

Git: rebase

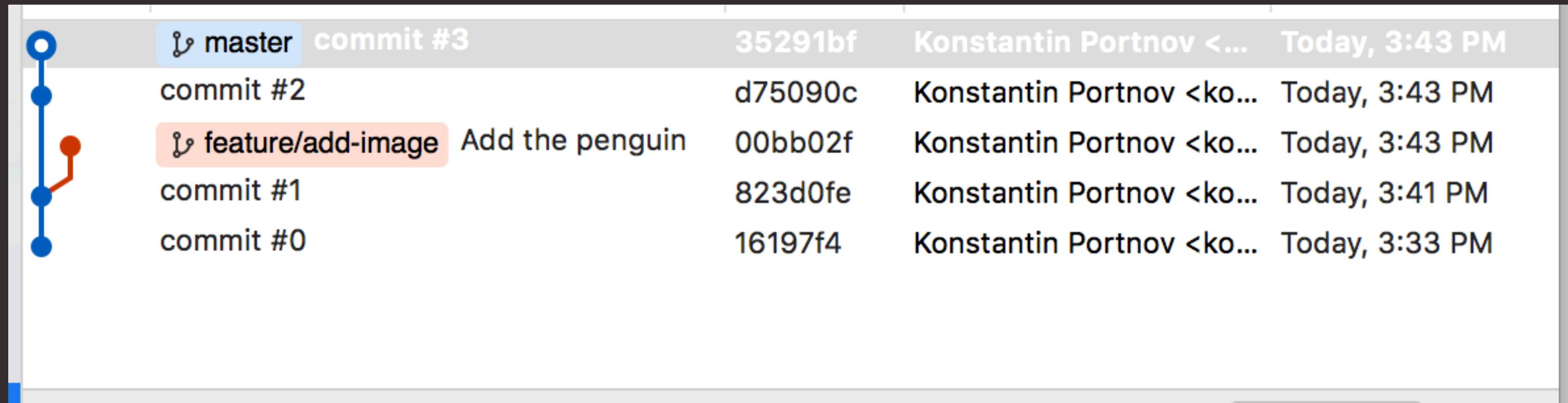
From Chaos to Order

```
let author = "Konstantin Portnov"  
let github = "github.com/x0000ff"
```



What is git rebase?

Feature branch is outdated...



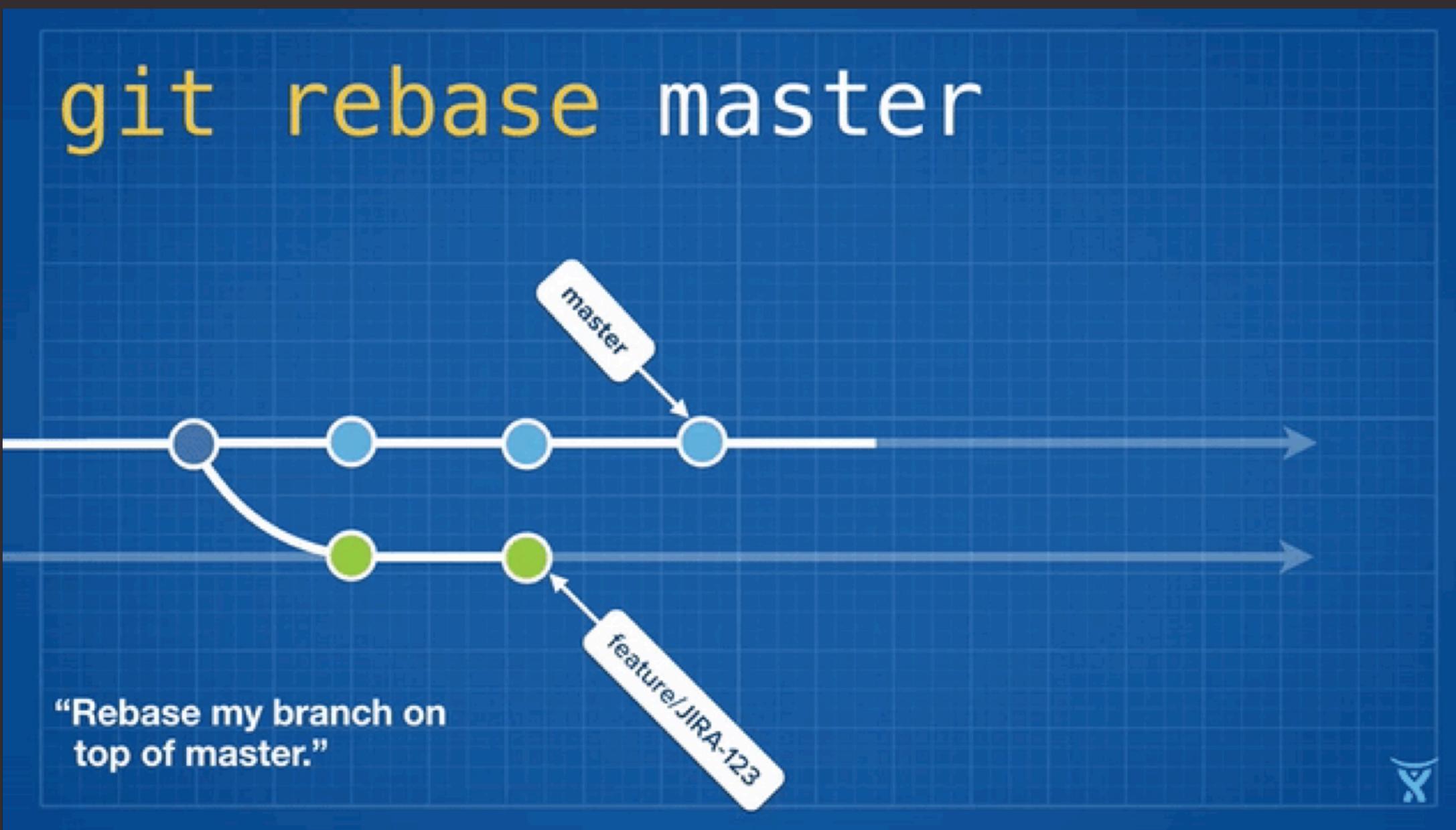
a little bit

o	♪ master	commit #13	8c8dcec	Konstantin Portnov <ko...	Today, 3:50 PM
•		commit #12	68fe248	Konstantin Portnov <ko...	Today, 3:50 PM
•		commit #11	bae8496	Konstantin Portnov <ko...	Today, 3:50 PM
•		commit #10	0e9c839	Konstantin Portnov <ko...	Today, 3:50 PM
•		commit #9	0a8df63	Konstantin Portnov <ko...	Today, 3:50 PM
•		commit #8	8f27b6c	Konstantin Portnov <ko...	Today, 3:50 PM
•		commit #7	fe357b6	Konstantin Portnov <ko...	Today, 3:50 PM
•		commit #6	055fc64	Konstantin Portnov <ko...	Today, 3:50 PM
•		commit #5	04bfd93	Konstantin Portnov <ko...	Today, 3:48 PM
•		commit #4	41394a1	Konstantin Portnov <ko...	Today, 3:48 PM
•		commit #3	35291bf	Konstantin Portnov <ko...	Today, 3:43 PM
•		commit #2	d75090c	Konstantin Portnov <ko...	Today, 3:43 PM
o	♪ feature/add-image	Add the penguin	00bb02f	Konstantin Portnov <ko...	Today, 3:43 PM
•		commit #1	823d0fe	Konstantin Portnov <ko...	Today, 3:41 PM
•		commit #0	16197f4	Konstantin Portnov <ko...	Today, 3:33 PM

**change the base?
"re-base"?**



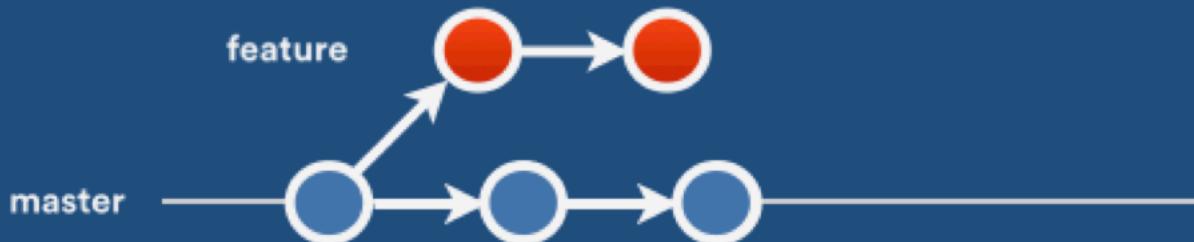
Atlassian is liar!



Atlassian fixed!

What is a rebase?

It's a way to replay commits,
one by one, on top of a branch



Let's do it!

```
● ● ● 10. kportnov@cl-mackportnov: ~/Dropbox/Presentations/Git. Rebase/...
rebase-1 [feature/add-image] git rebase master
First, rewinding head to replay your work on top of it...
Applying: Add the penguin
rebase-1 [feature/add-image] □
```

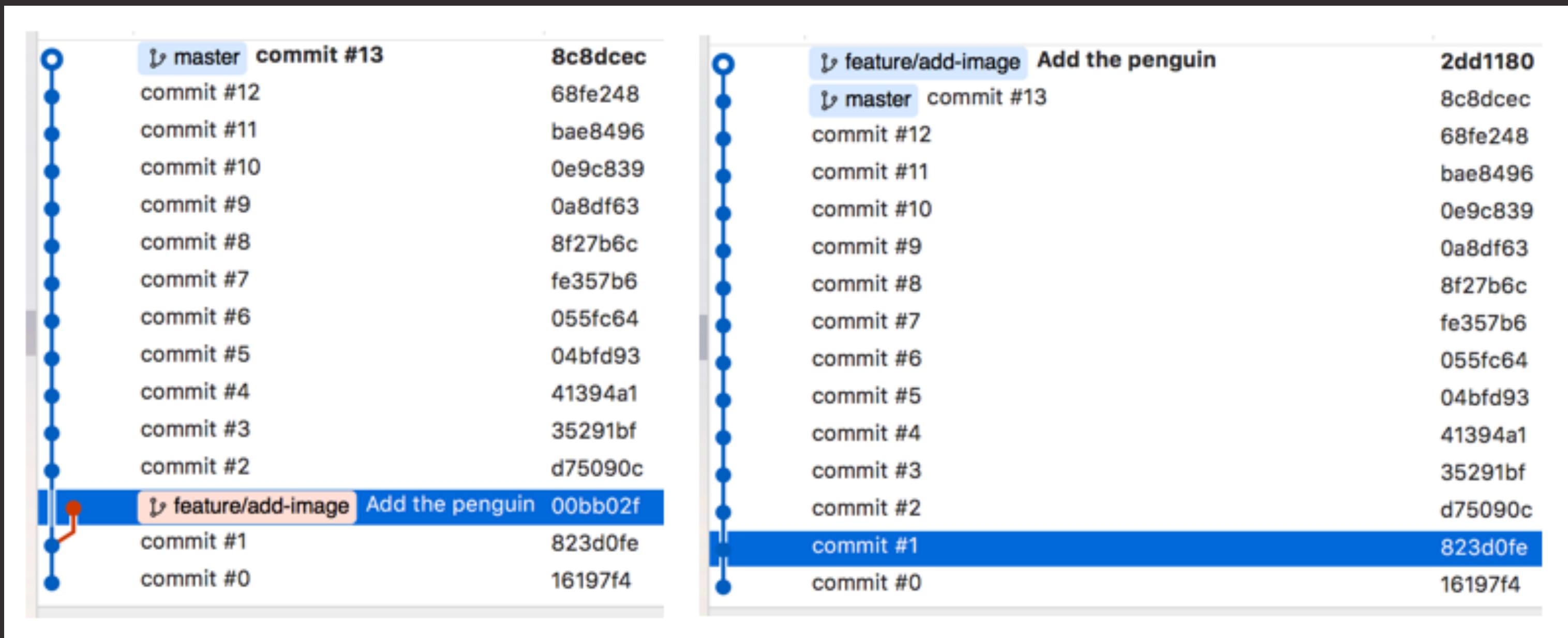
Magic is in progress



Result

○	↳ feature/add-image	Add the penguin	2dd1180	Konstantin Portnov <ko...>	Today, 4:09 PM
●	↳ master	commit #13	8c8dcec	Konstantin Portnov <ko...>	Today, 3:50 PM
●		commit #12	68fe248	Konstantin Portnov <ko...>	Today, 3:50 PM
●		commit #11	bae8496	Konstantin Portnov <ko...>	Today, 3:50 PM
●		commit #10	0e9c839	Konstantin Portnov <ko...>	Today, 3:50 PM
●		commit #9	0a8df63	Konstantin Portnov <ko...>	Today, 3:50 PM
●		commit #8	8f27b6c	Konstantin Portnov <ko...>	Today, 3:50 PM
●		commit #7	fe357b6	Konstantin Portnov <ko...>	Today, 3:50 PM
●		commit #6	055fc64	Konstantin Portnov <ko...>	Today, 3:50 PM
●		commit #5	04bfd93	Konstantin Portnov <ko...>	Today, 3:48 PM
●		commit #4	41394a1	Konstantin Portnov <ko...>	Today, 3:48 PM
●		commit #3	35291bf	Konstantin Portnov <ko...>	Today, 3:43 PM
●		commit #2	d75090c	Konstantin Portnov <ko...>	Today, 3:43 PM
●		commit #1	823d0fe	Konstantin Portnov <ko...>	Today, 3:41 PM
●		commit #0	16197f4	Konstantin Portnov <ko...>	Today, 3:33 PM

Result

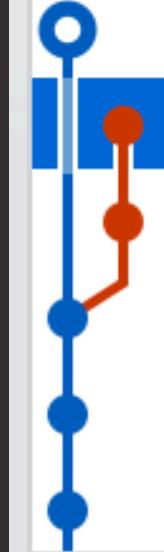


Practice

Feel free to practice in repo:

`./practice-here/rebase-simple`

Can I have a conflict?

Graph	Description	Commit	Author	Date
	master commit #14 feature/add-image add feature #14	4e56dfa	Konstantin Portnov <ko...>	Today, 4:30 PM
	↳ feature/add-image add feature #14	abc85f4	Konstantin Portnov <ko...>	Today, 4:27 PM
	Add the penguin	2dd1180	Konstantin Portnov <ko...>	Today, 4:09 PM
	commit #13	8c8dcec	Konstantin Portnov <ko...>	Today, 3:50 PM
	commit #12	68fe248	Konstantin Portnov <ko...>	Today, 3:50 PM
	commit #11	bae8496	Konstantin Portnov <ko...>	Today, 3:50 PM

master

The screenshot shows a diff tool interface for a file named `README.md`. The title bar includes a yellow icon with three dots and the file name `README.md`. On the right side of the title bar are three vertical dots and a `Reverse` button. The main area displays a hunk of code with the header `Hunk 1 : Lines 15-19`. The code is presented in a two-column format: the left column shows line numbers and the original text, while the right column shows the modified text. A pink highlight covers the line `- - `master #13``, and a green highlight covers the line `+ - `master #14``. The original text for line 18 is shown in red. The modified text for line 18 is shown in green. The original text for line 19 is shown in red. The modified text for line 19 is shown in green.

	Hunk 1 : Lines 15-19	Reverse
15	15	- `master #10`
16	16	- `master #11`
17	17	- `master #12`
18		- - `master #13`
		\ No newline at end of file
18		+ - `master #13`
19		+ - `master #14`
		\ No newline at end of file

feature

The screenshot shows a diff tool interface for a file named `README.md`. The title bar includes a yellow icon with three dots and the text `README.md`. A three-dot menu icon is also present. The main area displays a hunk of code with the title `Hunk 1 : Lines 15-19` and a `Reverse` button. The code is presented in a three-column format: original line number, new line number, and the actual code. The code block contains the following lines:

```
15 15 - `master #10`  
16 16 - `master #11`  
17 17 - `master #12`  
18 - - `master #13`  
     \ No newline at end of file  
18 + - `master #13`  
19 + - `feature #14`  
     \ No newline at end of file
```

The line `- - `master #13`` is highlighted with a red background, indicating it was deleted. The line `+ - `feature #14`` is highlighted with a green background, indicating it was added. The line `\ No newline at end of file` is highlighted with a light blue background.

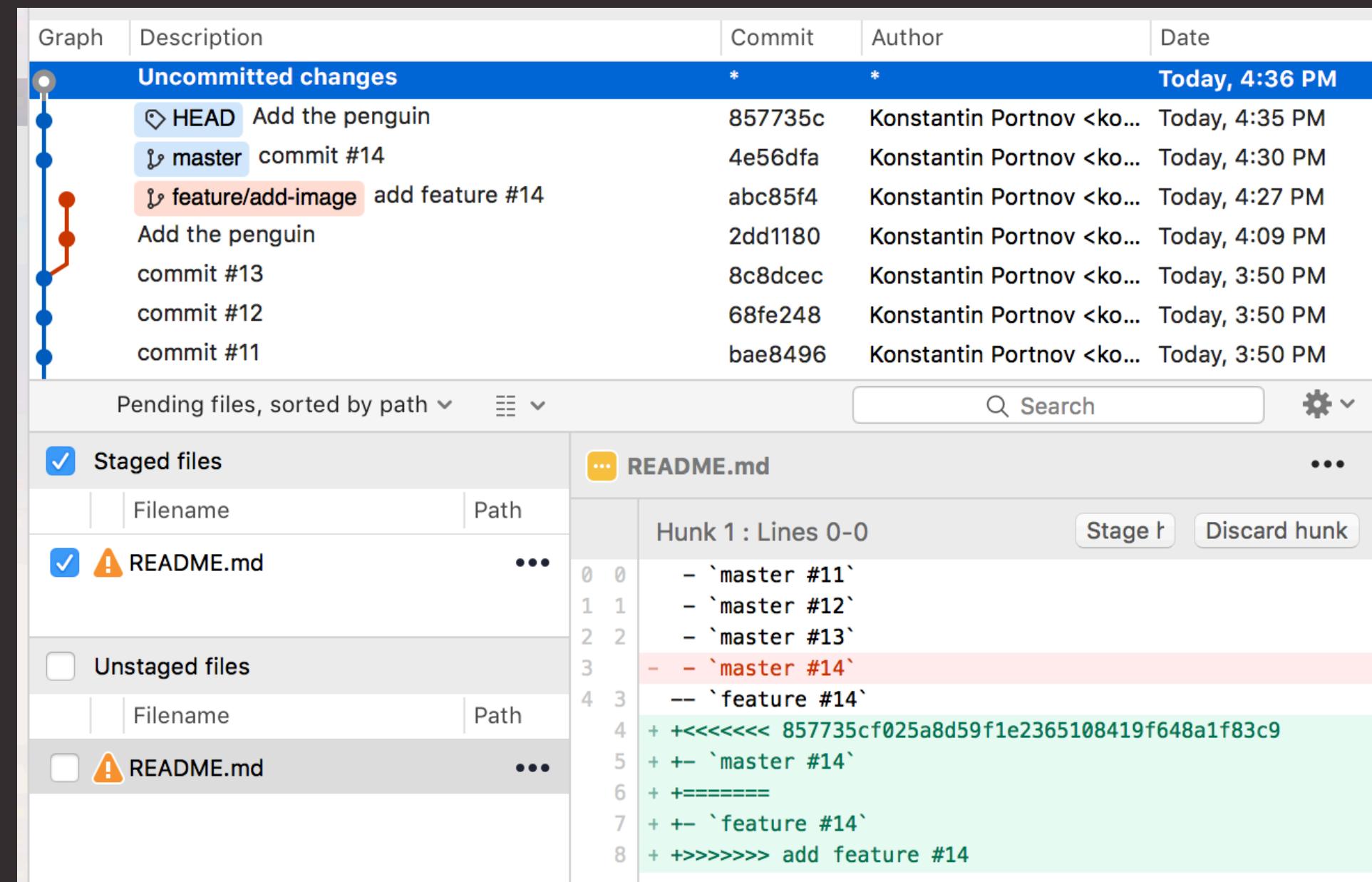
Let's try to rebase

```
● ○ ● 10. kportnov@cl-mackportnov: ~/Dropbox/Presentations/Git. Rebase/examples/rebase-1 (zsh)
rebase-1 [master] git rebase master
First, rewinding head to replay your work on top of it...
Applying: Add the penguin
Applying: add feature #14
Using index info to reconstruct a base tree...
M      README.md
Falling back to patching base and 3-way merge...
Auto-merging README.md
CONFLICT (content): Merge conflict in README.md
error: Failed to merge in the changes.
Patch failed at 0002 add feature #14
The copy of the patch that failed is found in: .git/rebase-apply/patch

When you have resolved this problem, run "git rebase --continue".
If you prefer to skip this patch, run "git rebase --skip" instead.
To check out the original branch and stop rebasing, run "git rebase --abort".

rebase-1 [857735c] ✘
```

Oops



Oops

The screenshot shows a diff tool interface for a file named `README.md`. A specific hunk of code is selected, labeled "Hunk 1 : Lines 0-0". The hunk contains the following content:

```
0 0 - `master #11`  
1 1 - `master #12`  
2 2 - `master #13`  
3 3 - `master #14`  
4 4 -- `feature #14`  
4 5 +<<<<< 857735cf025a8d59f1e2365108419f648a1f83c9  
5 6 + +- `master #14`  
6 7 + =====  
7 8 + +- `feature #14`  
8 9 + >>>>> add feature #14
```

Two buttons are visible above the code: "Stage h" and "Discard hunk".

Oops

```
17      - `master #12`  
18      - `master #13`  
19      <<<<< 857735cf025a8d59f1e2365108419f648a1f83c9  
20      - `master #14`  
21      =====  
22      - `feature #14`  
23      >>>>> add feature #14
```

Fix

```
16 | - `master #11`  
17 | - `master #12`  
18 | - `master #13`  
19 | <<<<< 857735cf025a8d59f1e2365108419f648a1f83c9  
20 | - `master #14`  
21 | =====  
22 | - `feature #14`  
23 | >>>>> add feature #14 ⌂  
24 |
```

Fix

```
10. kportnov@cl-mackportnov: ~/Dropbox/Presentations/Git. Rebase/examples/re...
rebase-1 [857735c] x git status
rebase in progress; onto 4e56dfa
You are currently rebasing branch 'feature/add-image' on '4e56dfa'.
  (fix conflicts and then run "git rebase --continue")
  (use "git rebase --skip" to skip this patch)
  (use "git rebase --abort" to check out the original branch)

Unmerged paths:
  (use "git reset HEAD <file>..." to unstage)
  (use "git add <file>..." to mark resolution)

    both modified: README.md

no changes added to commit (use "git add" and/or "git commit -a")
rebase-1 [857735c] x █
```

Fixed

```
10. kportnov@cl-mackportnov: ~/Dropbox/Presentations/Git. Rebase/examples/re...
rebase-1 [857735c] ✘ git status
rebase in progress; onto 4e56dfa
You are currently rebasing branch 'feature/add-image' on '4e56dfa'.
  (fix conflicts and then run "git rebase --continue")
  (use "git rebase --skip" to skip this patch)
  (use "git rebase --abort" to check out the original branch)

Unmerged paths:
  (use "git reset HEAD <file>..." to unstage)
  (use "git add <file>..." to mark resolution)

    both modified: README.md

no changes added to commit (use "git add" and/or "git commit -a")
rebase-1 [857735c] ✘ git add README.md
rebase-1 [857735c] ✘ git rebase --continue
Applying: add feature #14
rebase-1 [feature/add-image] █
```

I really love this cat



Fixed

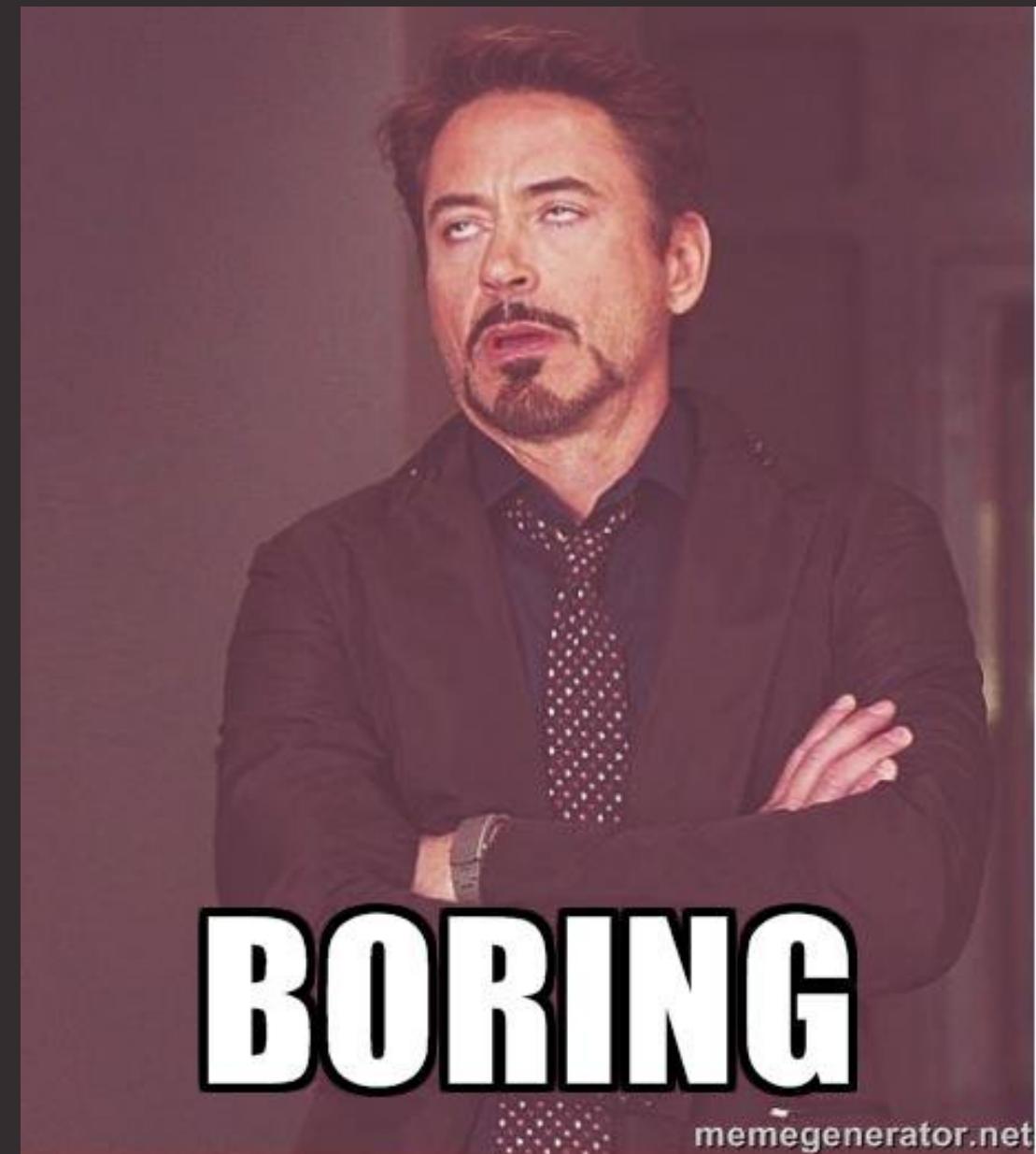
	Graph	Description	Commit	Author	Date
●		↳ feature/add-image add feature #14	3f797a1	Konstantin Portnov <ko...>	Today, 4:42 PM
●		Add the penguin	857735c	Konstantin Portnov <ko...>	Today, 4:35 PM
●		↳ master commit #14	4e56dfa	Konstantin Portnov <ko...>	Today, 4:30 PM
●		commit #13	8c8dcec	Konstantin Portnov <ko...>	Today, 3:50 PM
●		commit #12	68fe248	Konstantin Portnov <ko...>	Today, 3:50 PM
●		commit #11	bae8496	Konstantin Portnov <ko...>	Today, 3:50 PM
●		commit #10	0e9c839	Konstantin Portnov <ko...>	Today, 3:50 PM
●		commit #9	0a8df63	Konstantin Portnov <ko...>	Today, 3:50 PM

Practice

Feel free to practice in repo:

`./practice-here/rebase-conflict`

Just replay commits?



memegenerator.net

You can make it interactive

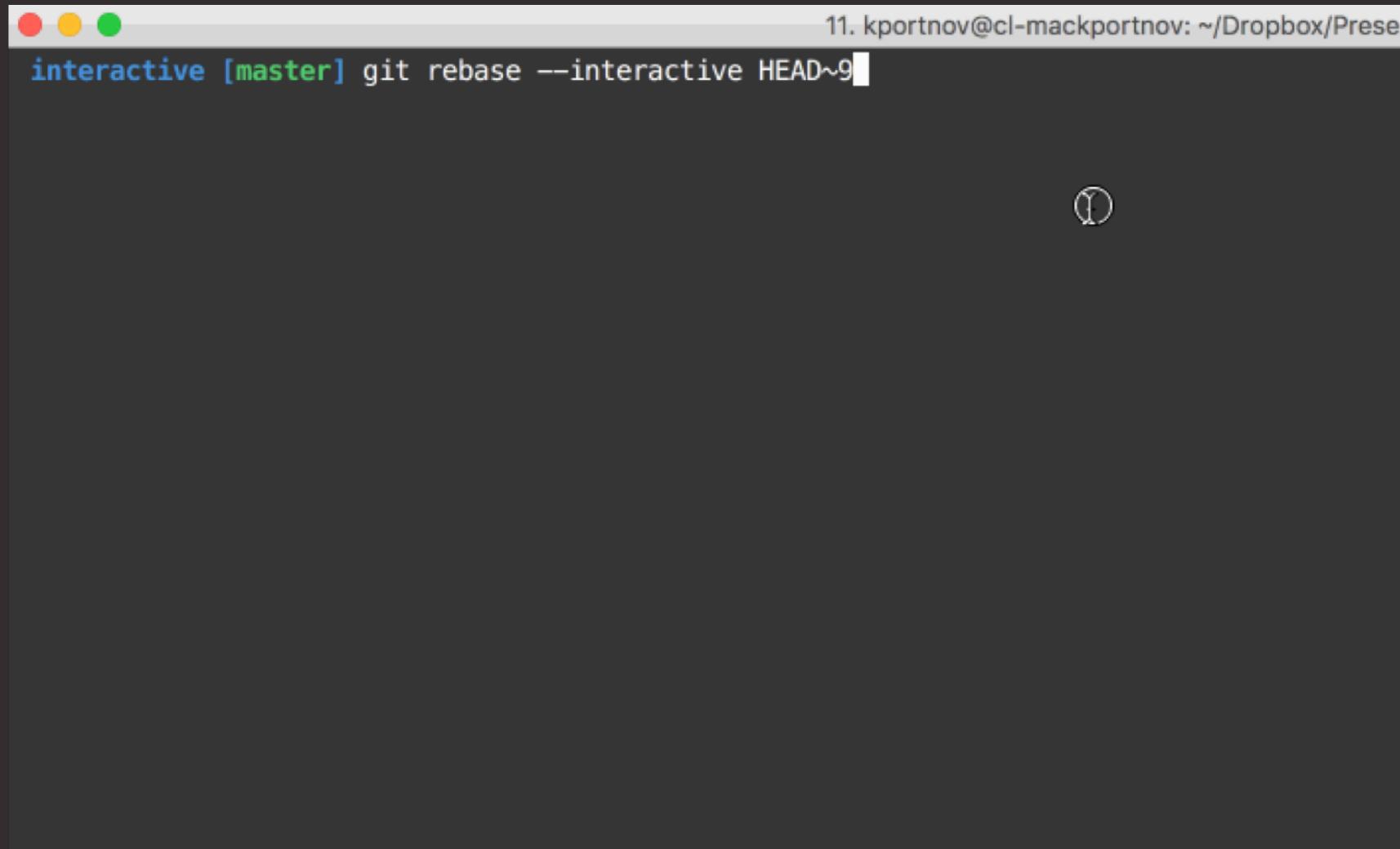
```
$ git rebase --interactive HEAD~1

#####
# pick 0fcd976 Drop me

# Rebase b06684f..0fcd976 onto b06684f (1 command(s))
#
# Commands:
# p, pick = use commit
# r, reword = use commit, but edit the commit message
# e, edit = use commit, but stop for amending
# s, squash = use commit, but meld into previous commit
# f, fixup = like "squash", but discard this commit's log message
# x, exec = run command (the rest of the line) using shell
# d, drop = remove commit
```

pick

p, pick = use commit

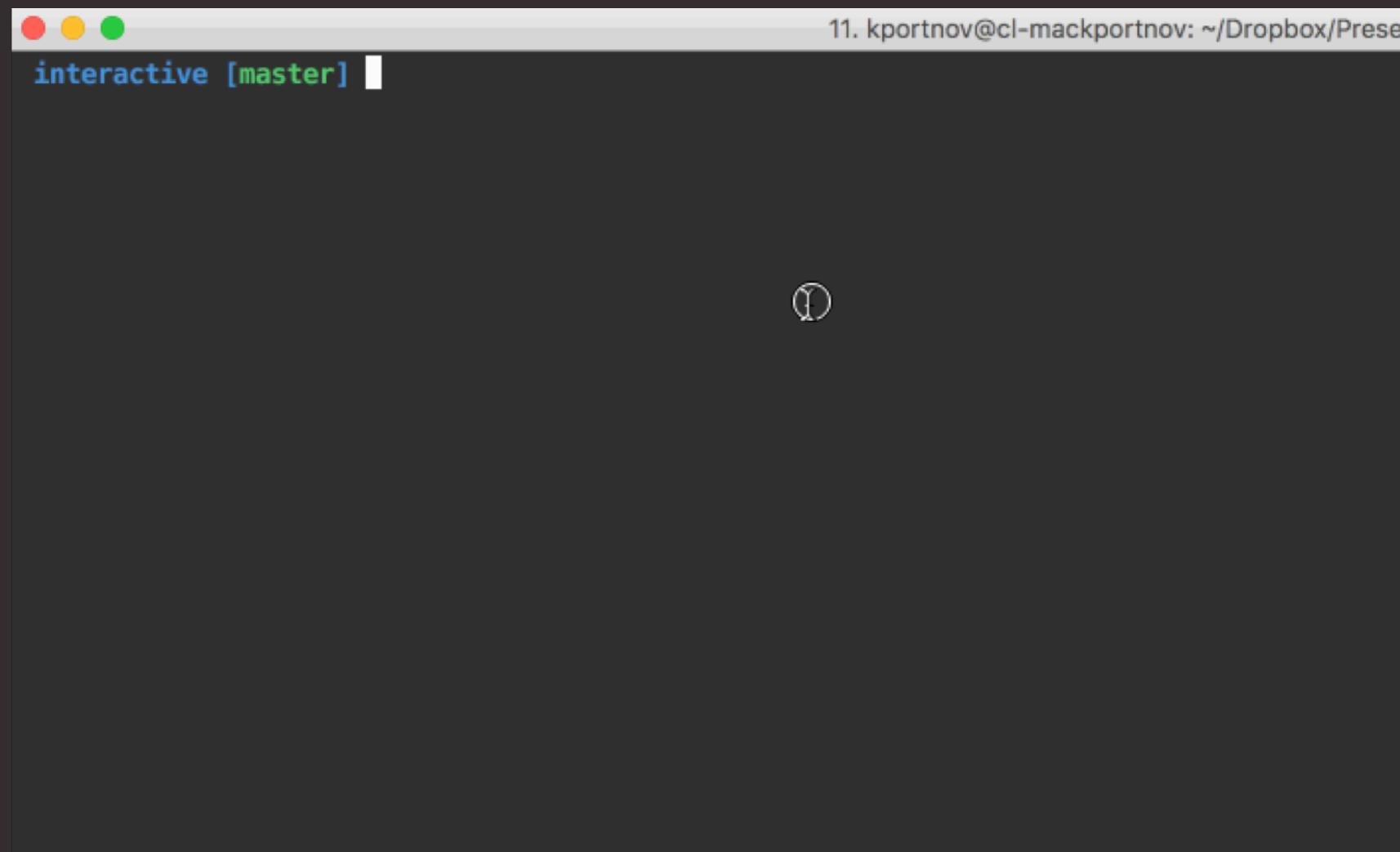


A screenshot of a terminal window titled "11. kportnov@cl-mackportnov: ~/Dropbox/Presen". The window shows a command-line interface for a git rebase session. The command entered is "interactive [master] git rebase --interactive HEAD~9". The terminal has a dark background with light-colored text. There are three small colored circles (red, yellow, green) in the top-left corner of the window.

```
interactive [master] git rebase --interactive HEAD~9
```

reward

r, reward = use commit, but edit the commit message



A screenshot of a terminal window with a dark background. At the top, there are three small colored circles (red, yellow, green) followed by the text "11. kportnov@cl-mackportnov: ~/Dropbox/Presen". Below that, the text "interactive [master] □" is displayed. The main body of the terminal is mostly blank, with a single character "Q" centered in the middle.

edit

e, edit = use commit, but stop for amending

After make the changes you have to:

- add changed file by "git add"
- continue rebase with command "git rebase --continue"

edit

e, edit = use commit, but stop for amending

```
11. kportnov@cl-mackportnov: ~/Dropbox/Presentations/Git. Rebase/practice-here/interactive (zsh)
interactive [master]
1 git cherry-pick 1619714 66
2 git cherry-pick 823d0fe 66
3 git cherry-pick d75090c 66
4 git cherry-pick 35291bf 66
5 git cherry-pick 41394a1 66
6 git cherry-pick 04b1d93 66
7 git cherry-pick 055fc64 66
8 git cherry-pick fe357b6 66
9 git cherry-pick 8f27b6c 66
10 git cherry-pick 0a8d763 66
11 git cherry-pick 0e9c839 66
12 git cherry-pick bae8496 66
13 git cherry-pick 6a7e248 66
14 git cherry-pick 8c8dcec 66
15 git cherry-pick 4e56dfa 66
16 git checkout feature/add-image 66
17 git reset --hard 8c8dcec 66
18 git cherry-pick 2dd1180 66
19 git cherry-pick abc8514
20
21
22
23 git checkout master 66 git reset --hard 1619714 66 git cherry-pick 823d0fe 66 git cherry-pick 055fc64 66 git cherry-pick fe357b6 66 git cherry-pick 8f27b6c 66 git cherry-pick 0a8d763 66 git cherry-pick 0e9c839 66 git cherry-pick bae8496 66 git cherry-pick 6a7e248 66 git cherry-pick 8c8dcec 66 git cherry-pick 4e56dfa 66 git checkout feature/add-image 66 git re
24
25 ===
```

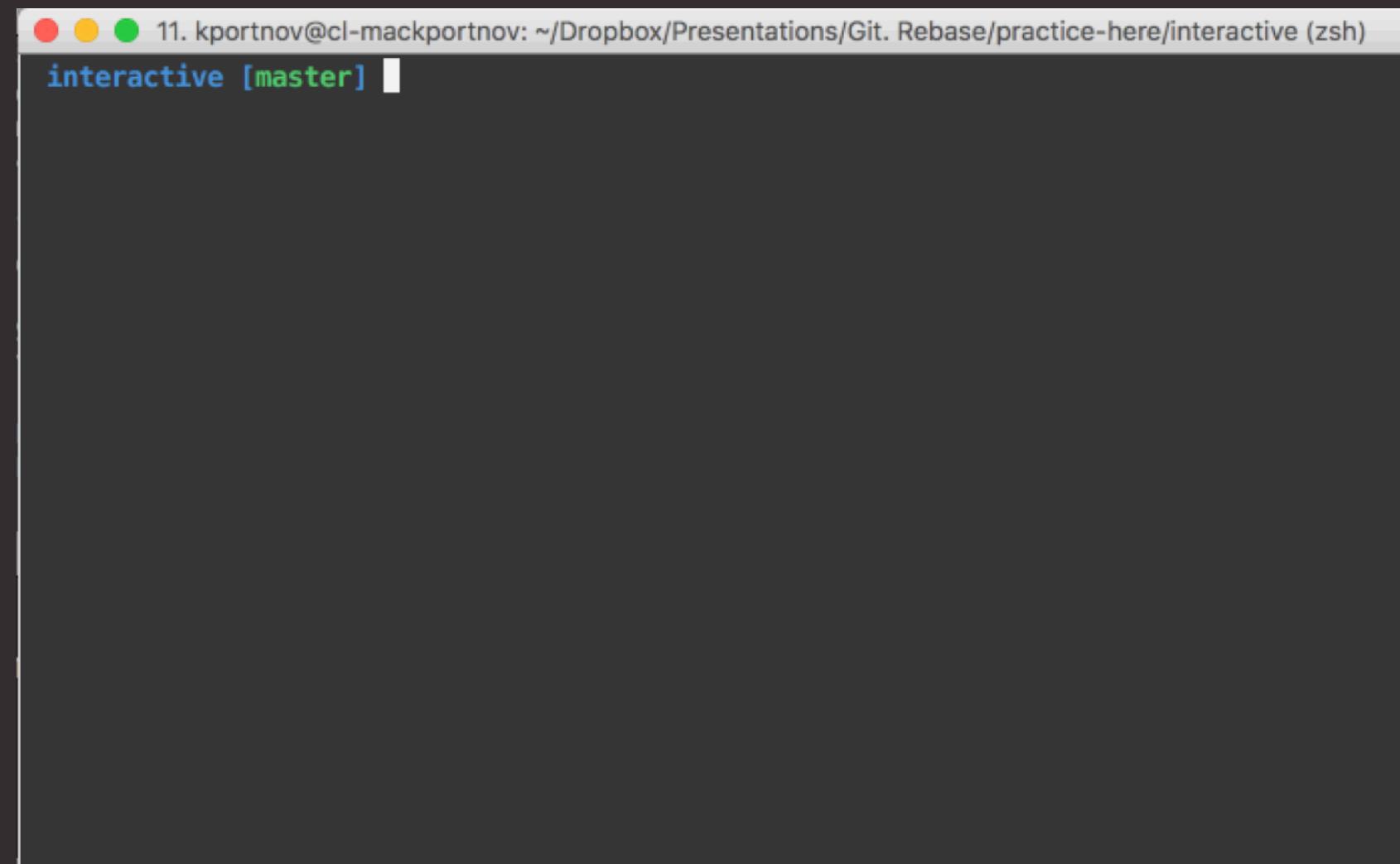
squash

s, squash = use commit, but meld into previous commit

```
● ● ● 11. kportnov@cl-mackportnov: ~/Dropbox/Presentations/Git. Rebase/practice-here/interactive (zsh)
interactive [master] 714 66
4 git cherry-pick 823d0fe 66
5 git cherry-pick d73898c 66
6 git cherry-pick 35291b1 66
7 git cherry-pick 41394a1 66
8 git cherry-pick 04bfd93 66
9 git cherry-pick 055fc64 66
10 git cherry-pick 1e357b6 66
11 git cherry-pick 8f27b6c 66
12 git cherry-pick 0a0df63 66
13 git cherry-pick 0e9c839 66
14 git cherry-pick bae8496 66
15 git cherry-pick 68fe240 66
16 git cherry-pick 8c8dcec 66
17 git cherry-pick 4e56dfa 66
18 git checkout feature/add-image 66
19 git reset --hard 8c8dcec 66
20 git cherry-pick 2dd11b0 66
21 git cherry-pick abc8514
22
23 git checkout master 66 git reset --hard 16197f4 66 git cherry-pick 823d0fe 66 git cherry-pi
cherry-pick 055fc64 66 git cherry-pick fe357b6 66 git cherry-pick 8f27b6c 66 git cherry-pic
cherry-pick 8c8dcec 66 git cherry-pick 4e56dfa 66 git checkout feature/add-image 66 git res
24
25 ===
```

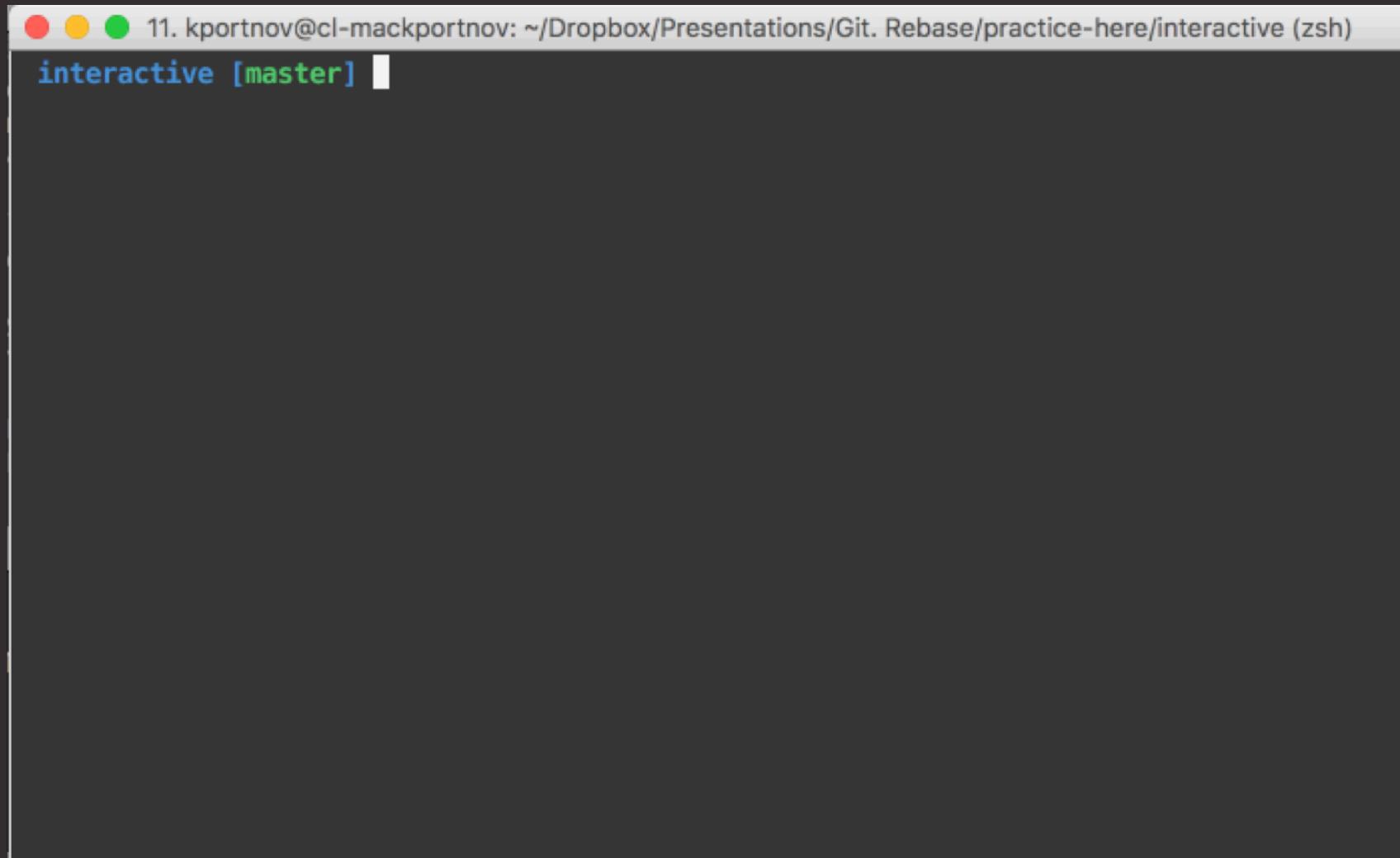
fixup

f, fixup = like "squash", but discard this commit's log message

A screenshot of a terminal window titled "interactive [master]". The window has a dark background and light-colored text. At the top, there are three small colored circles (red, yellow, green) followed by the text "11. kportnov@cl-mackportnov: ~/Dropbox/Presentations/Git. Rebase/practice-here/interactive (zsh)". Below this, the word "interactive" is followed by "[master]" in blue text, indicating the current branch. The main body of the terminal is completely blank, showing only a single vertical cursor bar on the right side.

exec

x, exec = run command (the rest of the line) using shell



A screenshot of a terminal window titled "interactive [master]". The title bar also shows the path: "11. kportnov@cl-mackportnov: ~/Dropbox/Presentations/Git. Rebase/practice-here/interactive (zsh)". The main area of the terminal is blank, showing only the cursor at the bottom right.

exec can be massive 😎

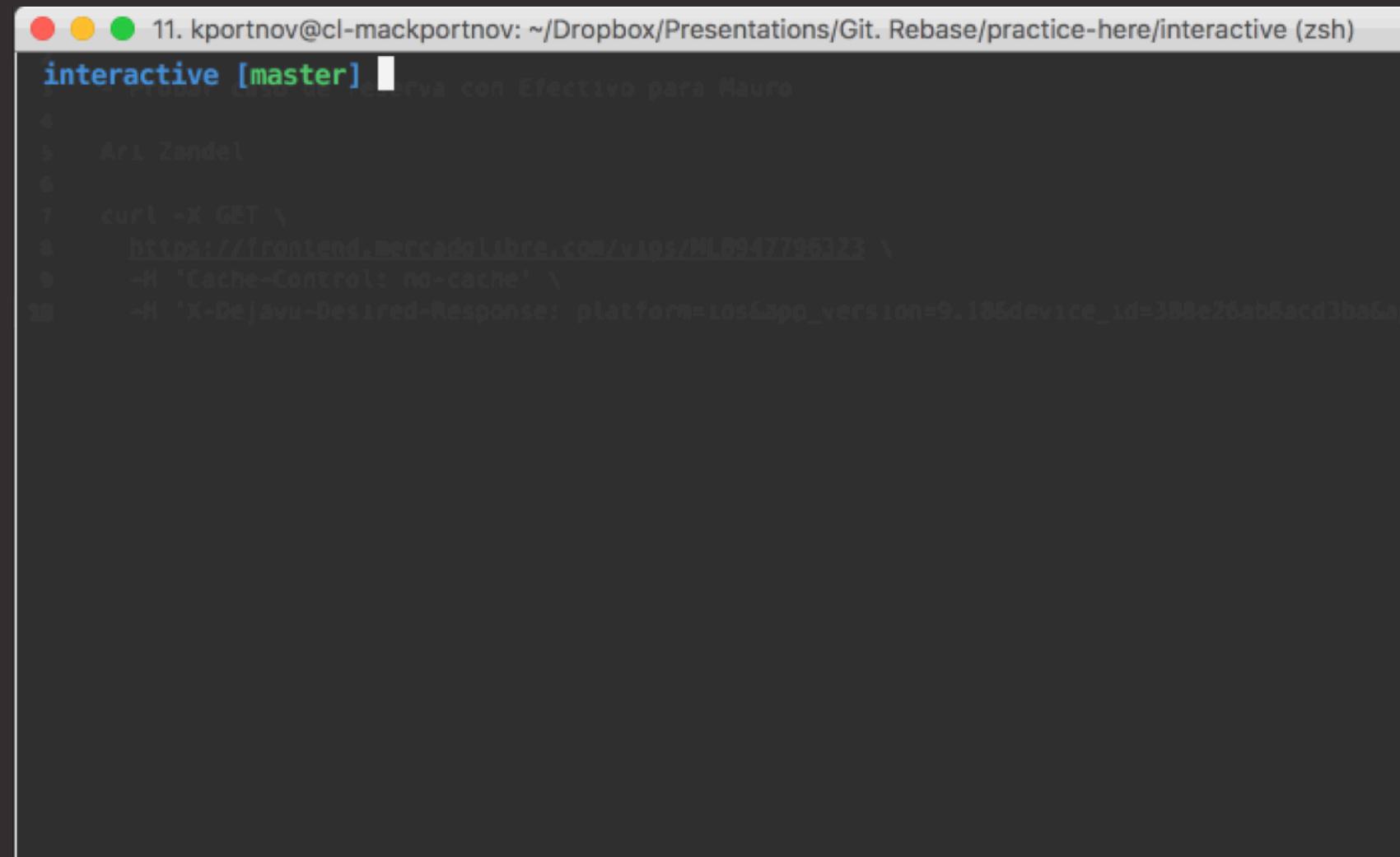
```
$ git rebase --interactive --exec "md5 README.md" HEAD~3
```



A screenshot of a terminal window with a dark background. The title bar shows the path: 11. kportnov@cl-mackportnov: ~/Dropbox/Presentations/Git. Rebase/practice-here/interactive (zsh). The command entered is `interactive [master] |`. The terminal is currently empty, indicating no output from the command.

drop

d, drop = remove commit



A screenshot of a terminal window titled "interactive [master]". The title bar also shows the path: 11. kportnov@cl-mackportnov: ~/Dropbox/Presentations/Git. Rebase/practice-here/interactive (zsh). The terminal displays a single line of code:

```
curl -X GET \n  https://frontend.mercadolibre.com/v1/p/MLB947796323 \n  -H 'Cache-Control: no-cache' \n  -H 'X-Dejavu-Desired-Response: platform=ios&app_version=9.186&device_id=388e26ab8acd3ba6ap'
```

More info:

- <https://git-scm.com/book/pt-br/v2/Git-Branching-Rebasing>
- <https://www.atlassian.com/git/tutorials/rewriting-history/git-rebase>
- <https://hackernoon.com/mastering-git-why-rebase-is-amazing-a954485b128a>

Q & A



Thanks a lot!



Me...

-  Konstantin Portnov
-  <http://about.me/x0000ff>
-  <https://github.com/x0000ff>
-  <https://twitter.com/x0000ff>
-  <https://www.linkedin.com/in/KonstantinPortnov>



This Presentation



[http://bit.ly/
2yuMmKC](http://bit.ly/2yuMmKC)

EOF

