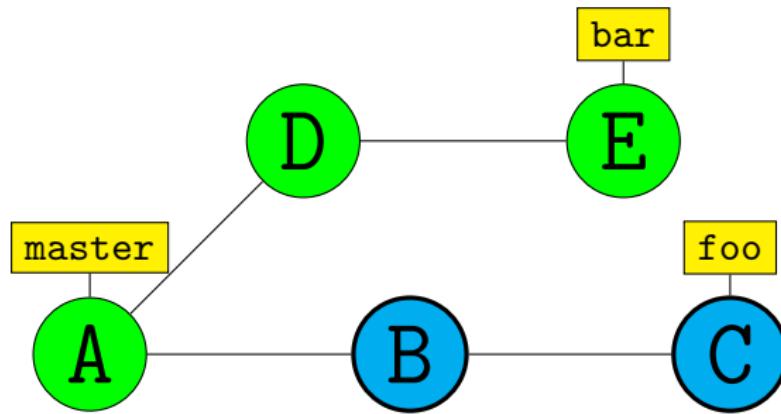
Diff Tricks



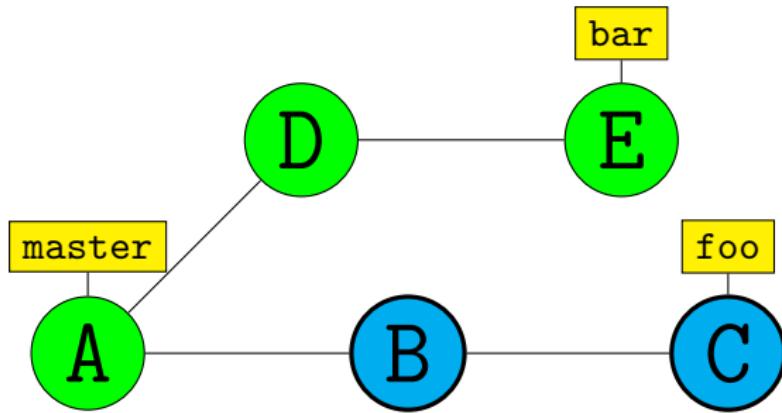
git diff A..C



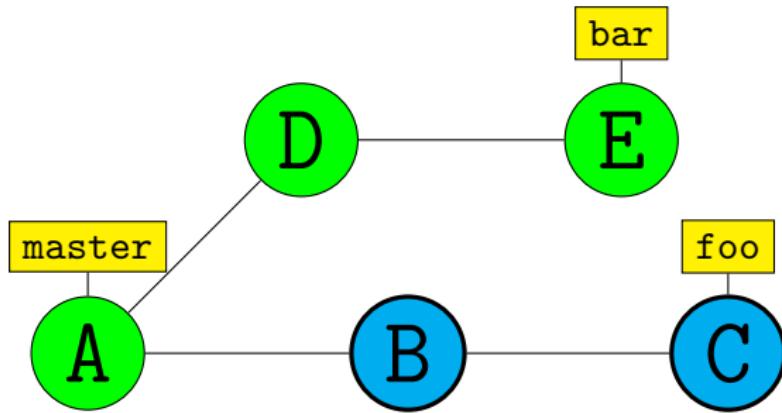
git diff A..C

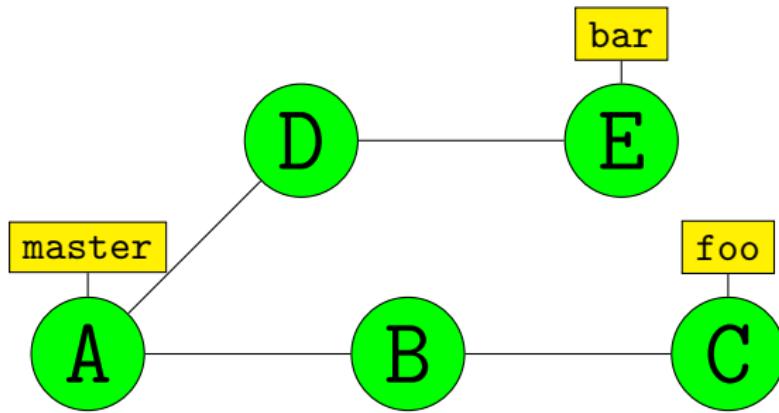


git diff master..foo

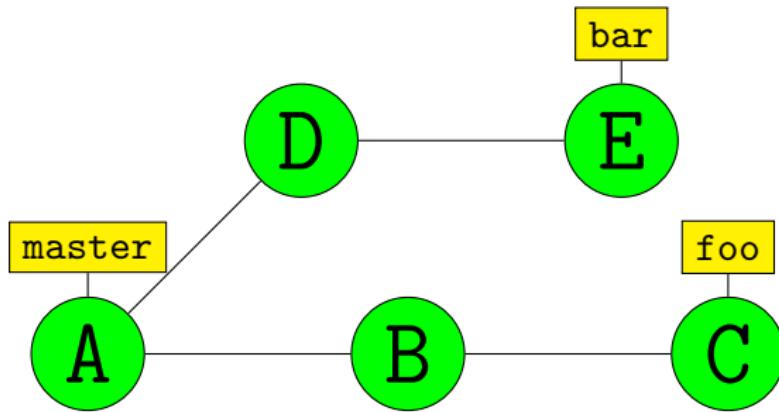


git diff master...foo

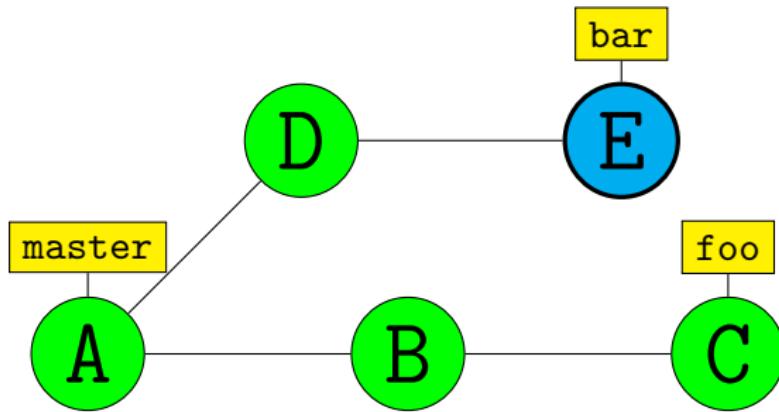


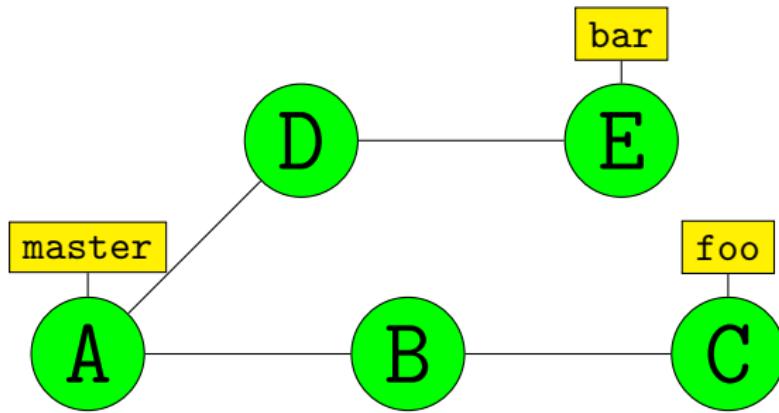


git diff D..E

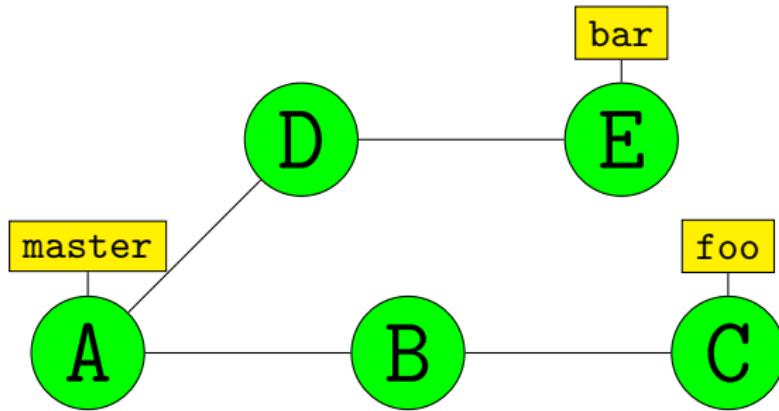


git diff D..E

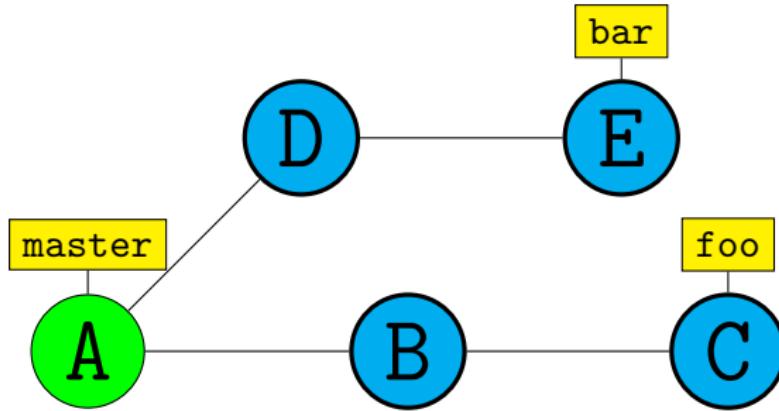


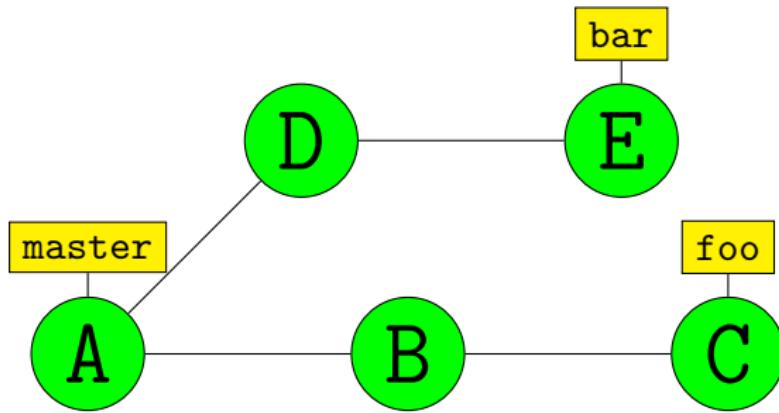


git diff foo..bar

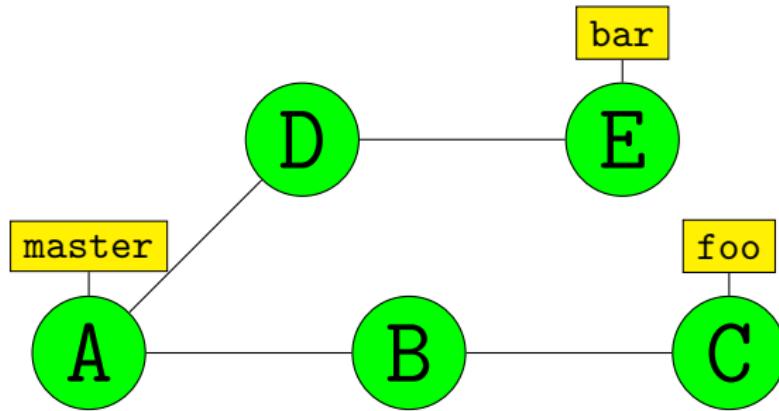


git diff foo..bar

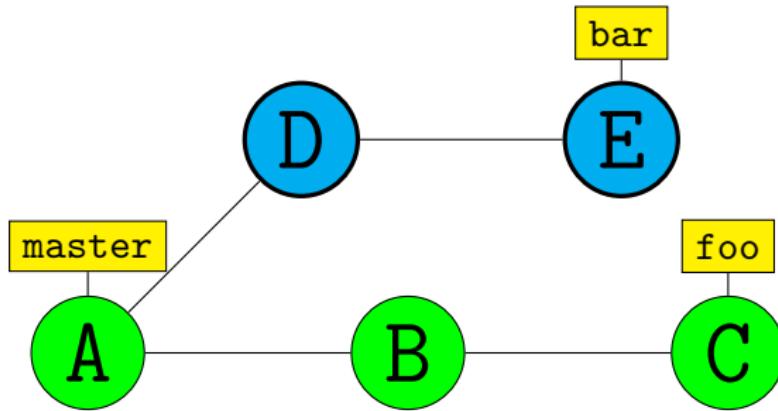


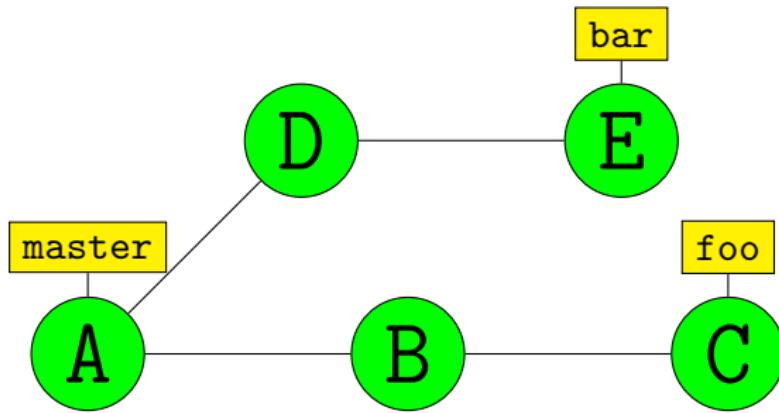


git diff foo...bar

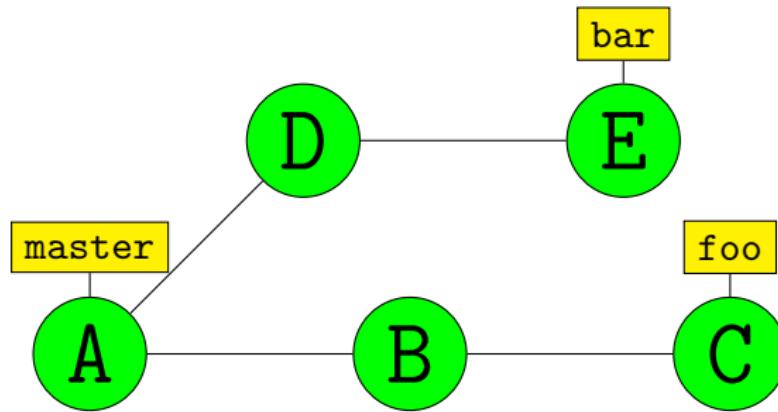


git diff foo...bar

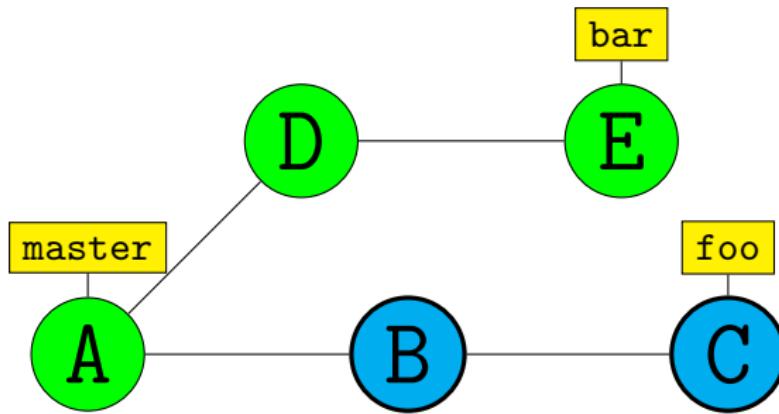


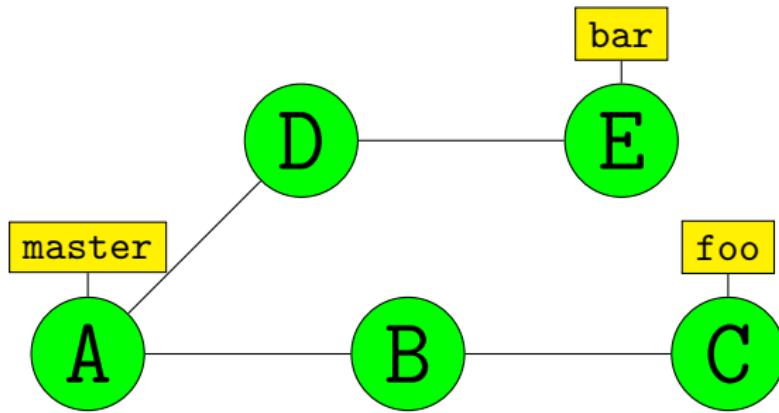


git diff bar...foo

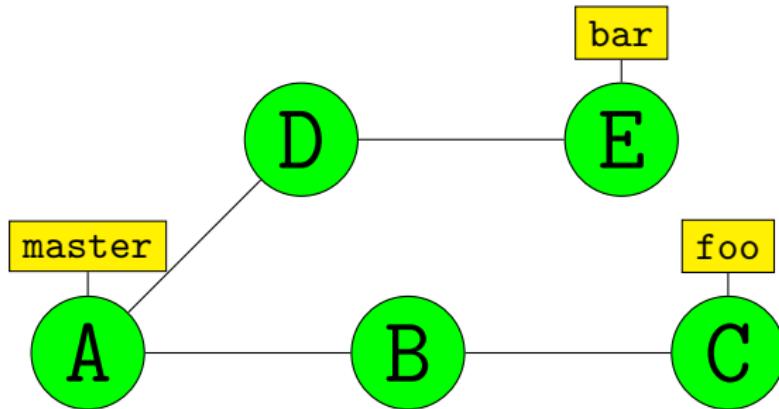


git diff bar...foo

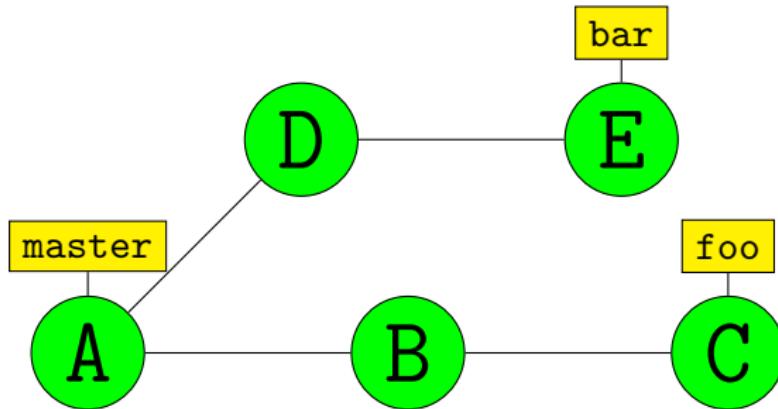




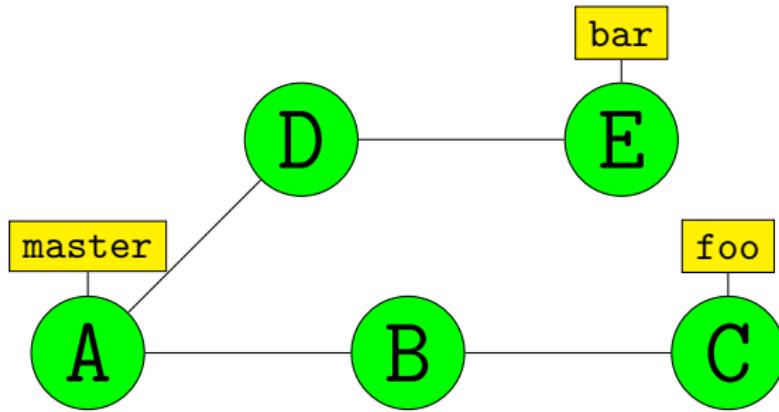
```
git diff master..bar spec
```



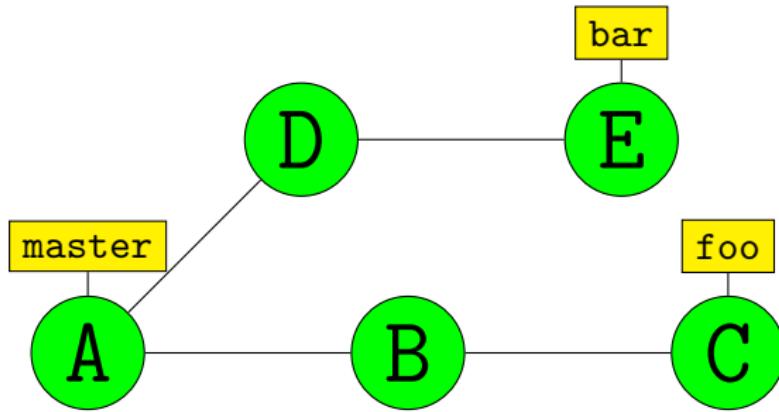
```
git diff master..bar spec | git apply
```

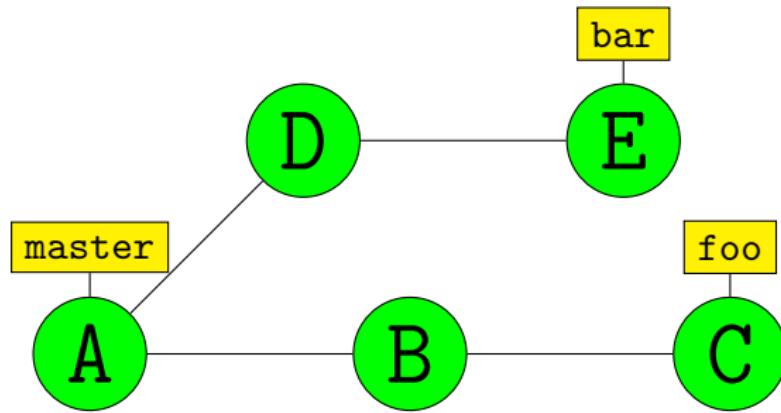


```
git diff master..bar spec > blah.patch
```

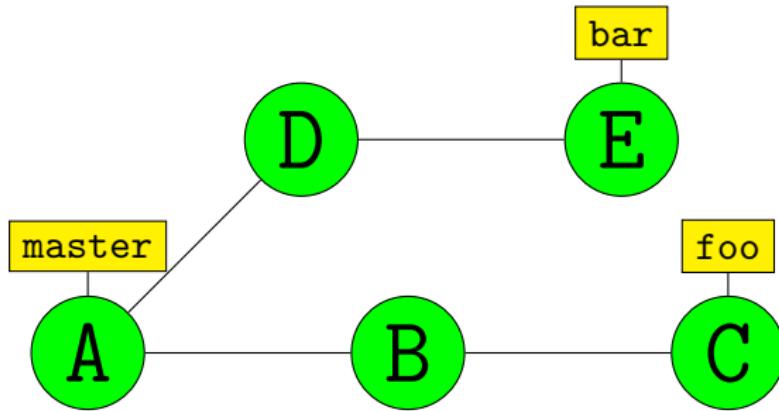


git apply blah.patch

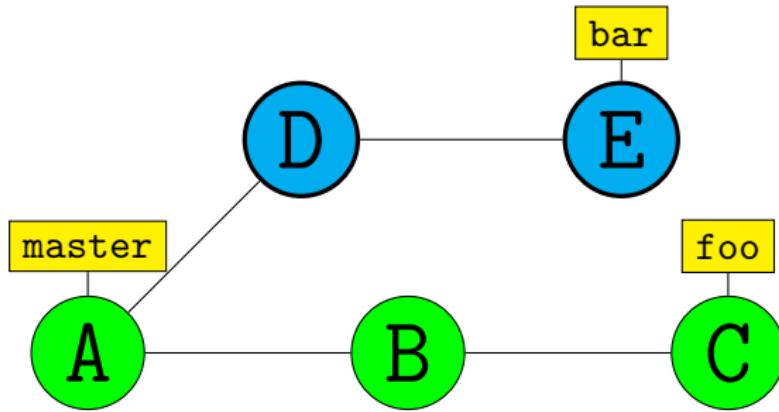


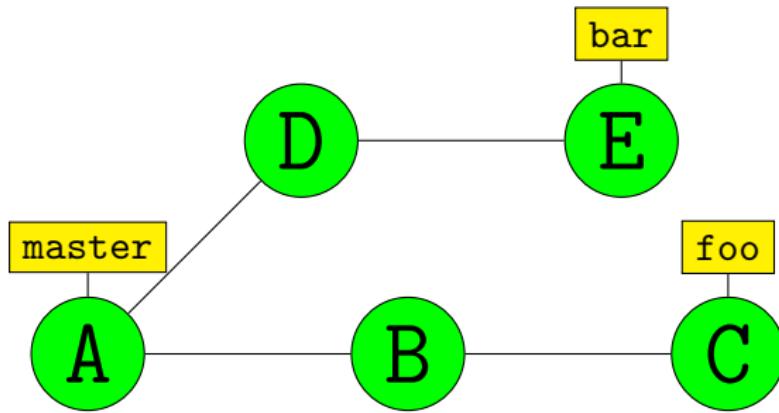


git log foo..bar

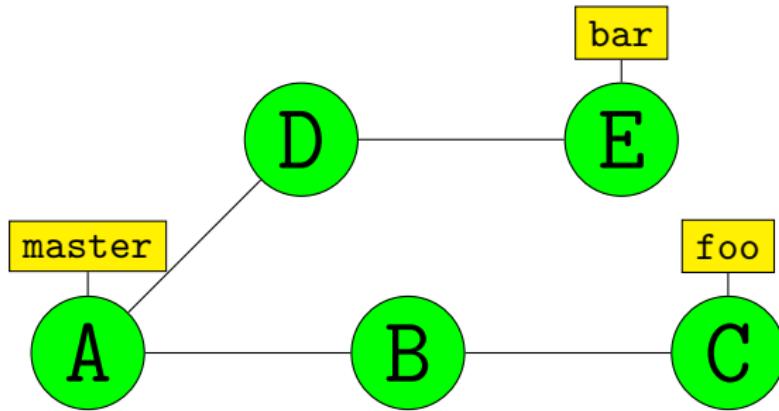


git log foo..bar

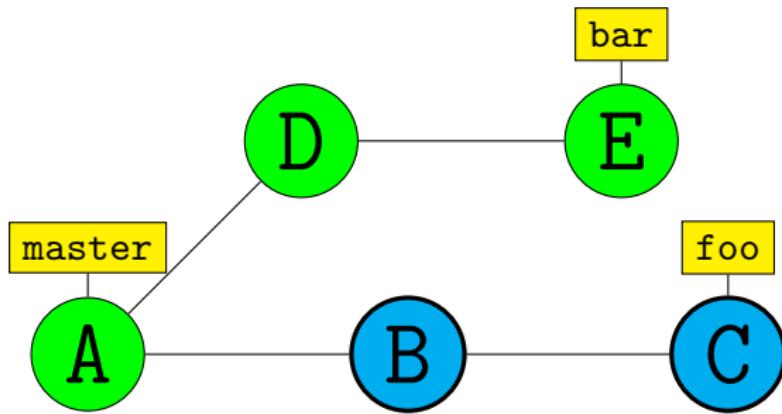


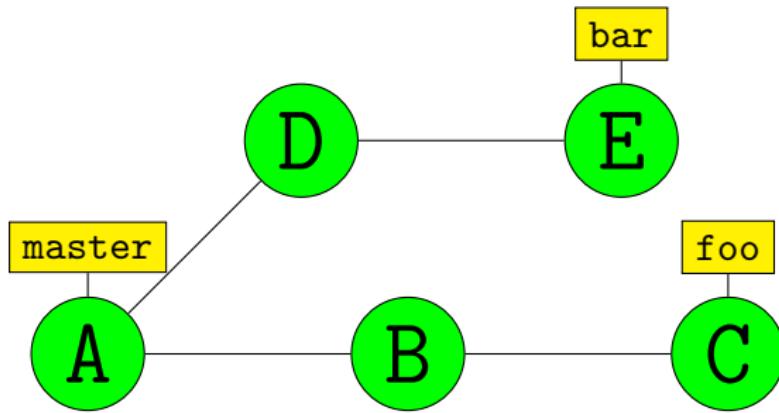


git log bar..foo

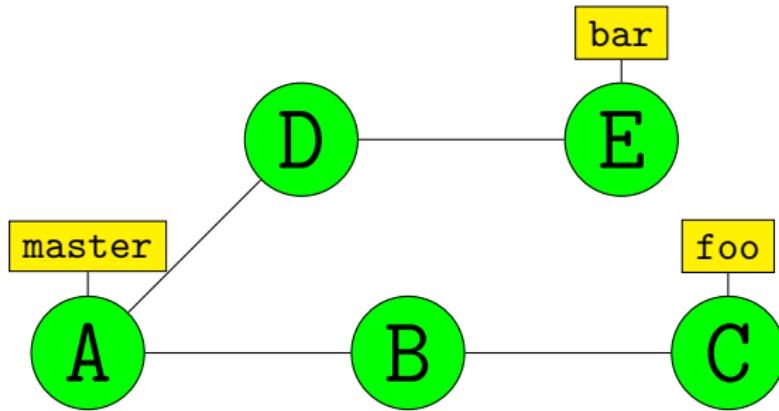


git log bar..foo

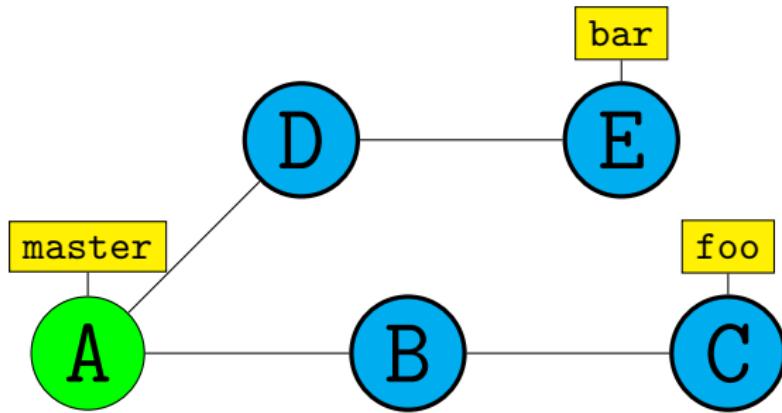




git log foo...bar



git log foo...bar



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- ▶ Rewrite history to reveal intent
- ▶ Be courteous when doing that on pushed branches (not master or release!)
- ▶ Know what your merge strategy communicates
- ▶ Ancestry matters
- ▶ Use fixup commits!

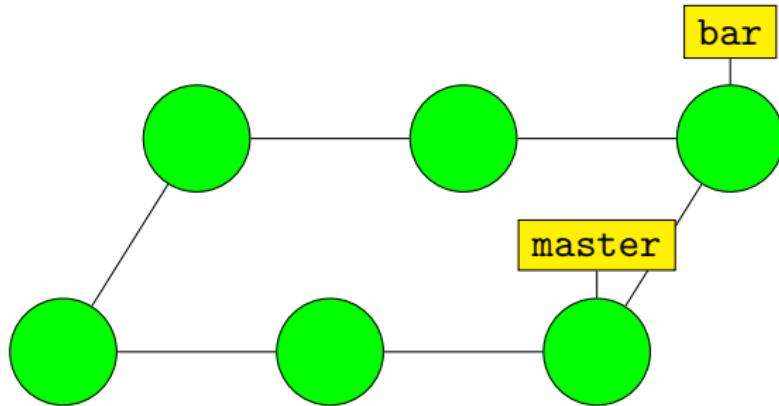
Summary

- ▶ The goal of Git is to reveal *intent*
- ▶ Rewrite history to reveal intent
- ▶ Be courteous when doing that on pushed branches (not master or release!)
- ▶ Know what your merge strategy communicates
- ▶ Ancestry matters
- ▶ Use fixup commits!
- ▶ Git is awesome!

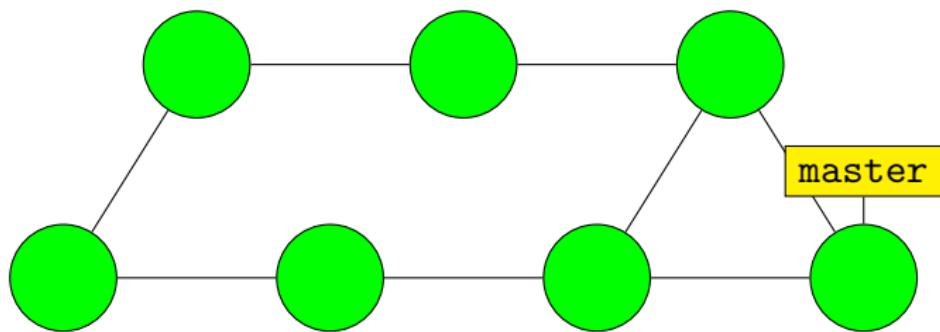
Questions?

Mistake?

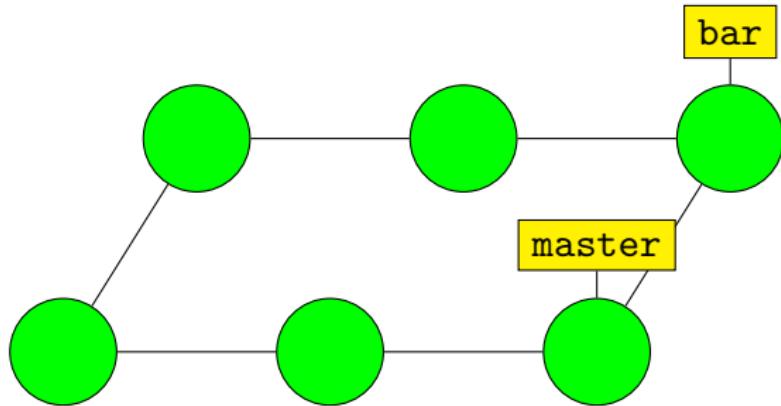
Merge Strategy



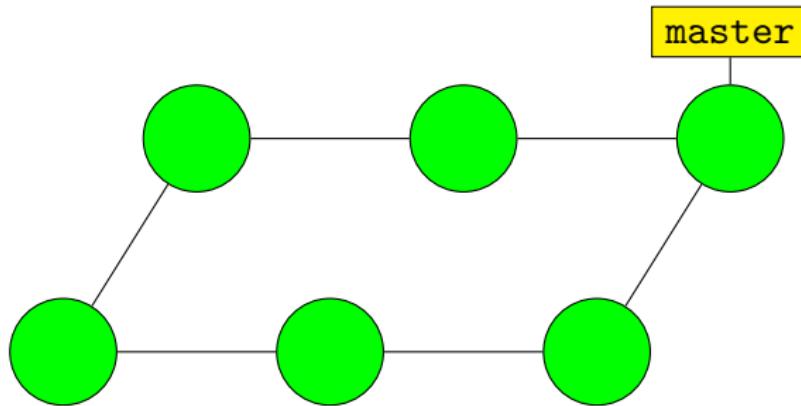
Merge Strategy



Merge Strategy



Merge Strategy



Questions?