Git and GitHub

Ferdowsi University of Mashhad Linux Users Group

t.me/FUMLUG

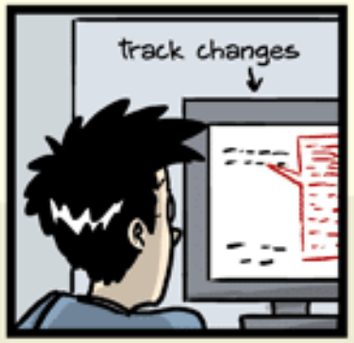
"FINAL".doc

FINAL.doc!

FINAL_rev.2.doc

FINAL_rev.6.COMMENTS.doc

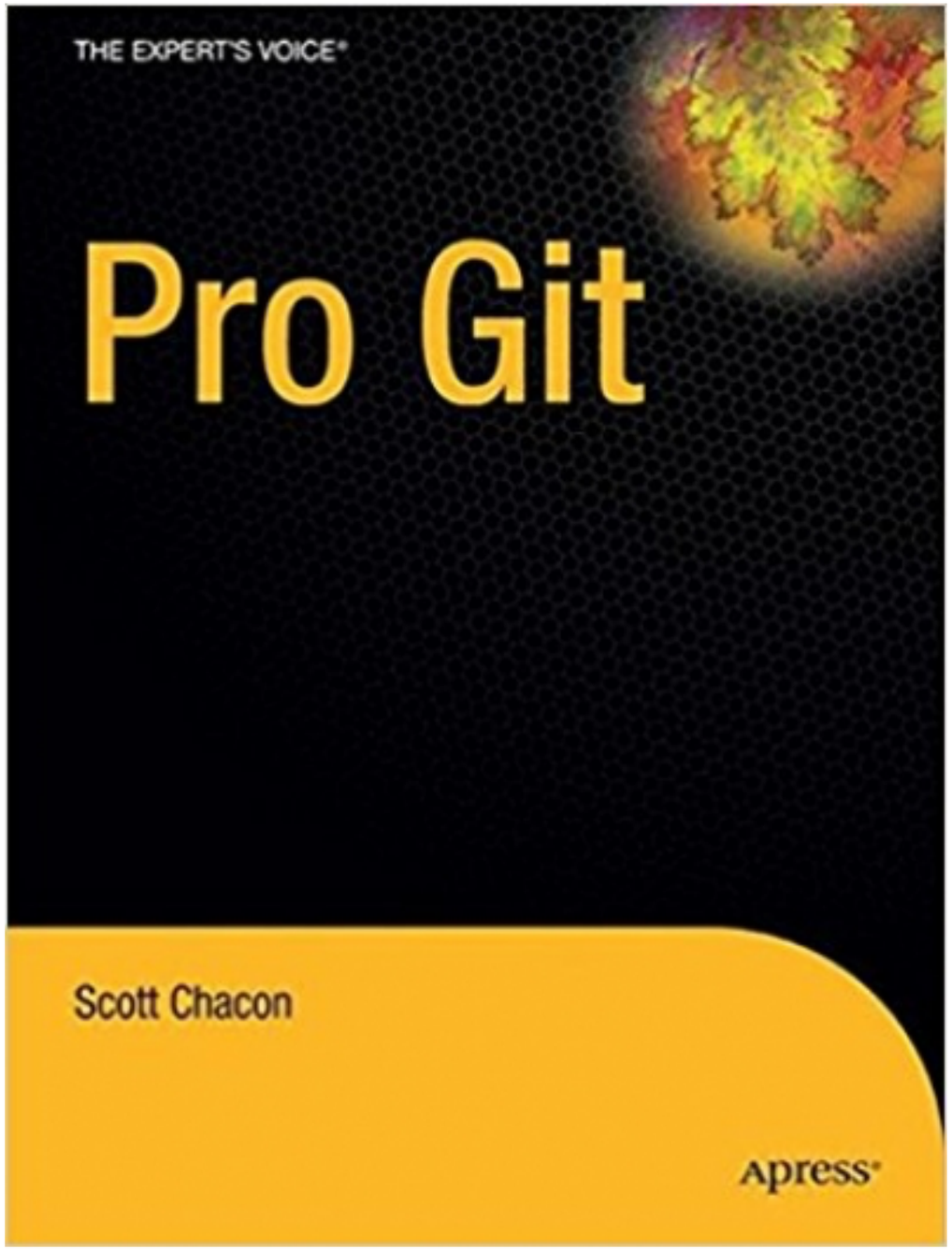
FINAL_rev.8.comments5.
CORRECTIONS.doc



FINAL_rev.18.comments7.
corrections9.MORE.30.doc

FINAL_rev.22.comments49.
corrections.10.#@$%WHYDID
ICOMETOGRADSCHOOL????.doc

JORGE CHAM © 2012



Scott Chacon

What is Git?

Git is an open source, distributed version control system designed for speed and efficiency

Git is an **open source**, distributed version control system designed for speed and efficiency

This repository Search Pull requests Issues Marketplace Explore

git / git

Watch 1,901 Star 22,313 Fork 12,985

Code Pull requests 132 Insights

Git Source Code Mirror - This is a publish-only repository and all pull requests are ignored. Please follow Documentation/SubmittingPatches procedure for any of your improvements.

c shell

51,200 commits 5 branches 684 releases 1,193 contributors

Branch: master New pull request Create new file Upload files Find file Clone or download

gitster The fifth batch for 2.18 ··· Latest commit ccdcbd5 9 days ago

.github	Configure Git contribution guidelines for github.com	11 months ago
Documentation	The fifth batch for 2.18	9 days ago
block-sha1	sha1: provide another level of indirection for the SHA-1 functions	3 years ago
builtin	Merge branch 'js/colored-push-errors'	9 days ago
ci	Merge branch 'sg/test-x'	2 months ago
compat	mingw/msvc: use the new-style RUNTIME_PREFIX helper	a month ago
contrib	Merge branch 'tg/demote-stash-save-in-completion'	9 days ago
ewah	Replace Free Software Foundation address in license notices	6 months ago
git-gui	Merge branch 'cb/git-gui-ttk-style'	22 days ago
gitk-git	Merge git://ozlabs.org/~paulus/gitk	a year ago

Git is an open source,
distributed version control
system designed for speed
and efficiency

Fully Distributed

(almost) everything is local

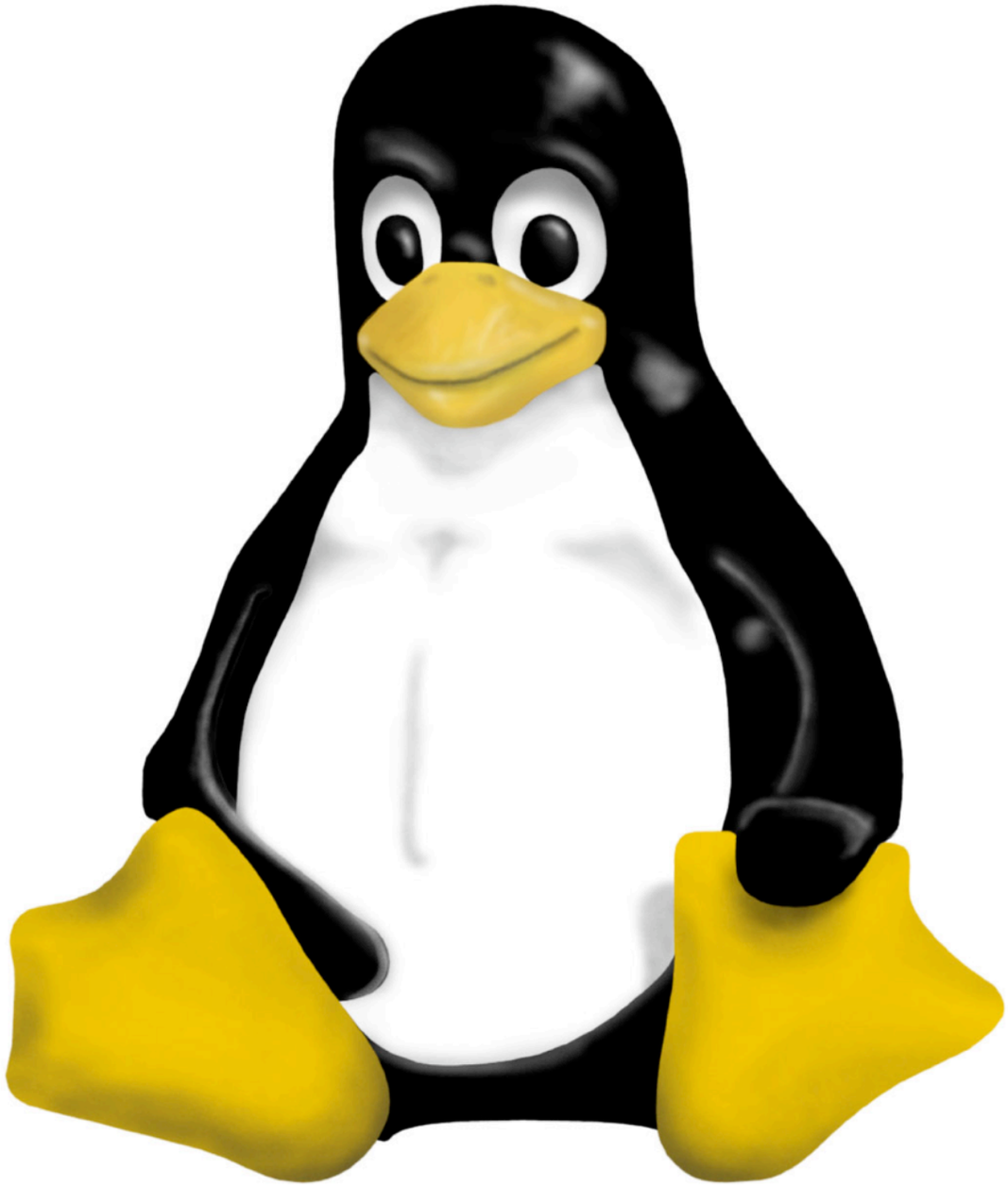
which means

everything is fast

every clone is a backup

work offline

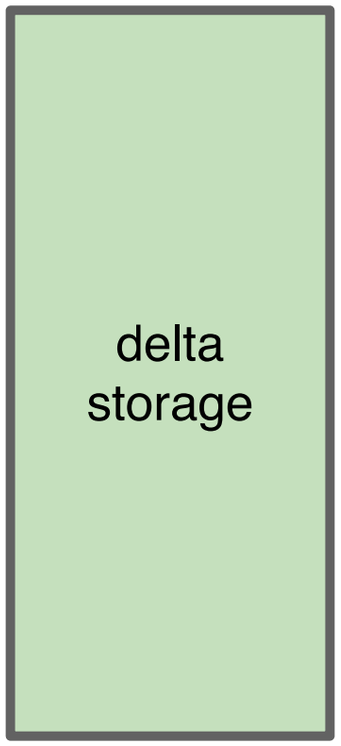
Git is an open source, distributed version control system **designed for speed and efficiency**

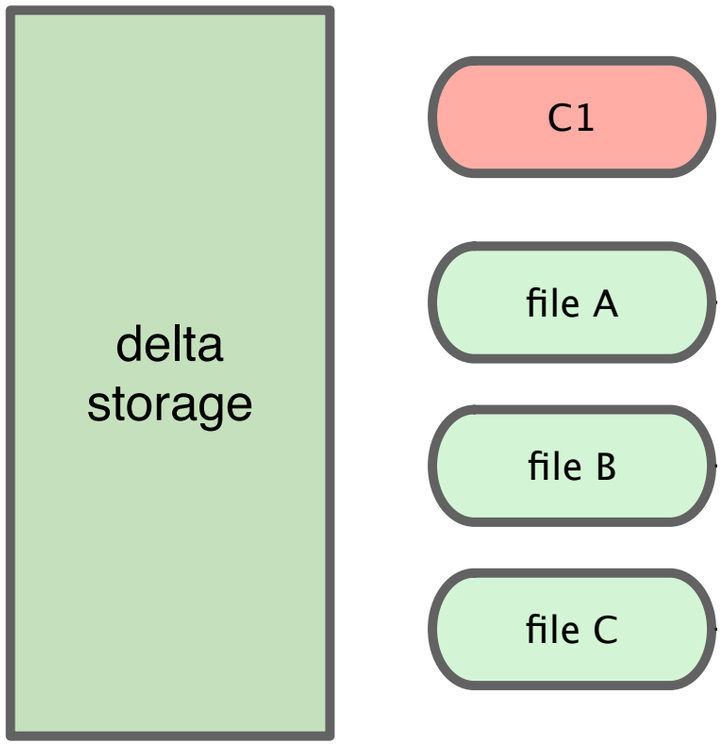


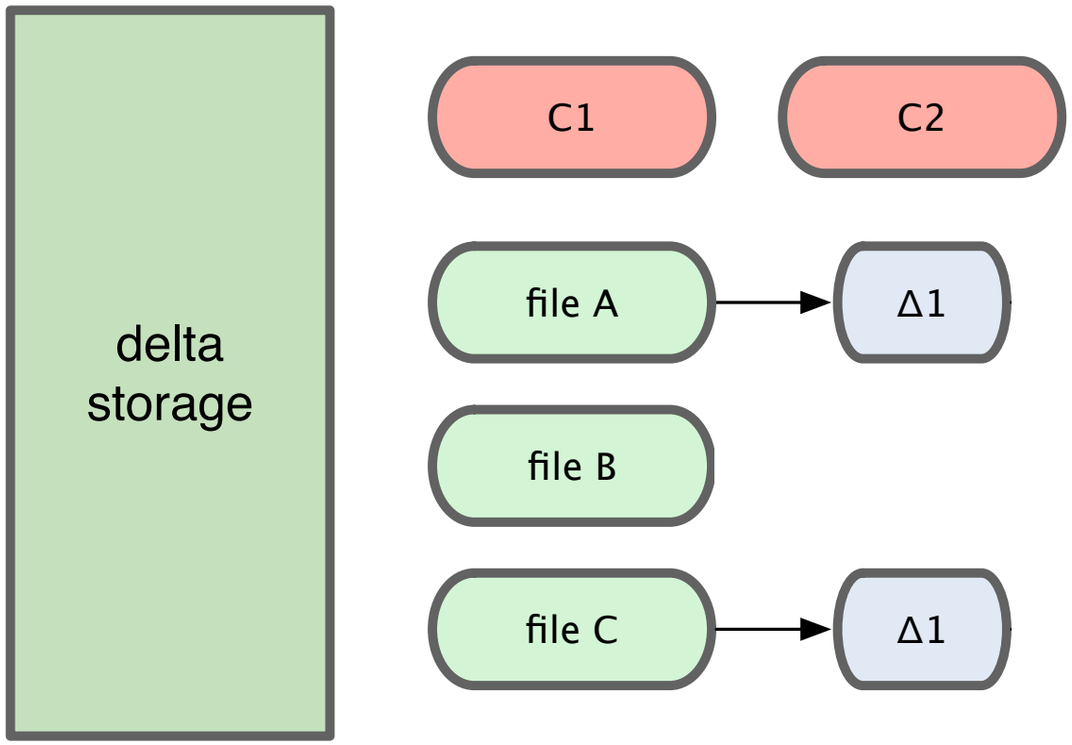
Immutable

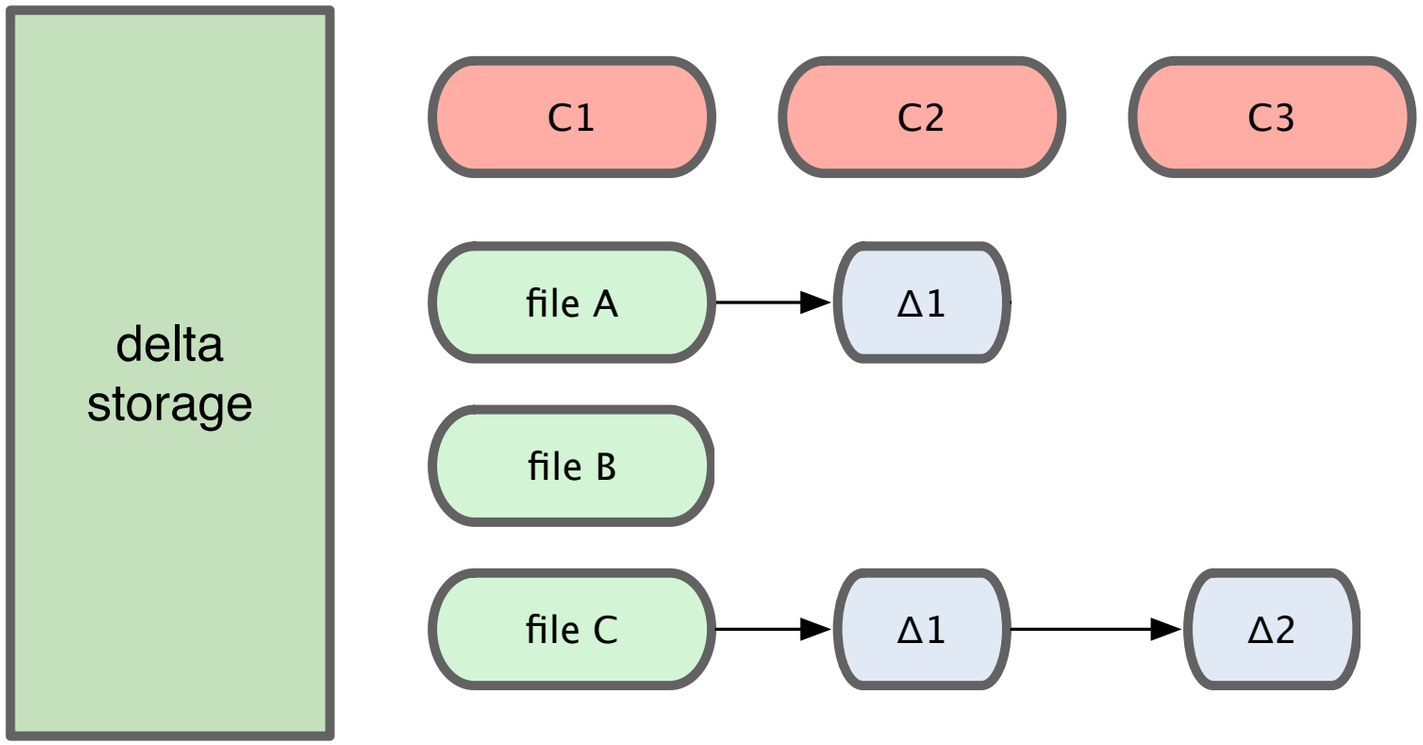
(almost) never removes data

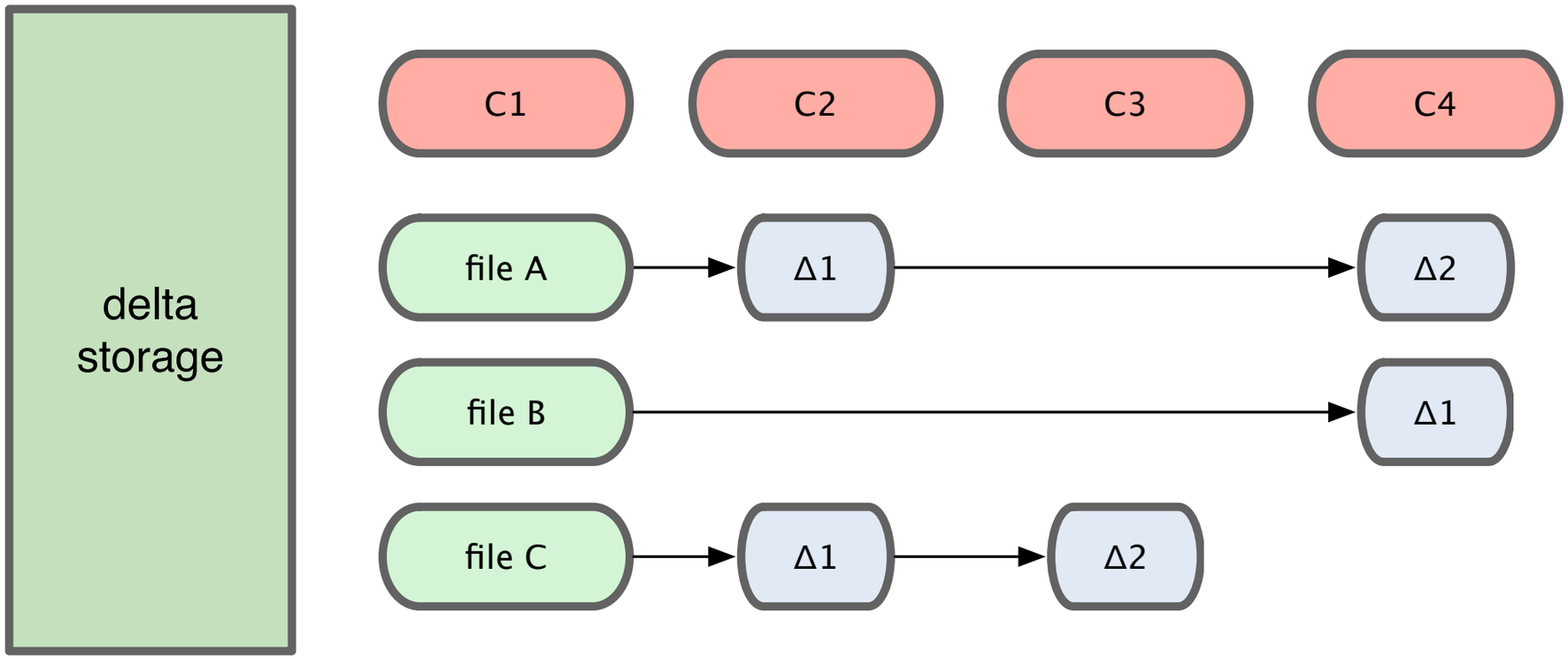
Snapshots, not Patches

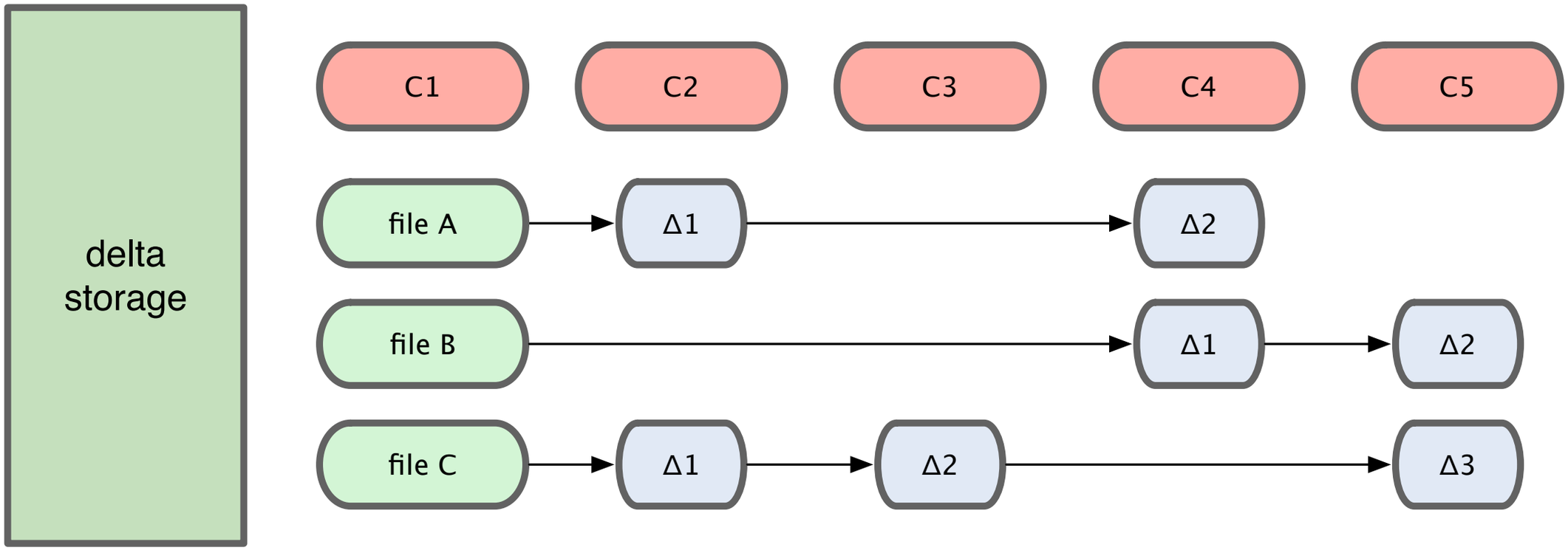

delta
storage

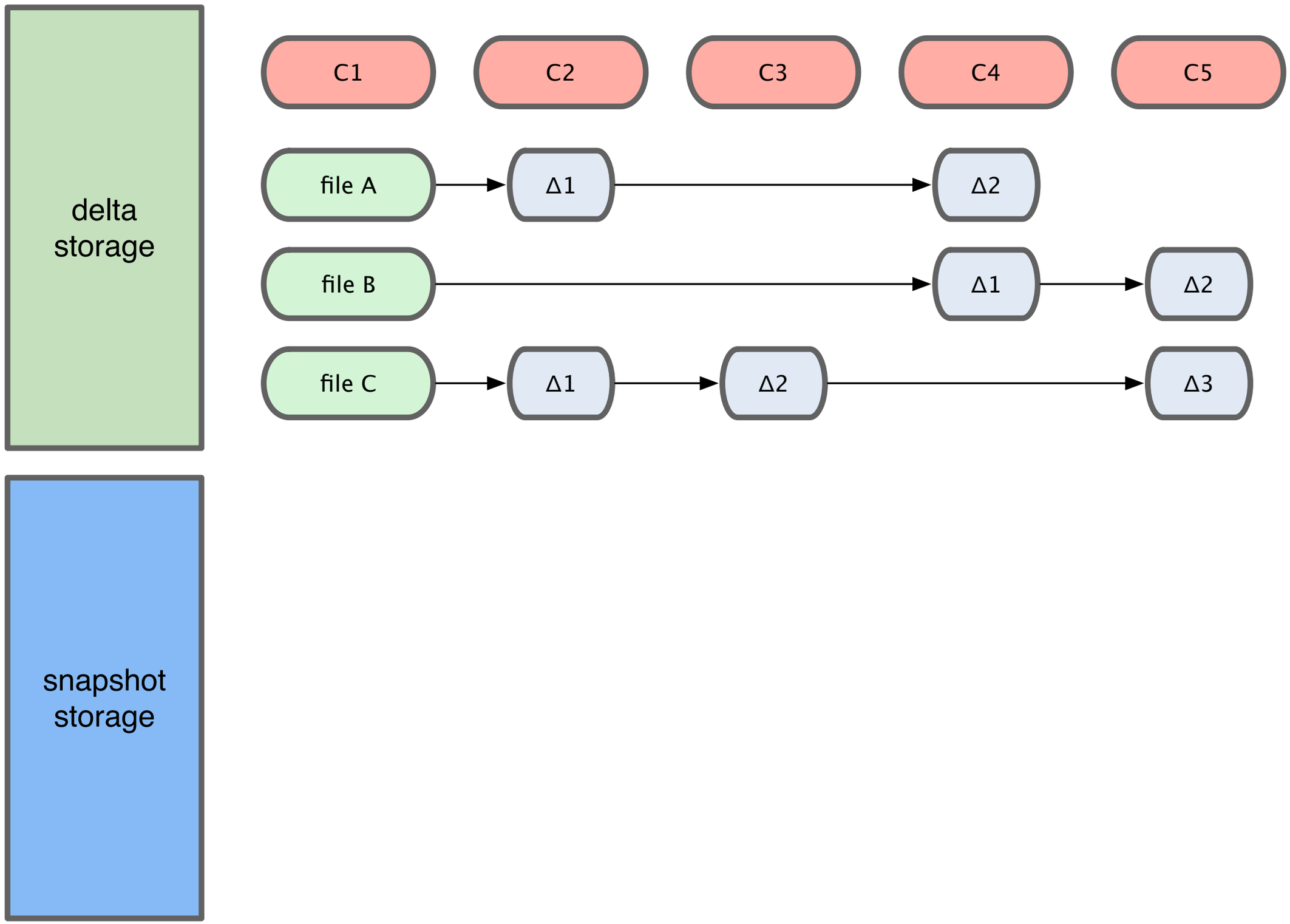

delta
storage
C1
file A
file B
file C

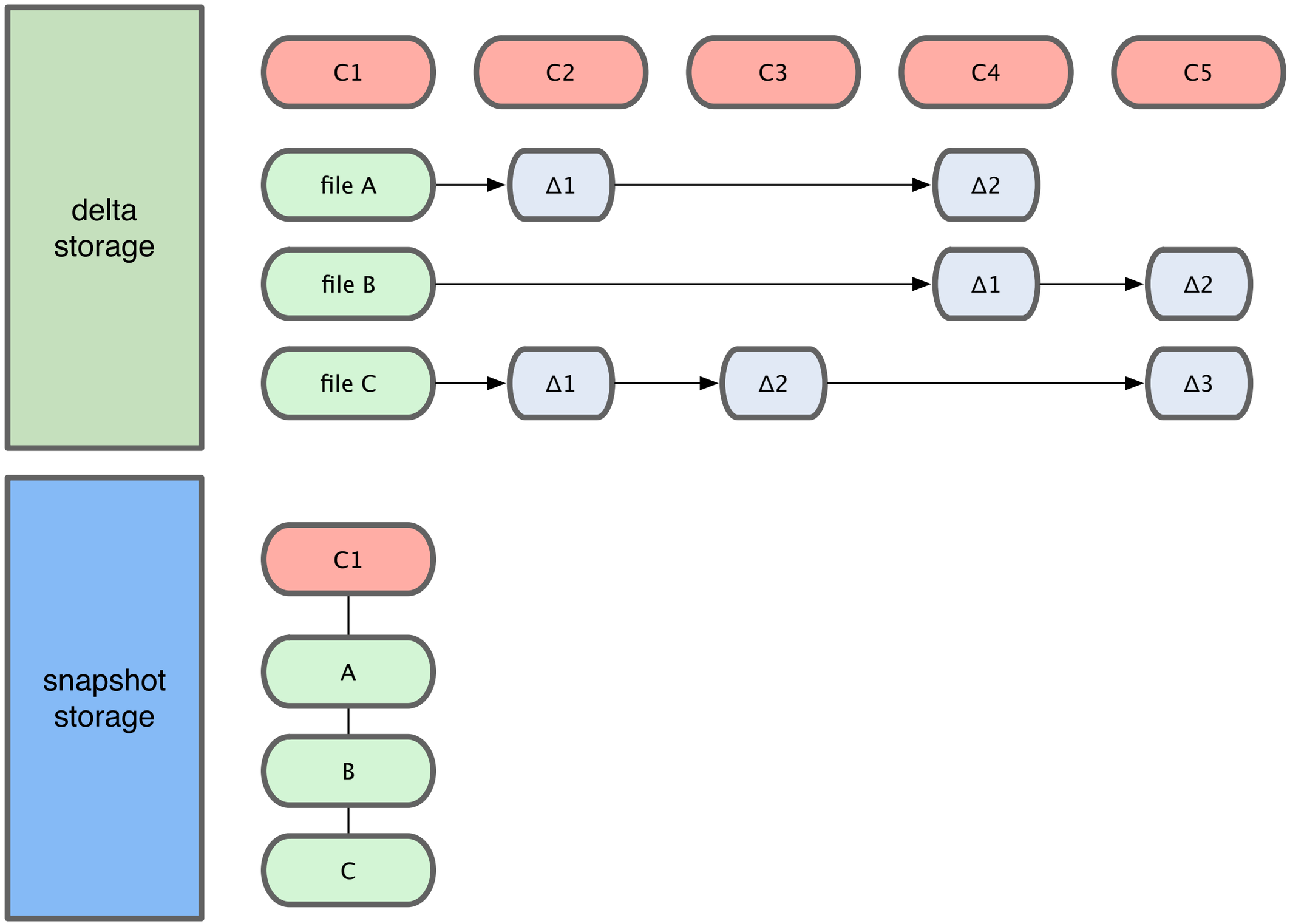

delta storage
C1
C2
file A
Δ1
file B
file C
Δ1

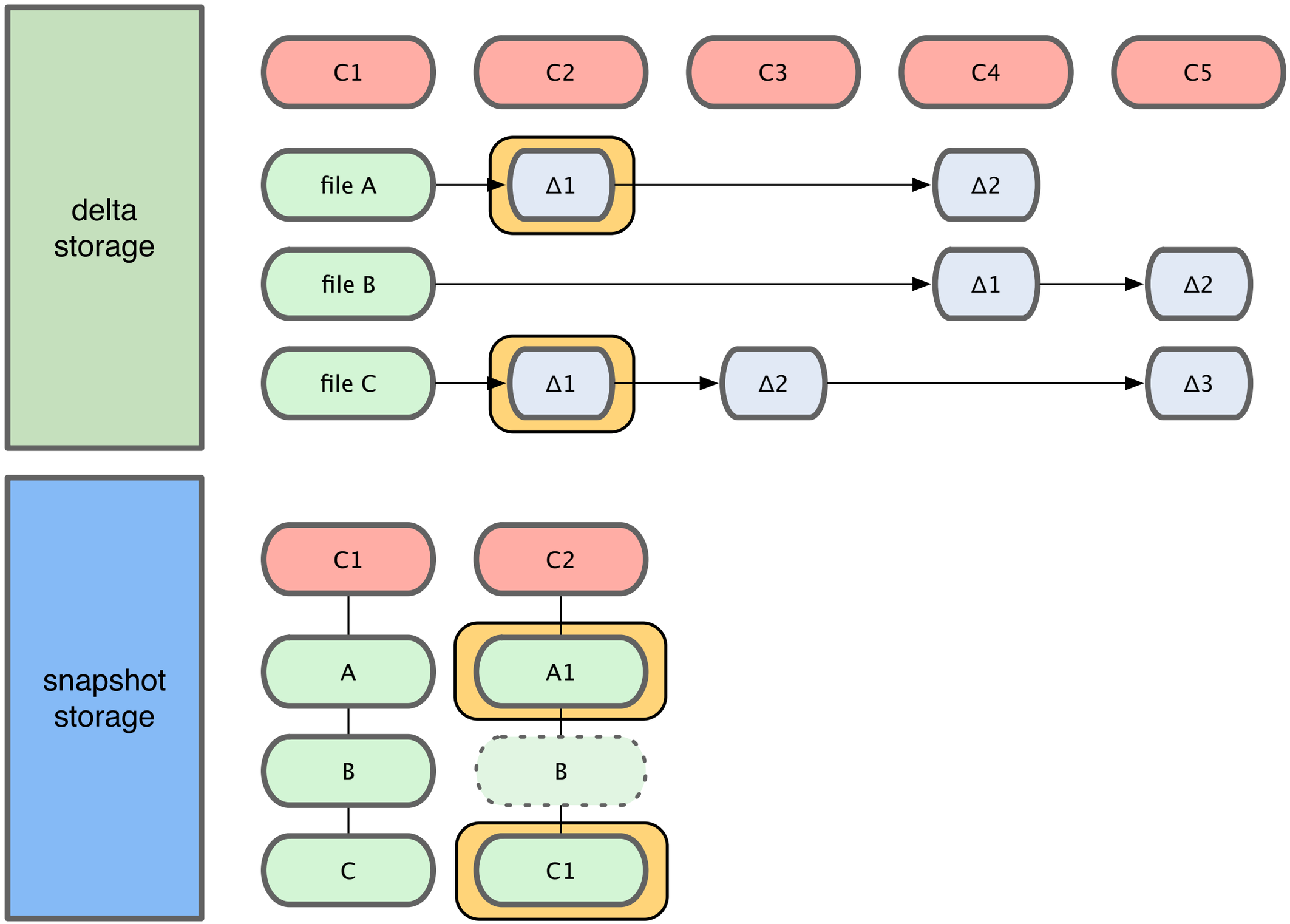

delta storage
C1
C2
C3
file A
Δ1
file B
file C
Δ1
Δ2

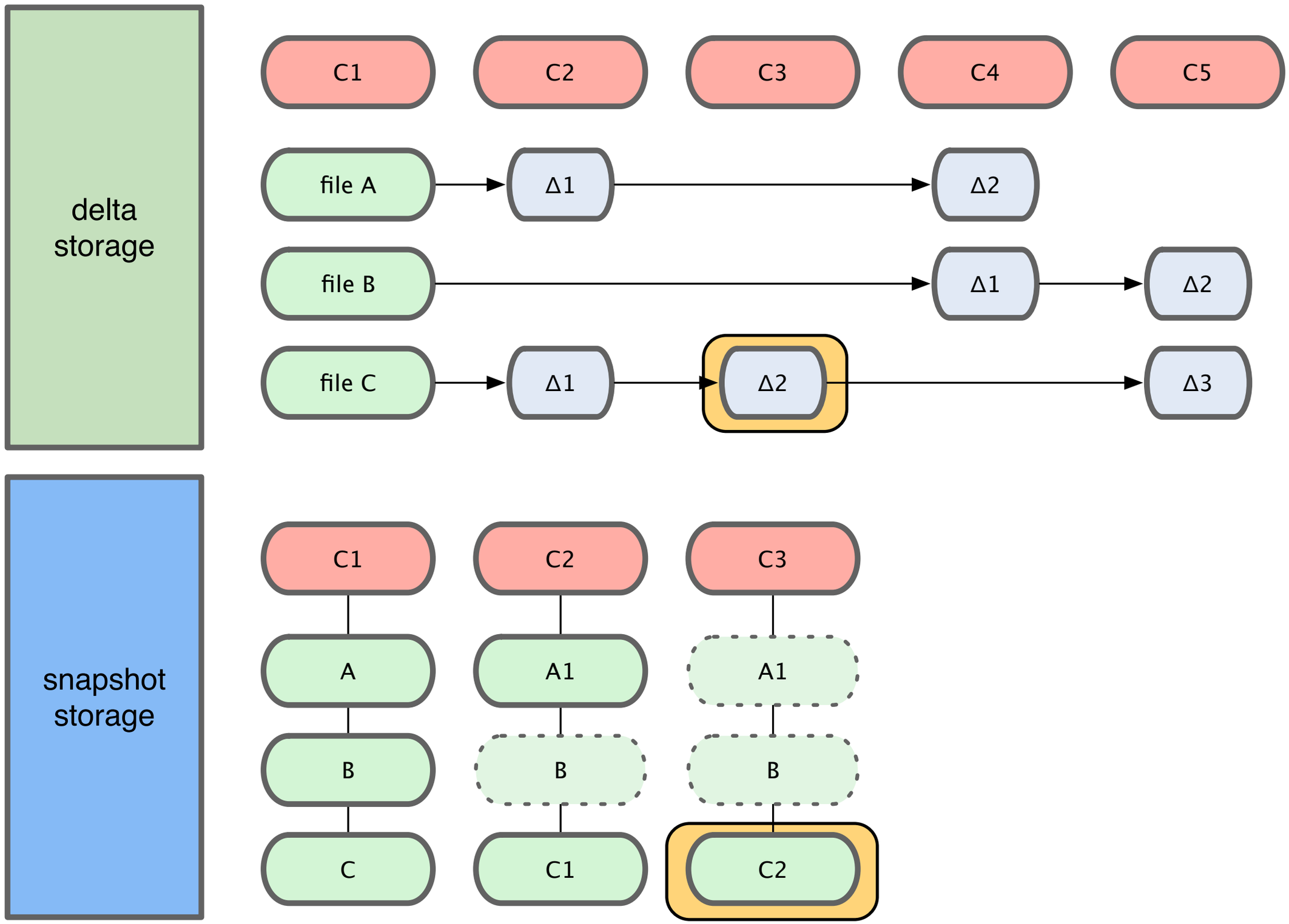

delta storage
C1
C2
C3
C4
file A
Δ1
Δ2
file B
Δ1
file C
Δ1
Δ2

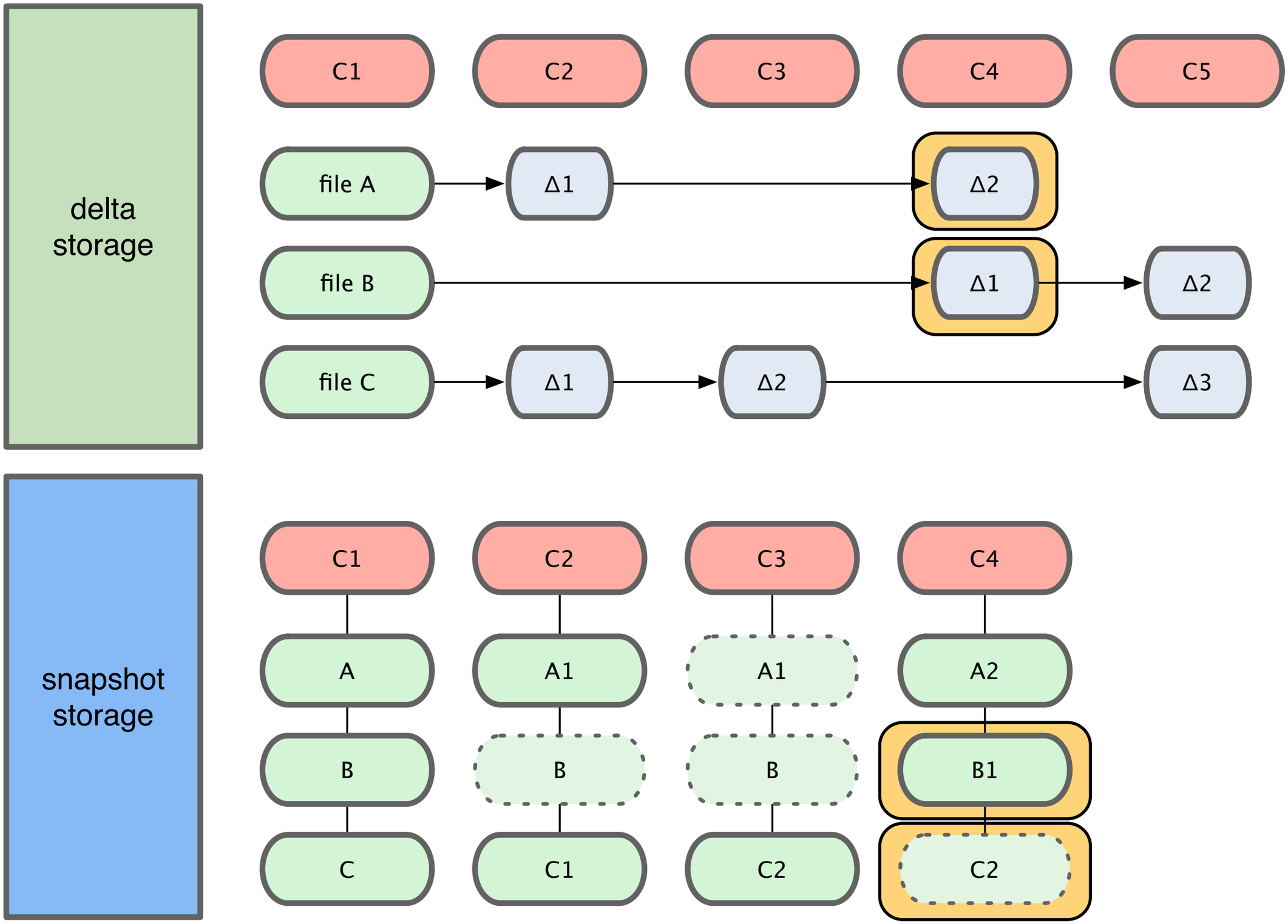

delta storage
C1
C2
C3
C4
C5
file A
Δ1
Δ2
file B
Δ1
Δ2
file C
Δ1
Δ2
Δ3

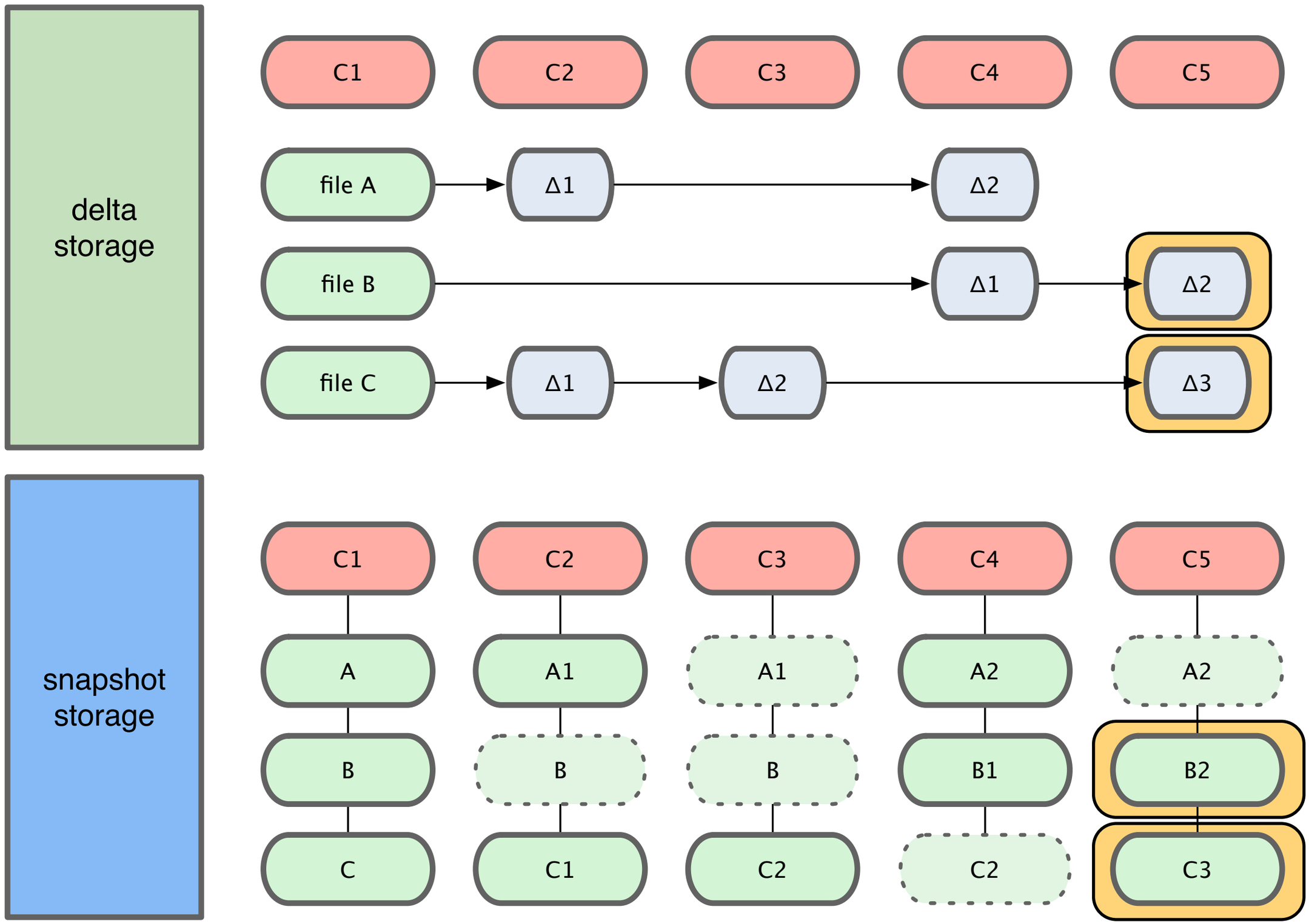

delta storage
snapshot storage
C1
C2
C3
C4
C5
file A
Δ1
Δ2
file B
Δ1
Δ2
file C
Δ1
Δ2
Δ3

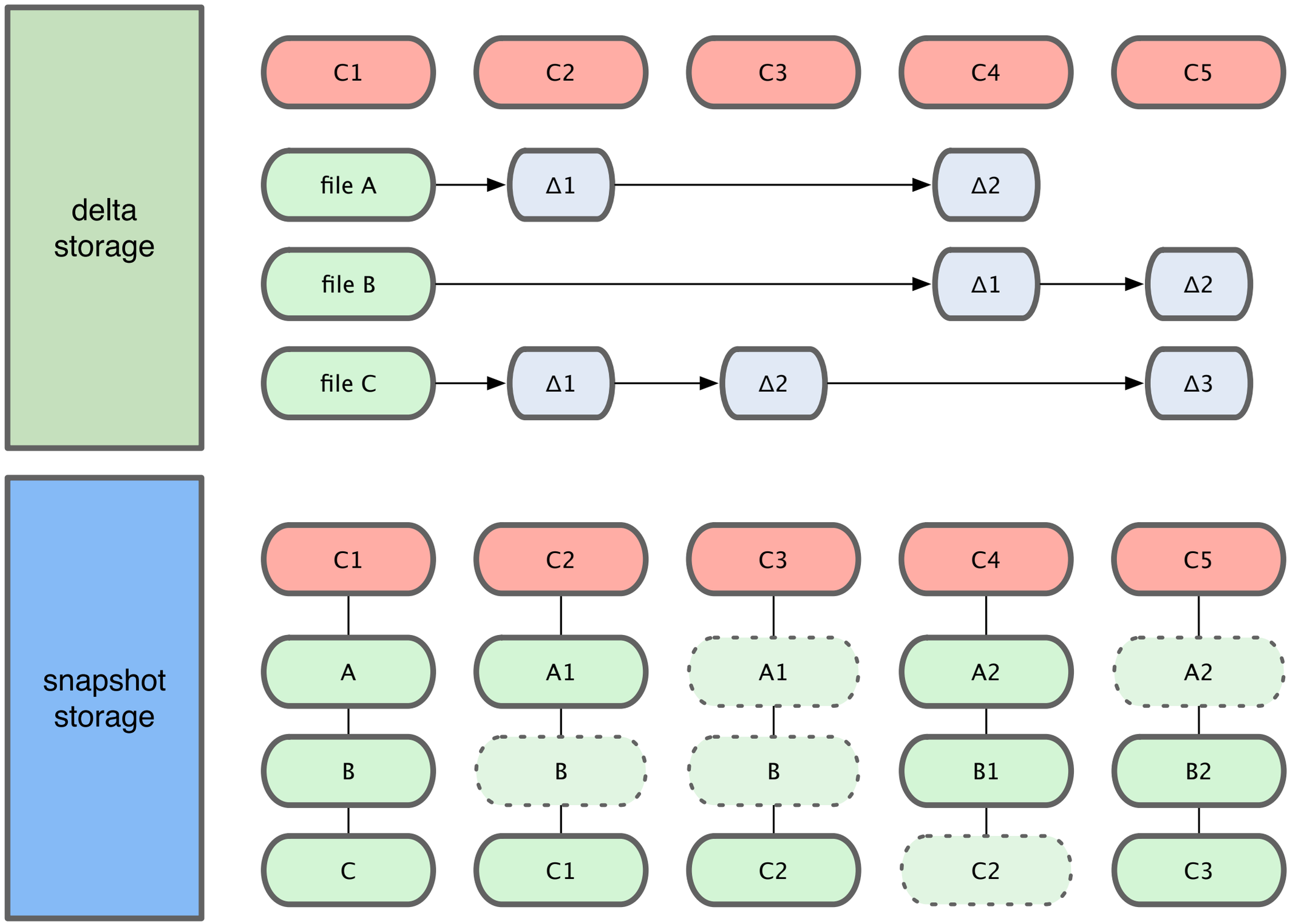

delta storage
C1
C2
C3
C4
C5
file A
Δ1
Δ2
file B
Δ1
Δ2
file C
Δ1
Δ2
Δ3
snapshot storage
C1
A
B
C


delta storage
C1
C2
C3
C4
C5
file A
Δ1
Δ2
file B
Δ1
Δ2
file C
Δ1
Δ2
Δ3
snapshot storage
C1
C2
A
A1
B
B
C
C1


delta storage
C1
C2
C3
C4
C5
file A
Δ1
Δ2
file B
Δ1
Δ2
file C
Δ1
Δ2
Δ3
snapshot storage
C1
A
B
C
C2
A1
B
C1
C3
A1
B
C2


delta storage
C1
C2
C3
C4
C5
file A
Δ1
Δ2
file B
Δ1
Δ2
file C
Δ1
Δ2
Δ3
snapshot storage
C1
A
B
C
C2
A1
B
C1
C3
A1
B
C2
C4
A2
B1
C2


delta storage
C1
C2
C3
C4
C5
file A
Δ1
Δ2
file B
Δ1
Δ2
file C
Δ1
Δ2
Δ3
snapshot storage
C1
A
B
C
C2
A1
B
C1
C3
A1
B
C2
C4
A2
B1
C2
C5
A2
B2
C3


delta storage
C1
C2
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C5
file A
Δ1
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file B
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Δ2
file C
Δ1
Δ2
Δ3
snapshot storage
C1
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C2
A1
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C1
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A1
B
C2
C4
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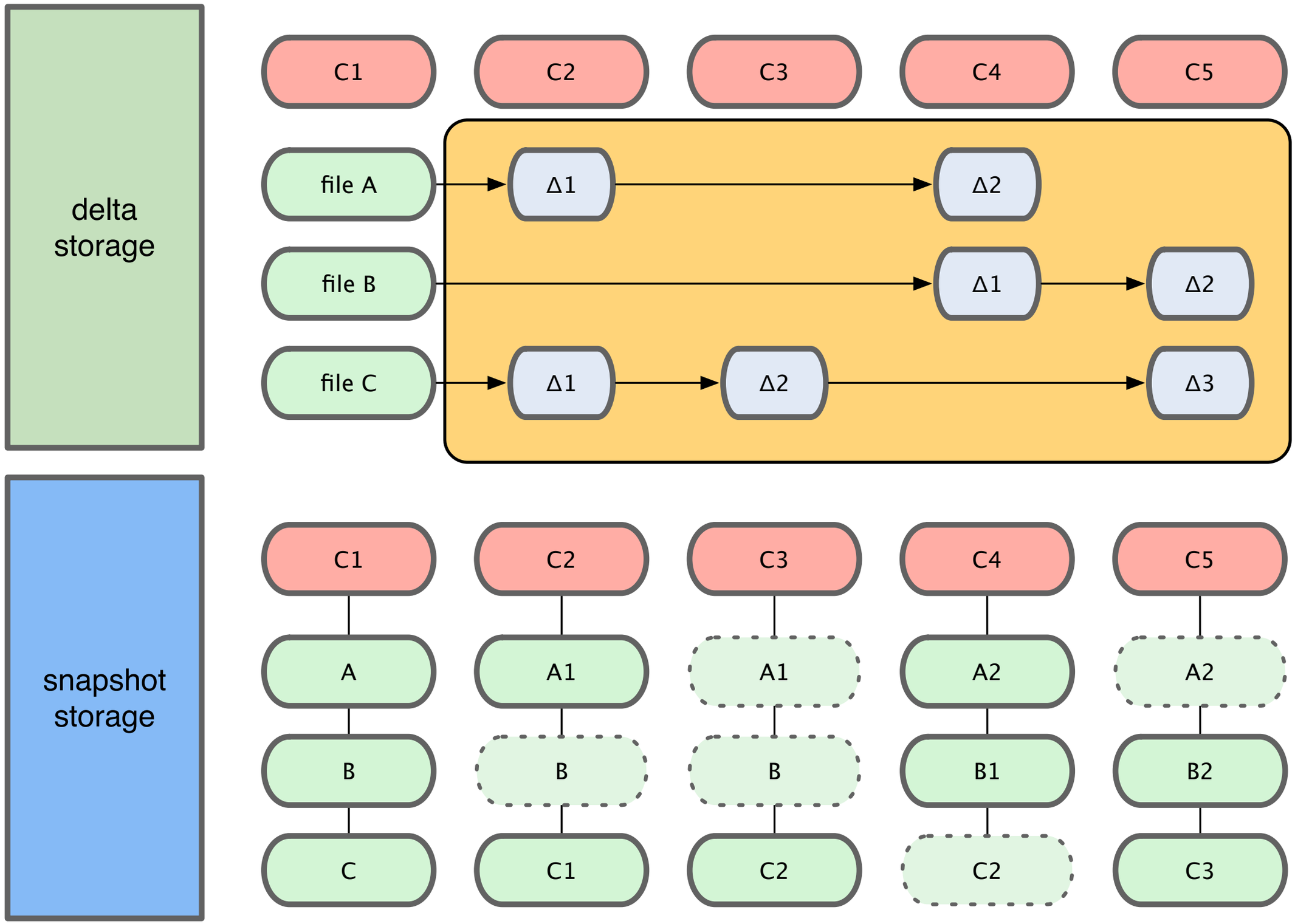
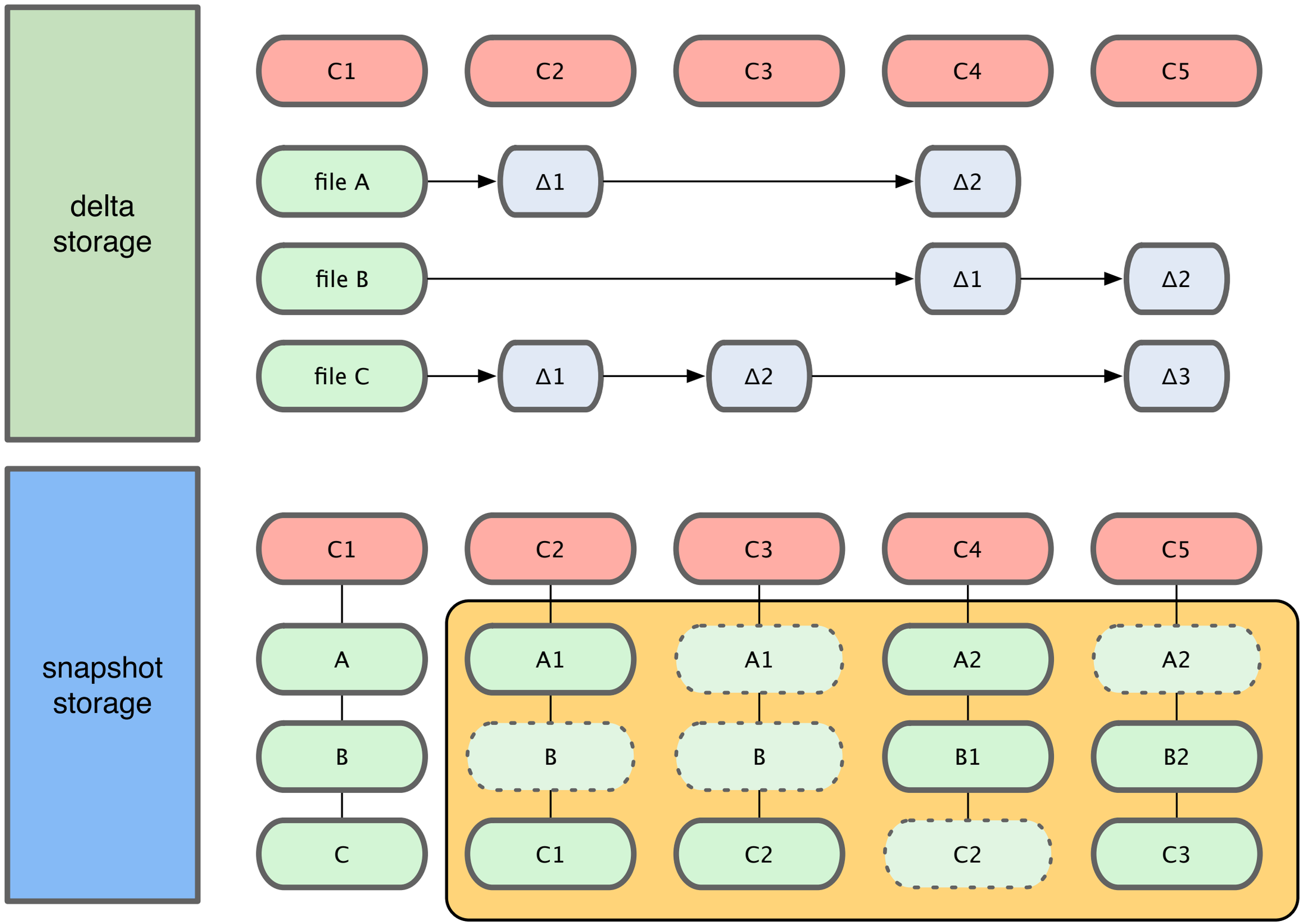
B1
C2
C5
A2
B2
C3


delta storage
C1
C2
C3
C4
C5
file A
file B
file C
Δ1
Δ2
Δ1
Δ2
Δ1
Δ2
Δ3
snapshot storage
C1
C2
C3
C4
C5
A
A1
A1
A2
A2
B
B
B
B1
B2
C
C1
C2
C2
C3


delta storage
C1
C2
C3
C4
C5
file A
Δ1
Δ2
file B
Δ1
Δ2
file C
Δ1
Δ2
Δ3
snapshot storage
C1
C2
C3
C4
C5
A
A1
A1
A2
A2
B
B
B
B1
B2
C
C1
C2
C2
C3

Terminology

Repository

Branch

Revision

Remote

origin

master

How Does Git Work?

How Does Git Work?

git

git directory

git directory

.git

git directory

.git

`GIT_DIR`

Git Directory

config file

hooks

index

object database

references

object database

object database

content

object database

content

```
new_content = type + ' ' + content.size + \0
                + content
```

object database

content

"header"

```
new_content = type + ' ' + content.size + \0
              + content
```

object database

```
content

new_content = type + ' ' + content.size + \0
                + content

sha = Digest::SHA1.hexdigest(new_content)
```

object database

```
content

new_content = type + ' ' + content.size + \0
                + content

sha = Digest::SHA1.hexdigest(new_content)

"824aed035c0aa75d64c..."
```

object database

```
content

new_content = type + ' ' + content.size + \0
                + content

sha = Digest::SHA1.hexdigest(new_content)
        "824aed035c0aa75d64c..."

compressed = zlib::deflate(new_content)
```

object database

```
content

new_content = type + ' ' + content.size + \0
                + content

sha = Digest::SHA1.hexdigest(new_content)

"824aed035c0aa75d64c..."

compressed = zlib::deflate(new_content)

path = ".git/objects/82/4aed035c0aa75d64c..."
```

object database

```
content

new_content = type + ' ' + content.size + \0
                + content

sha = Digest::SHA1.hexdigest(new_content)
        "824aed035c0aa75d64c..."

compressed = zlib::deflate(new_content)

path = ".git/objects/82/4aed035c0aa75d64c..."

File.open(path, 'w') {|f| f.write(compressed)}
```

object database

```
new_content = type + ' ' + content.size + \0
                + content
```

4 types of git objects

object database

blob

object database

blob

tree

object database

blob

tree

commit

object database

blob

tree

commit

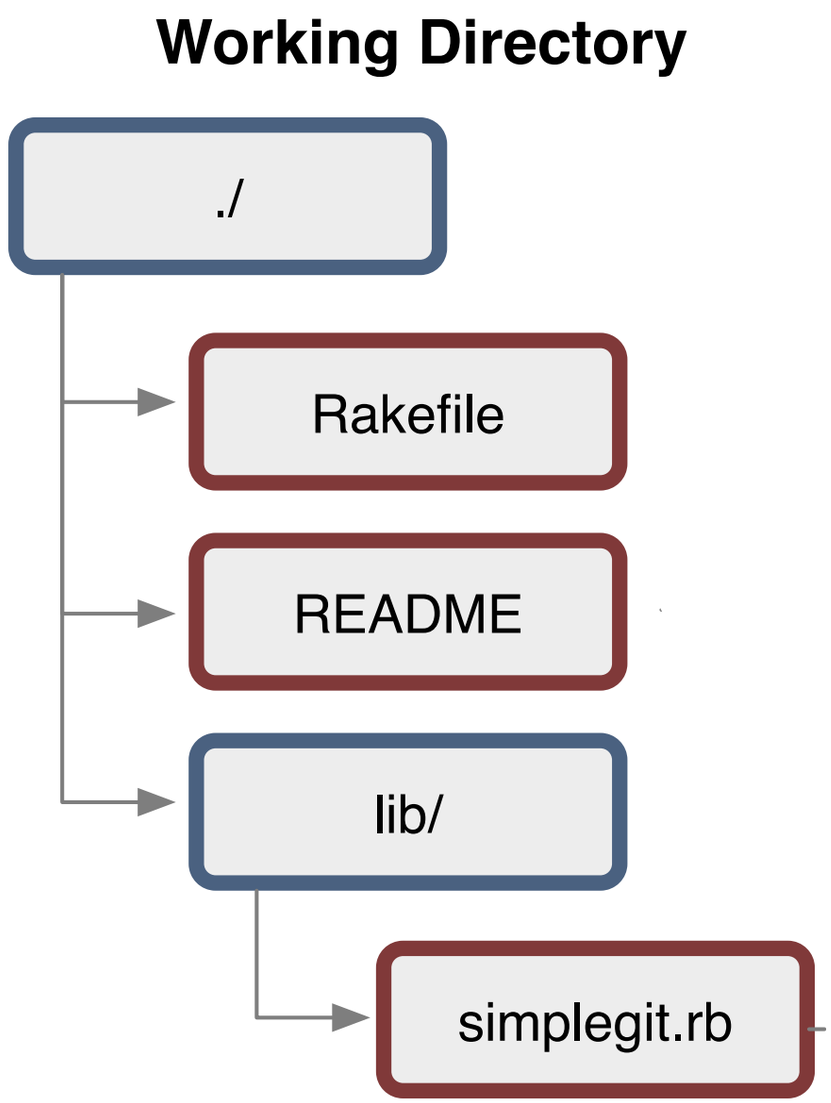
tag

object database

blob

object database

blob



object database

blob : a906cb

zlib::deflate

```
blob [content size]\0
```

```
SimpleGit Ruby Library
======================

This library calls git commands and
returns the output.

Author : Scott Chacon
```

object database

blob : a906cb

zlib::deflate

content

```
blob [content size]\0

SimpleGit Ruby Library
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returns the output.

Author : Scott Chacon
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object database

blob : a906cb

zlib::deflate

header

```
blob [content size]\0
```

content

```
SimpleGit Ruby Library
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Author : Scott Chacon
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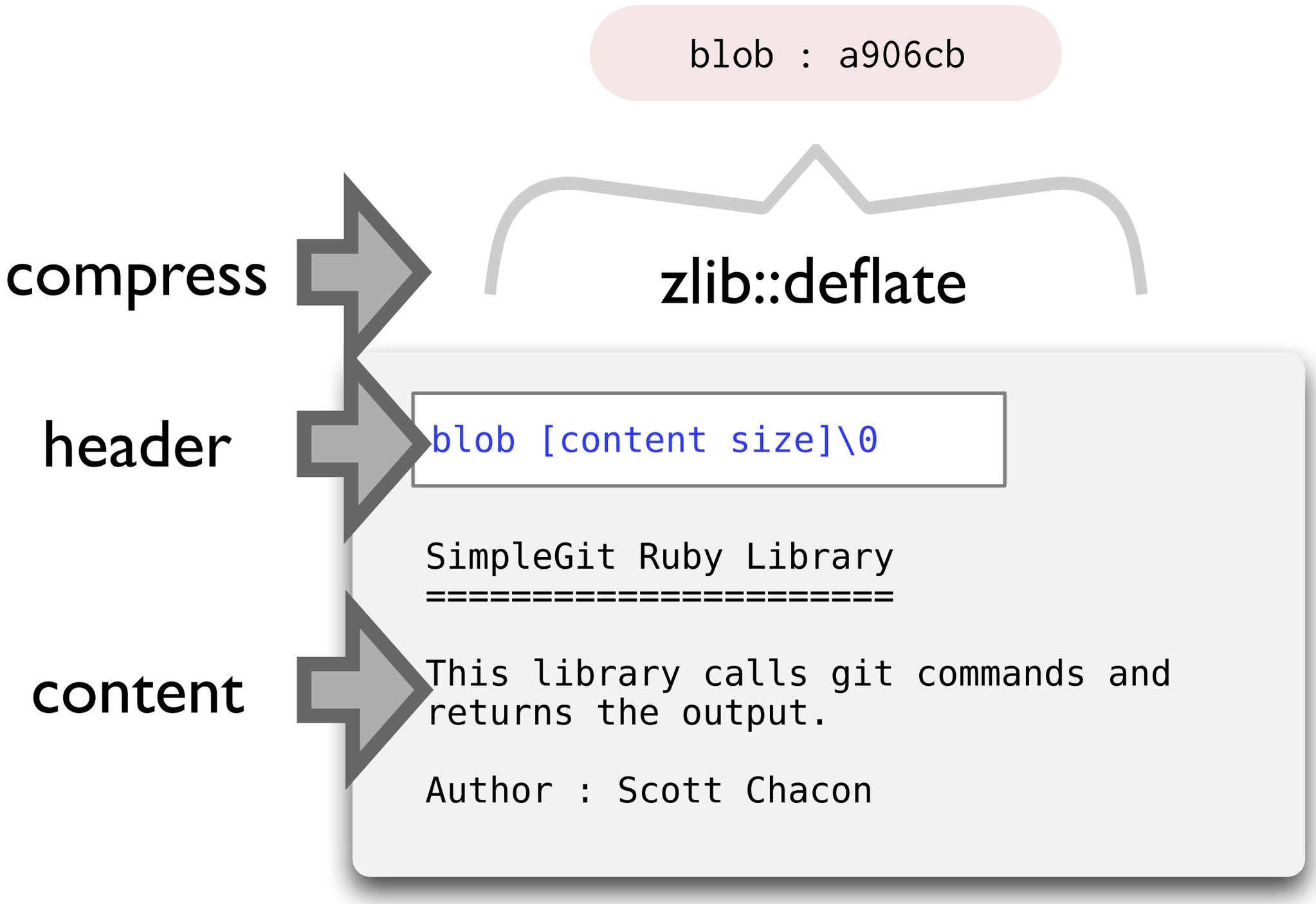
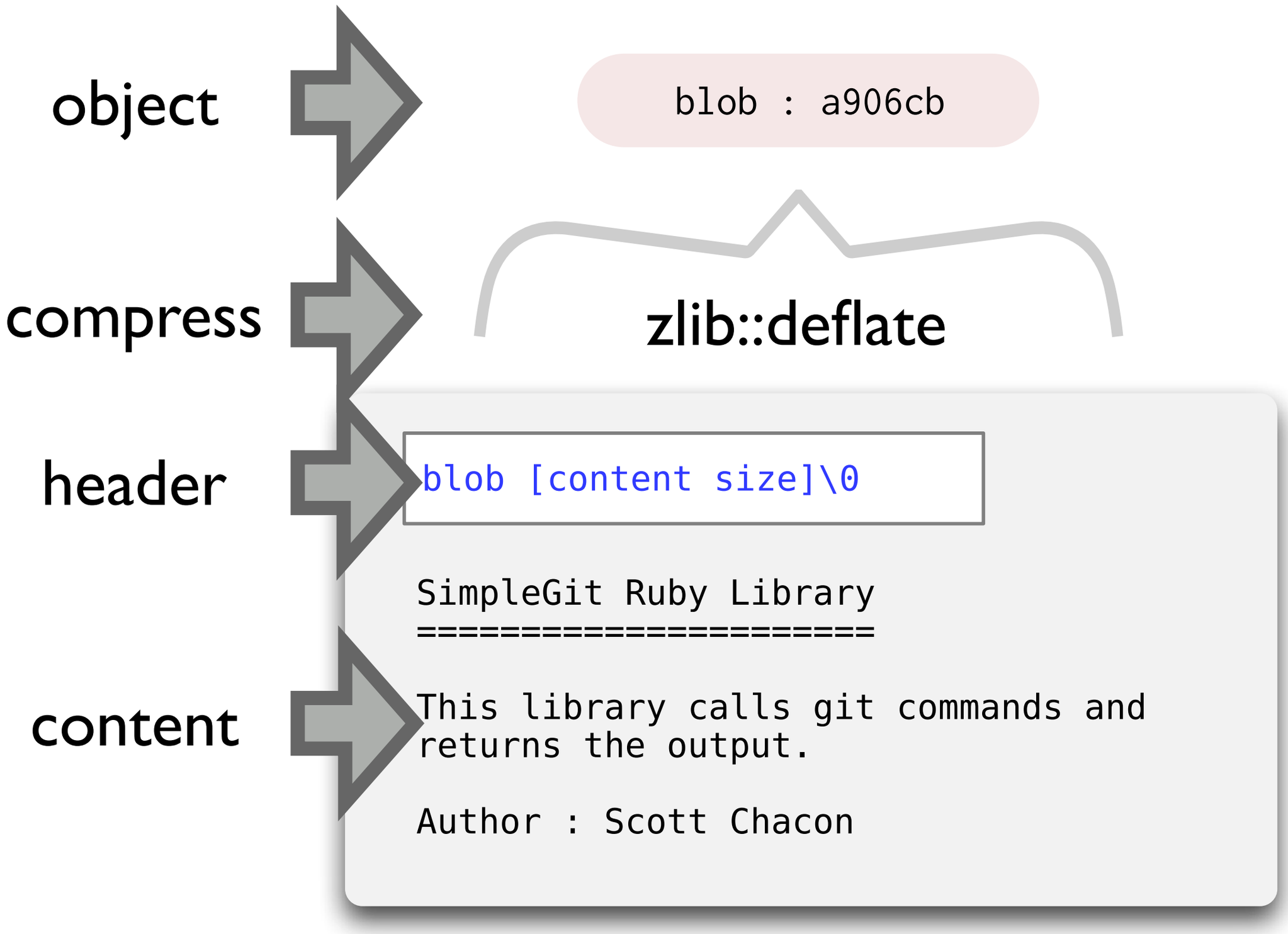
object database



object database



object database

blob

tree

commit

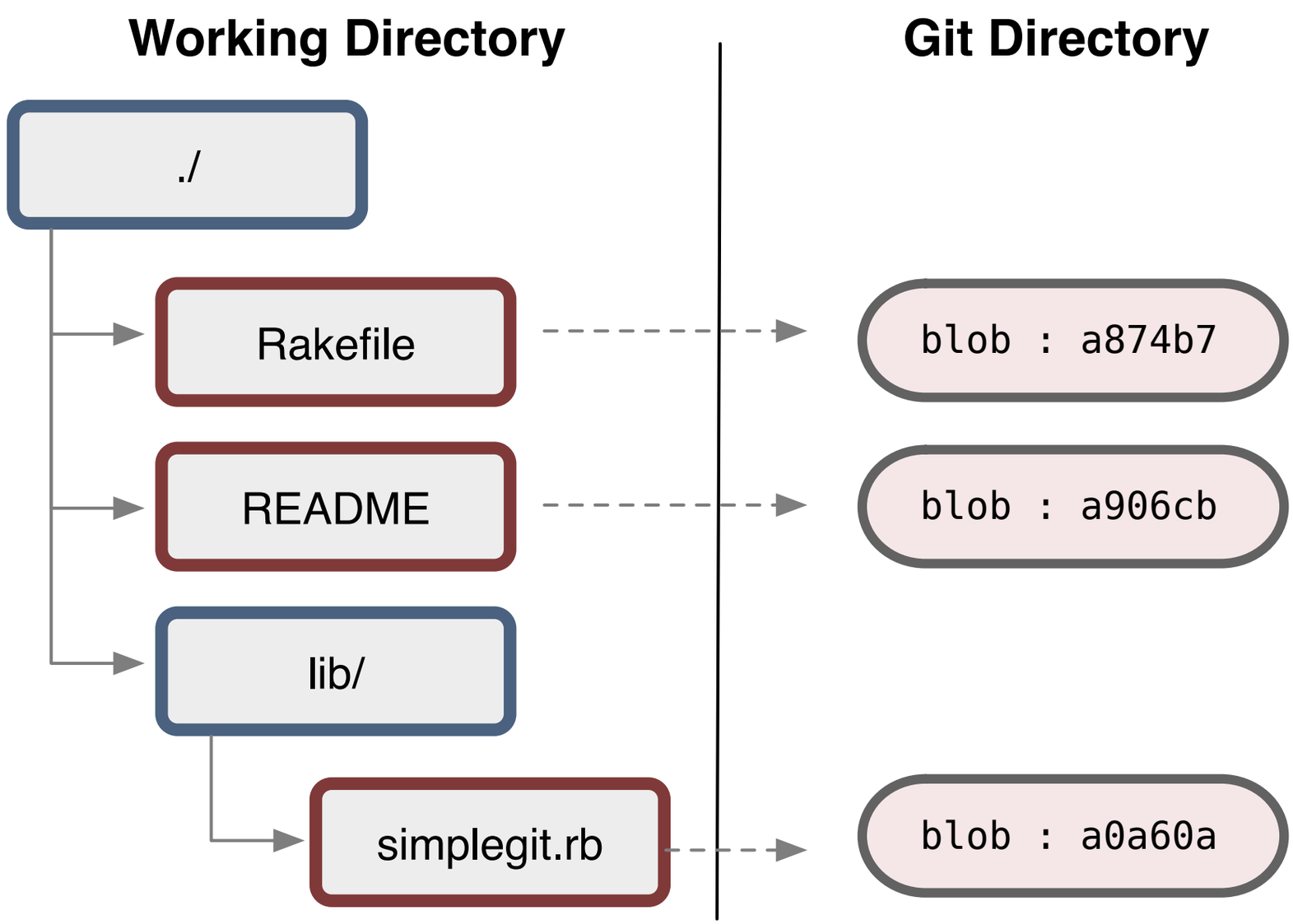
tag

object database

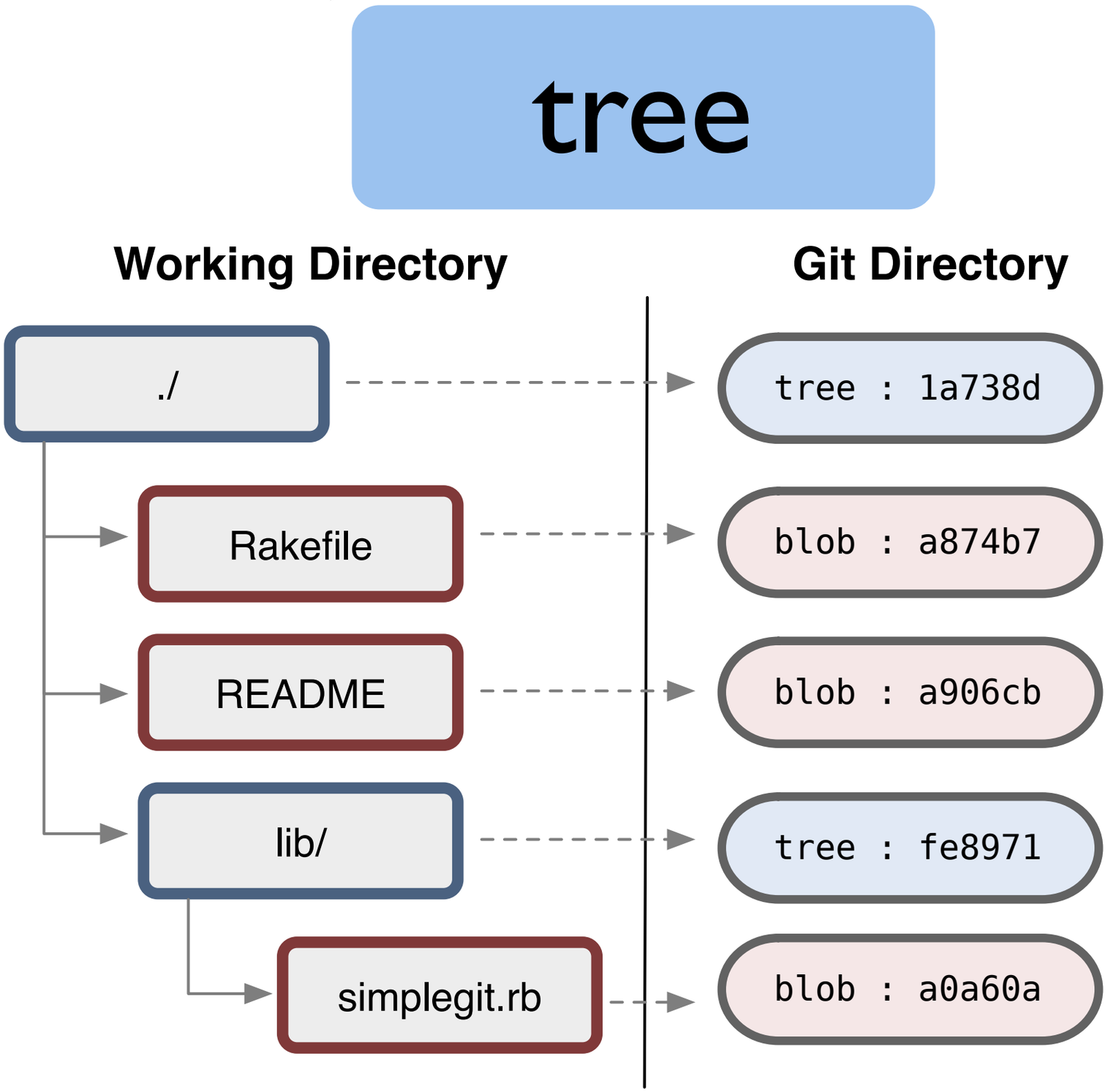
tree

object database

tree



object database



object database

```
tree : 1a738d
```

zlib::deflate

```
tree [content size]\0

100644 blob a906cb   README
100644 blob a874b7   Rakefile
040000 tree fe8971   lib
```

object database

```
tree : 1a738d
```

zlib::deflate

```
tree [content size]\0

100644 blob a906cb    README
100644 blob a874b7    Rakefile
040000 tree fe8971    lib
```

"inode" info

filename

object database

```
tree : 1a738d
```

zlib::deflate

```
tree [content size]\0

100644 blob a906cb    README
100644 blob a874b7    Rakefile
040000 tree fe8971    lib
```

mode type “block pointer”

object database

blob

tree

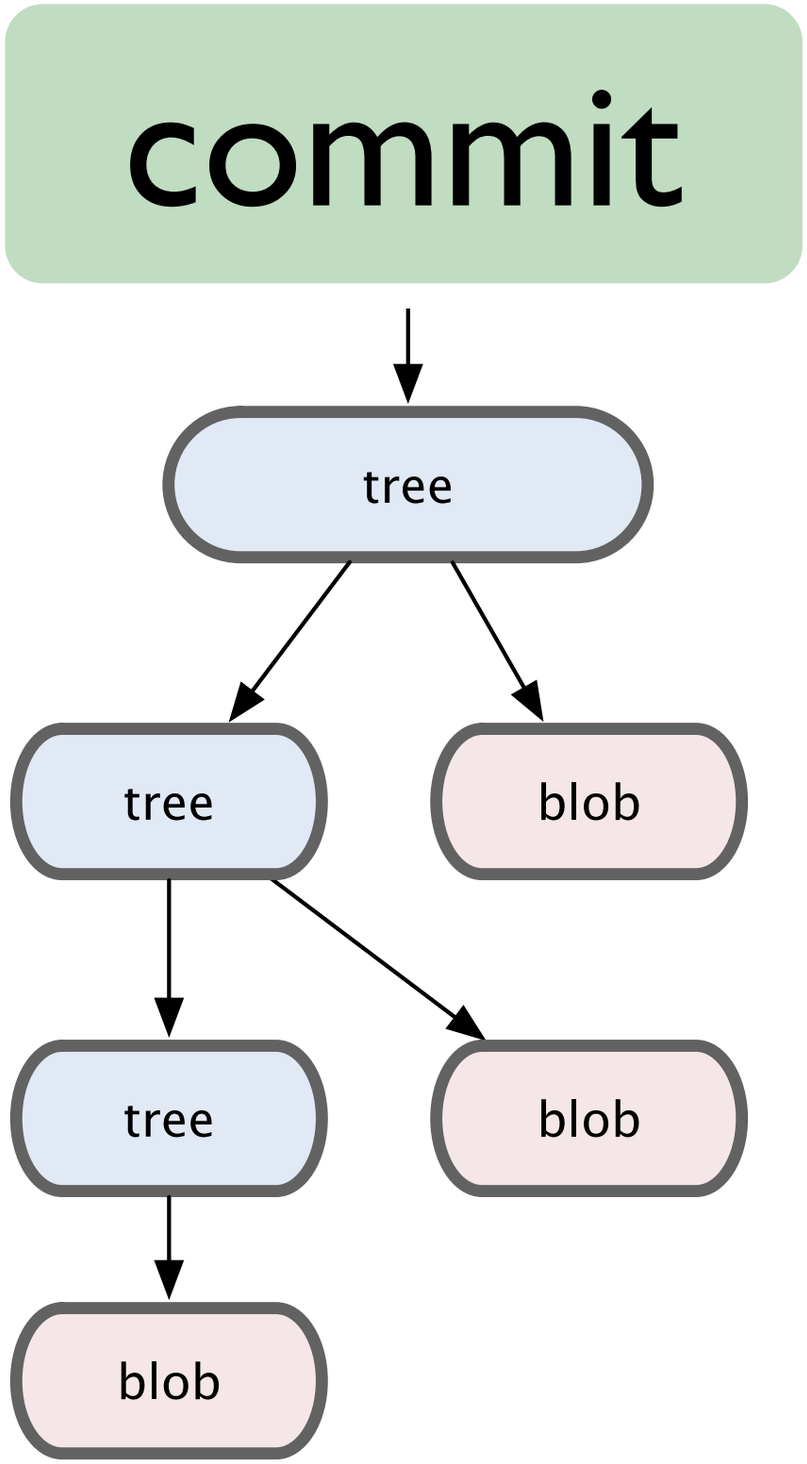
commit

tag

object database

commit

object database



object database

commit : e1b3ec

zlib::deflate

```
commit [content size]\0

tree e1b3ec
parent a11bef
author Scott Chacon
    <schacon@gmail.com> 1205624433
committer Scott Chacon
    <schacon@gmail.com> 1205624433

my second commit, which is better than
the first
```

object database

commit : e1b3ec

zlib::deflate

```
commit [content size]\0

tree e1b3ec
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author Scott Chacon
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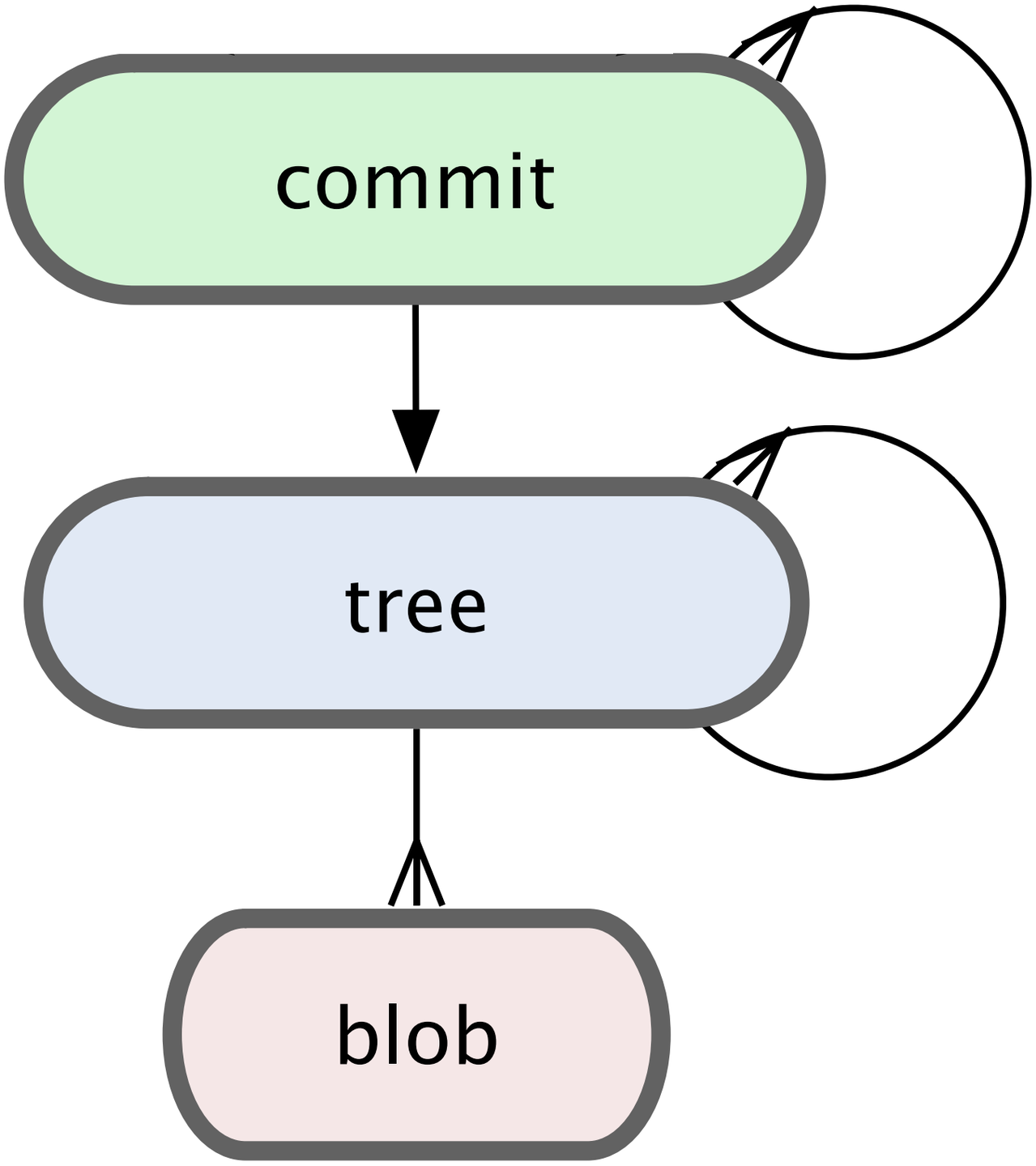


object database

blob

tree

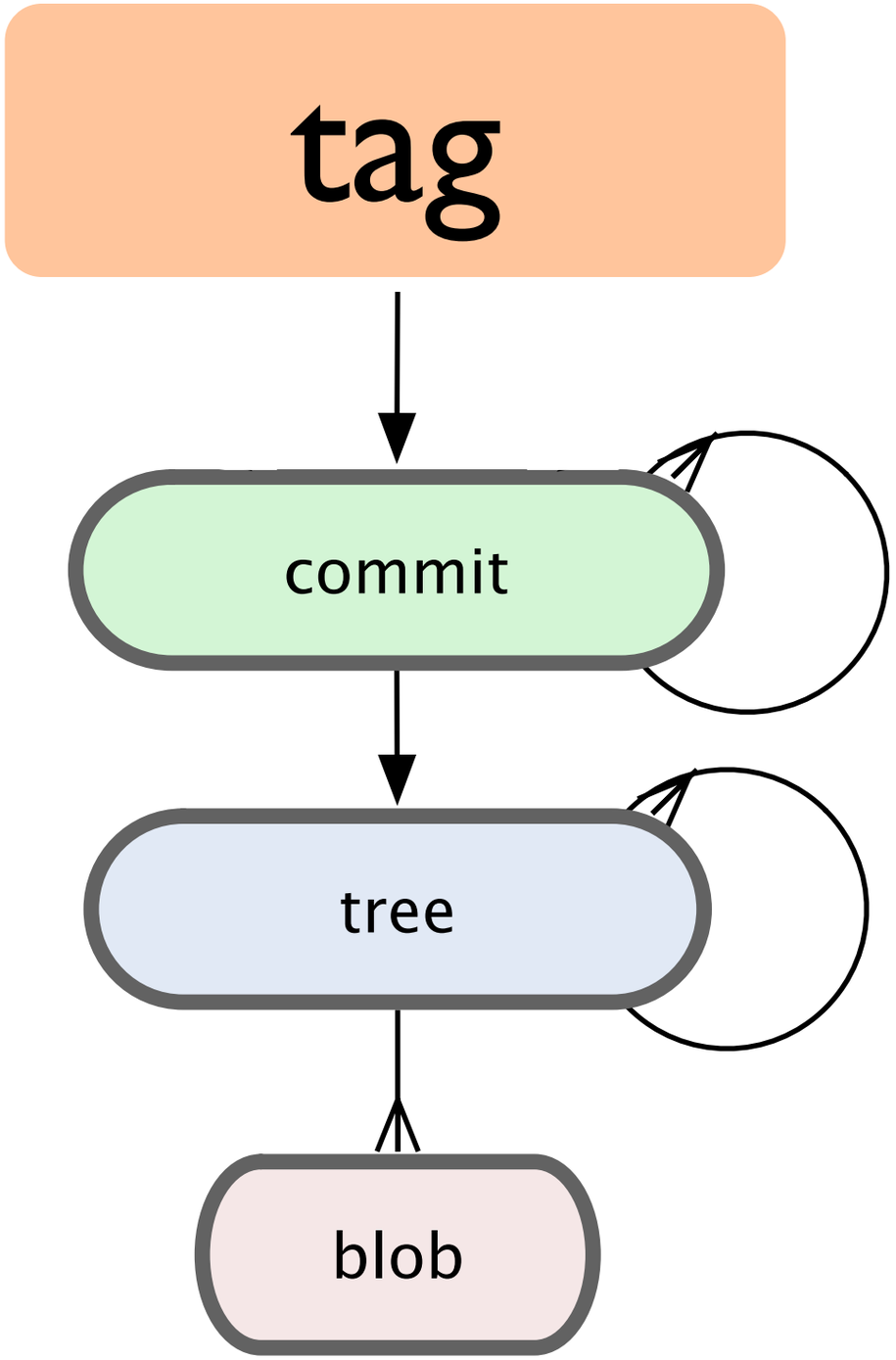
commit

tag

object database

tag

object database



object database

tag : 0c819c

zlib::deflate

```
tag [content size]\0

object 0576fa
type commit
tag v0.1
tagger Scott Chacon
         <schacon@gmail.com> 1205624655

this is my v0.1 tag
```

object database

tag : 0c819c

zlib::deflate

```
tag [content size]\0

object 0576fa
type commit
tag v0.1
tagger Scott Chacon
         <schacon@gmail.com> 1205624655

this is my v0.1 tag
```

object database

tag : 0c819c

zlib::deflate

```
tag [content size]\0

object 0576fa
type commit
tag v0.1
tagger Scott Chacon
         <schacon@gmail.com> 1205624655

this is my v0.1 tag
```

object database

tag : 0c819c

zlib::deflate

```
tag [content size]\0

object 0576fa
type commit
tag v0.1
tagger Scott Chacon
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this is my v0.1 tag
```

object database

tag : 0c819c

zlib::deflate

```
tag [content size]\0

object 0576fa
type commit
tag v0.1
tagger Scott Chacon
         <schacon@gmail.com> 1205624655

this is my v0.1 tag
```

object database

blob

tree

commit

tag

object database

blob

tree

immutable

commit

tag

object database

blob

tree

immutable

commit

tag

can’t be muted

Git Directory

config file

hooks

index

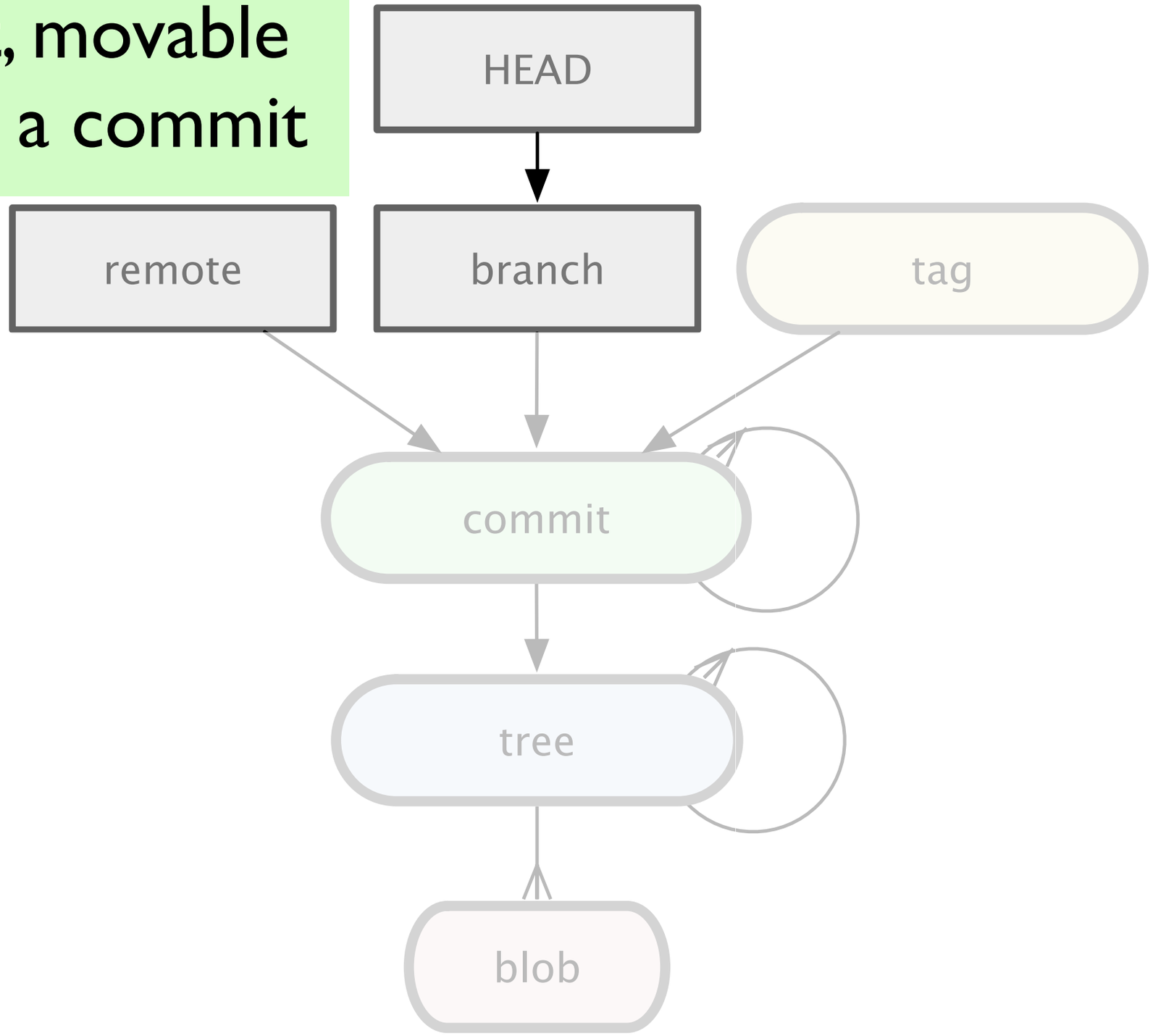
object database

references

references

references

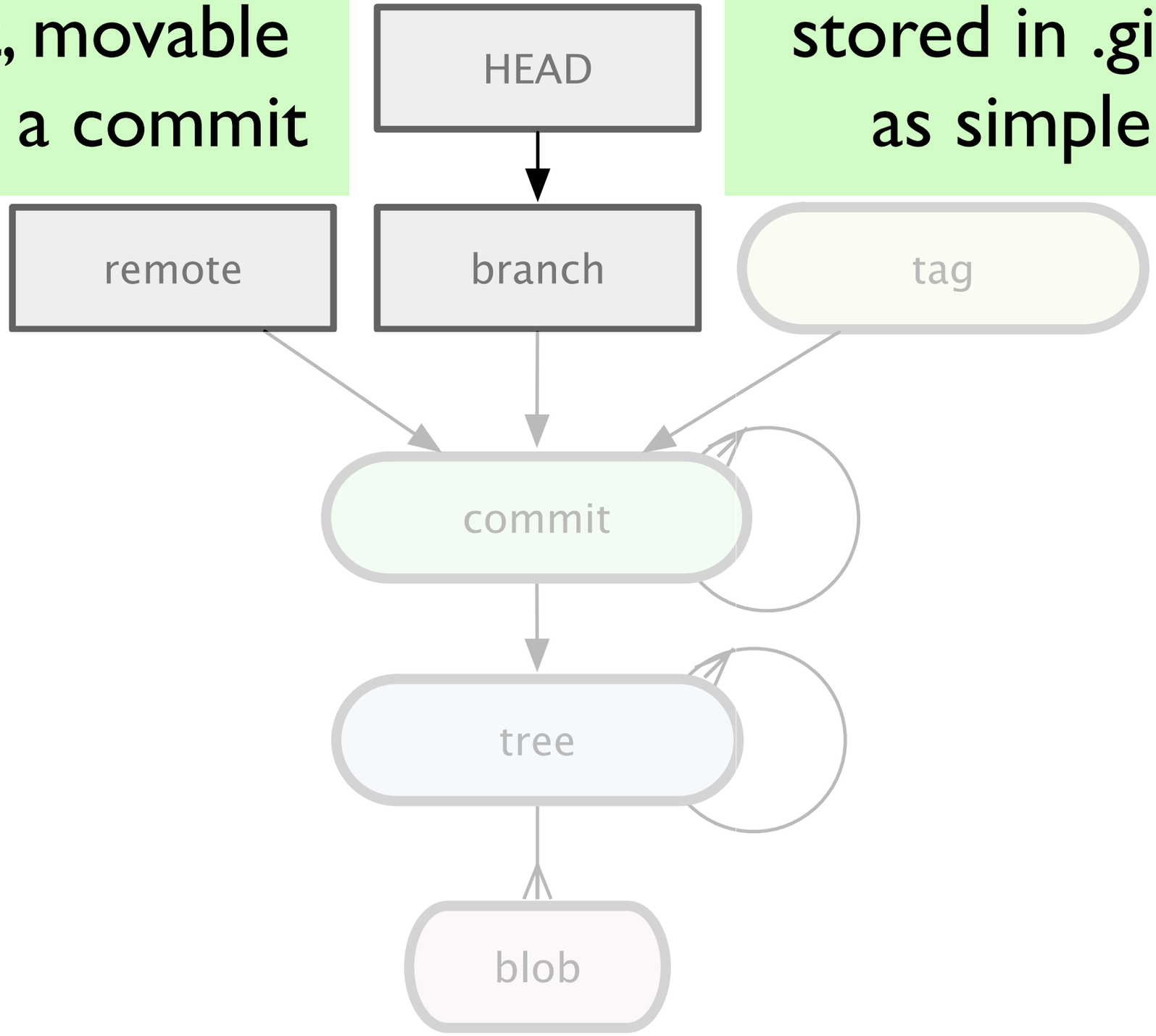
lightweight, movable pointers to a commit



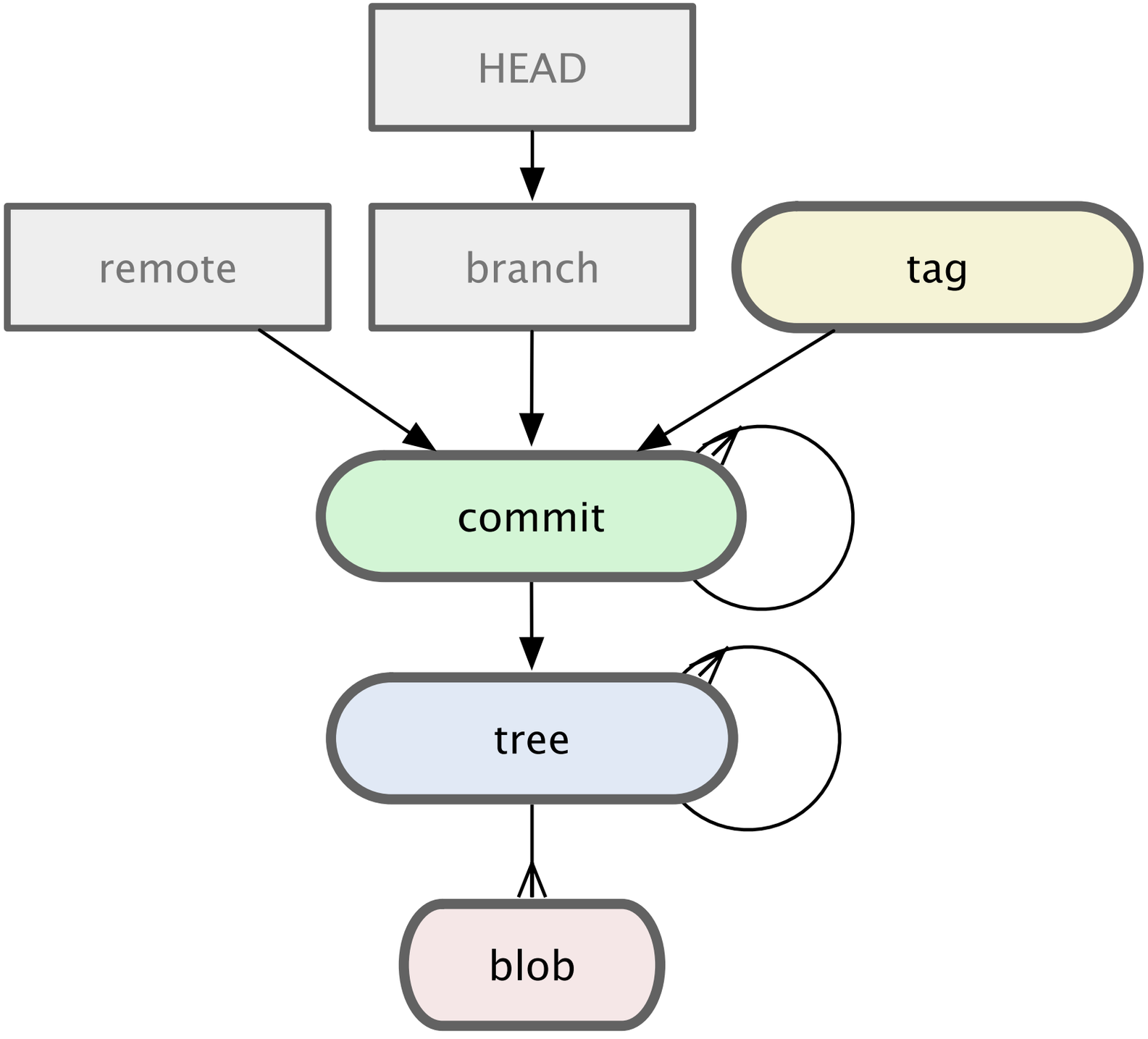
references

lightweight, movable pointers to a commit

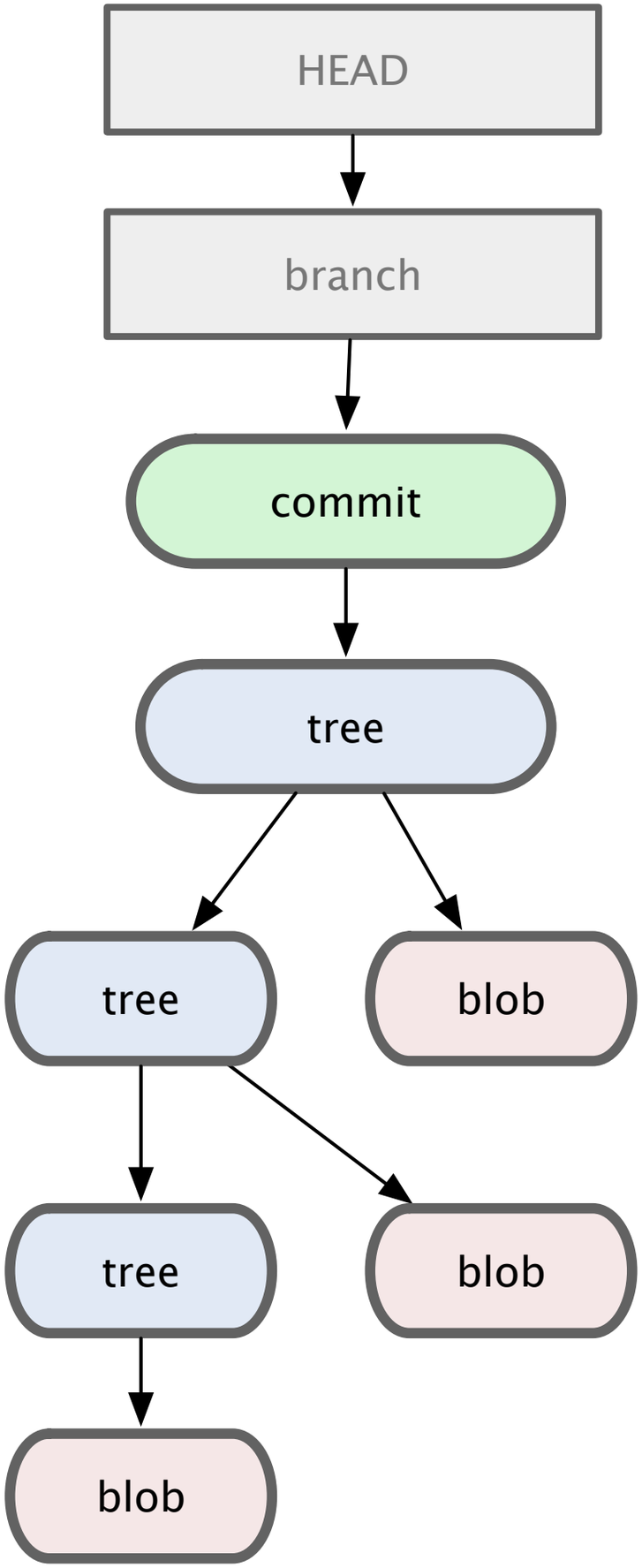
stored in .git/refs/* as simple files

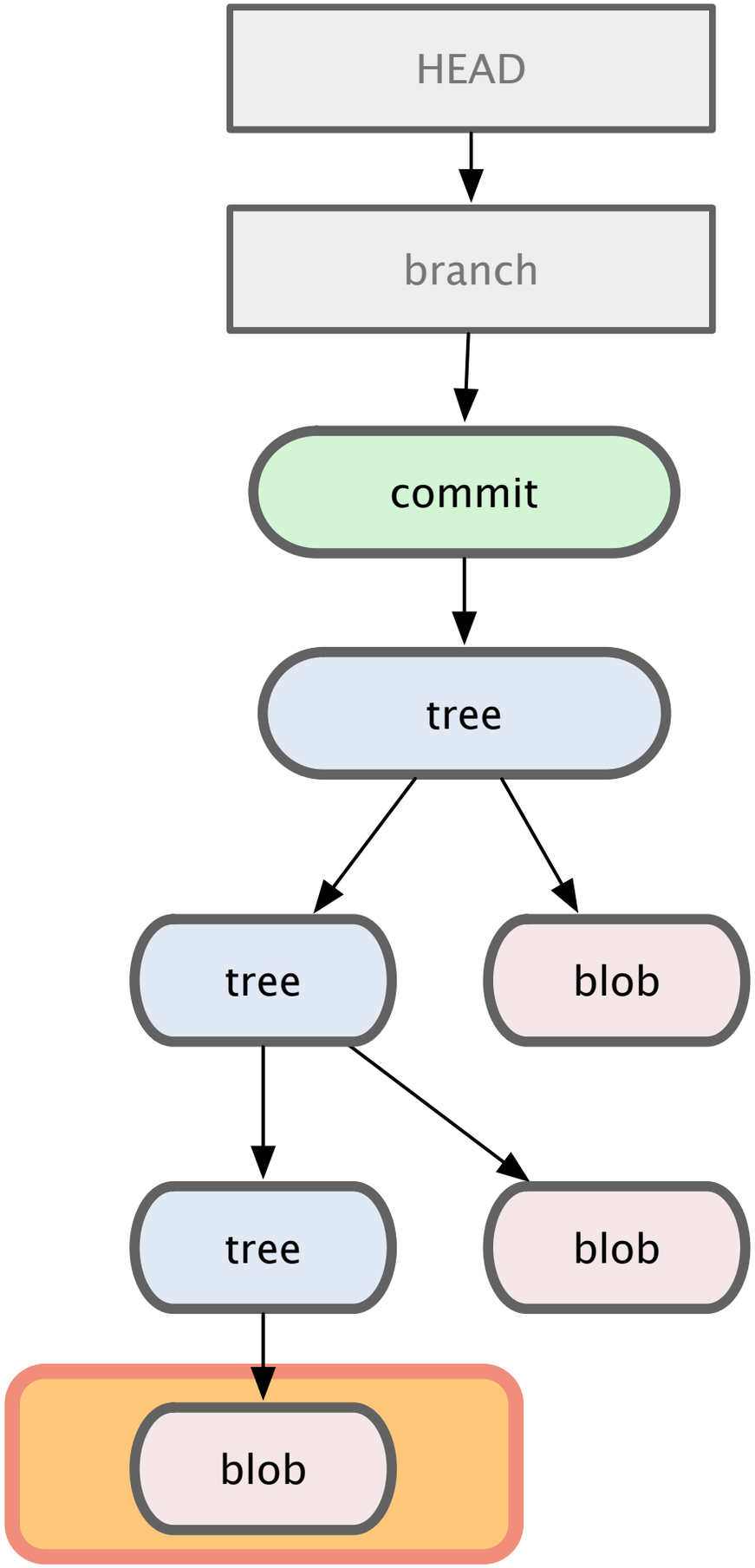


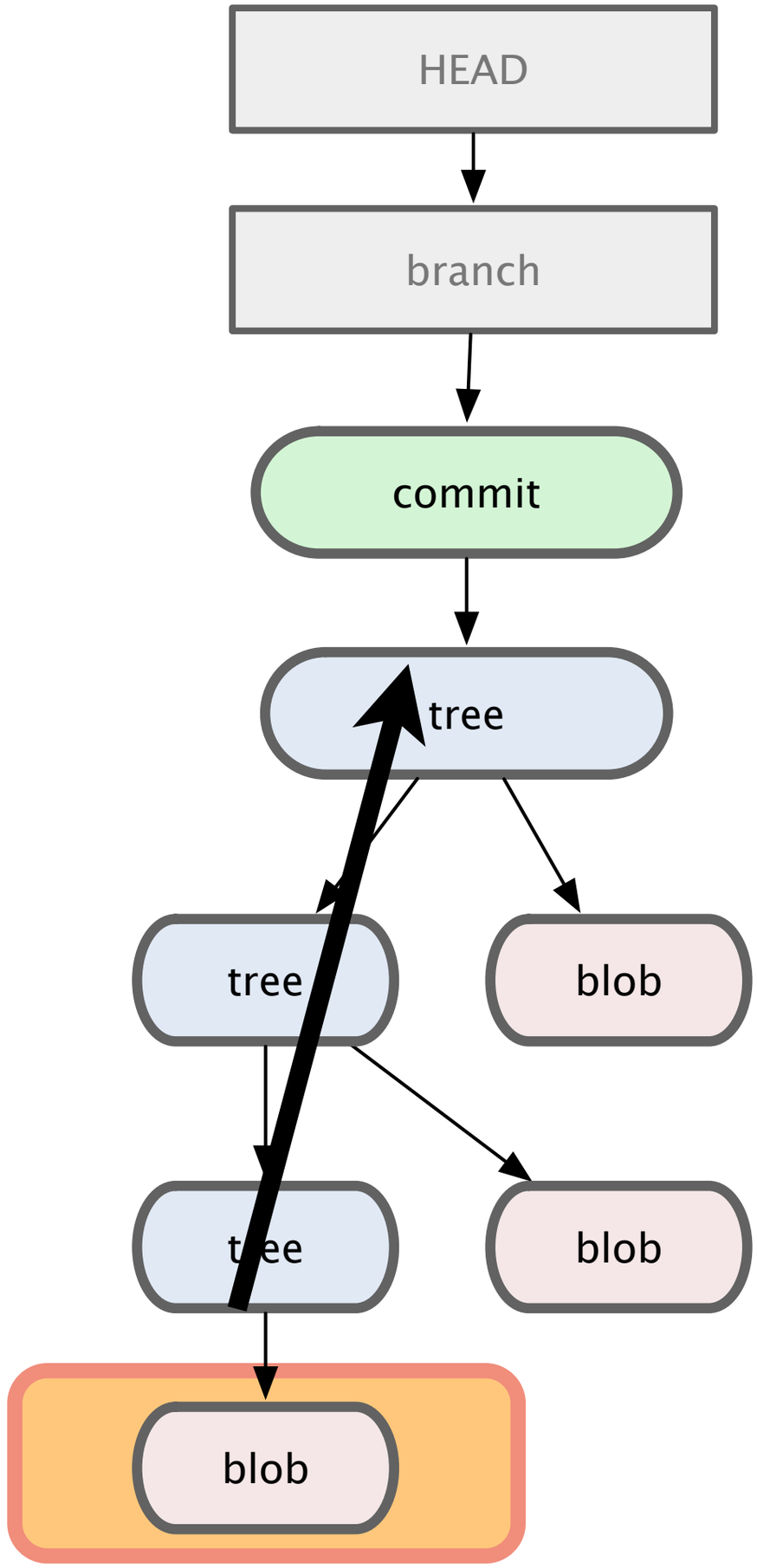
references

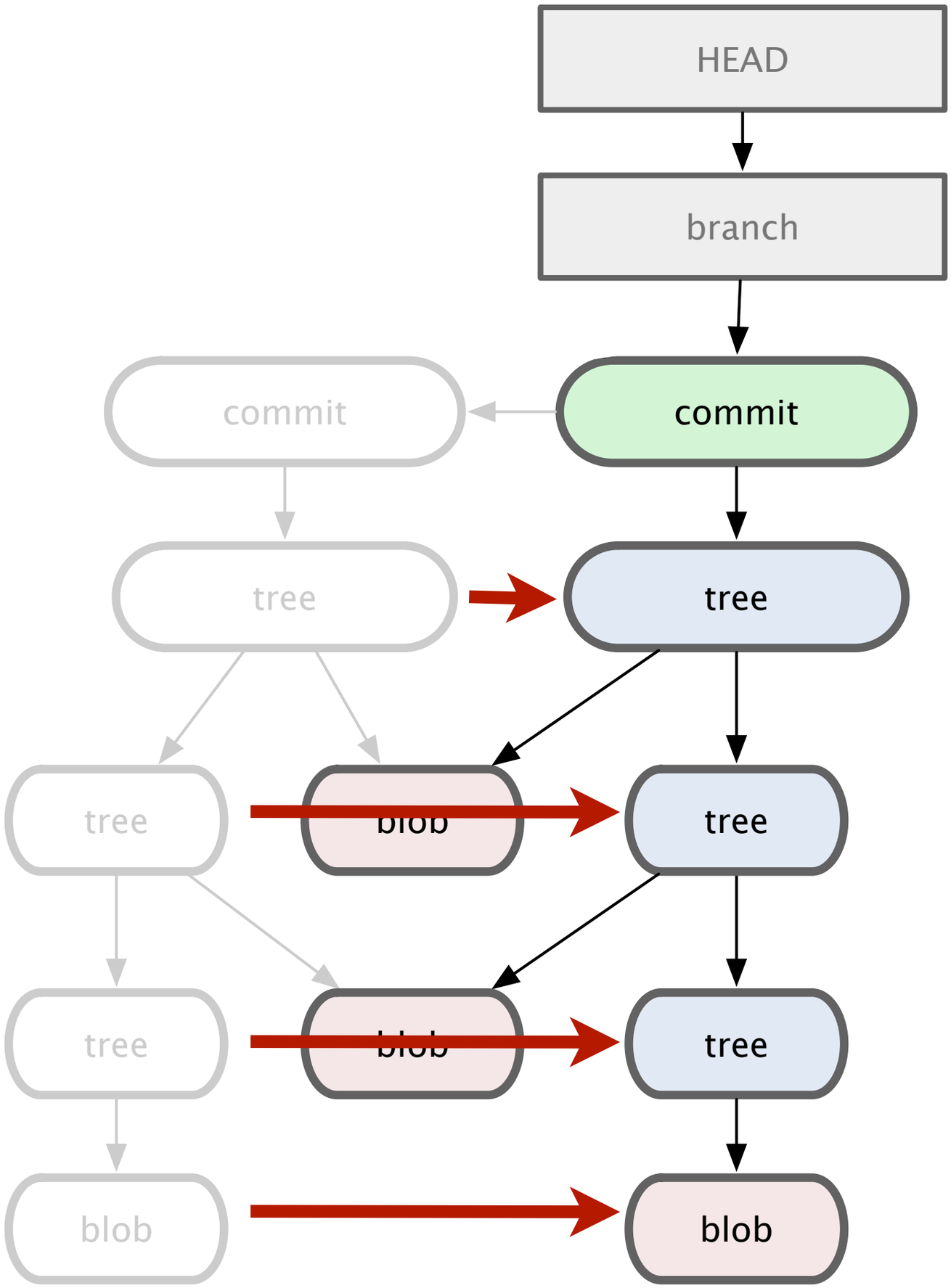


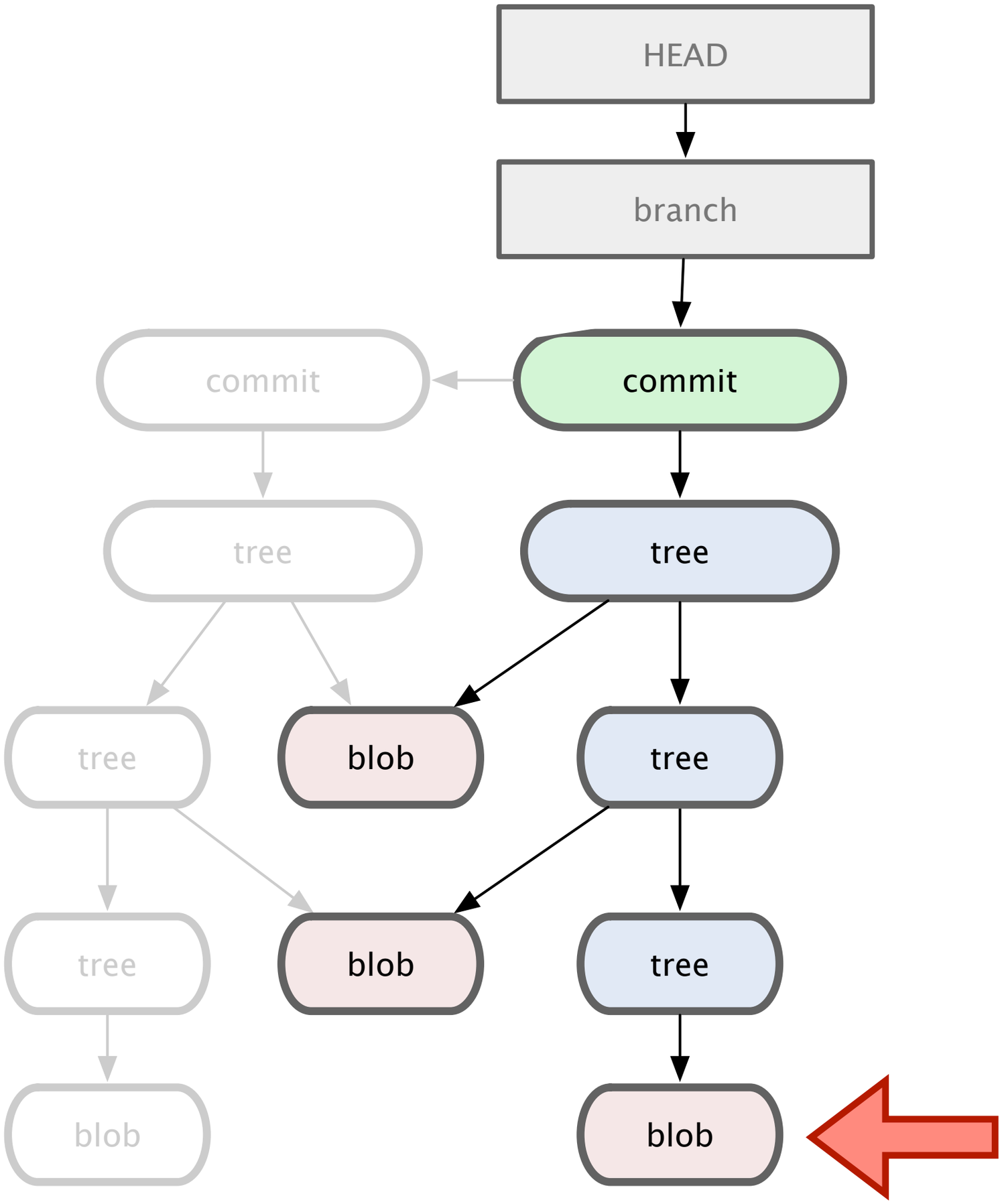
the object model

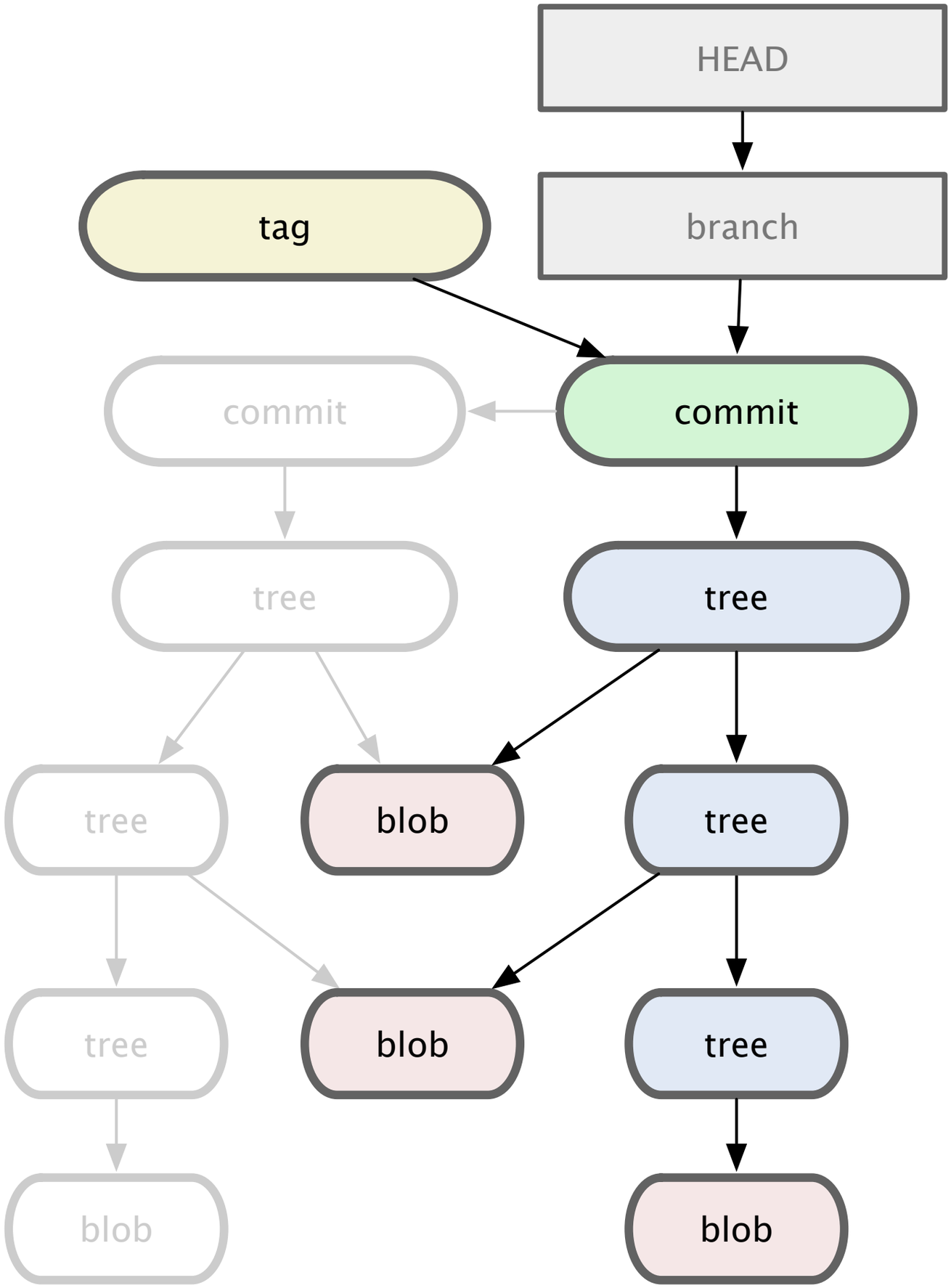

HEAD
branch
commit
tree
tree
blob
tree
blob
blob

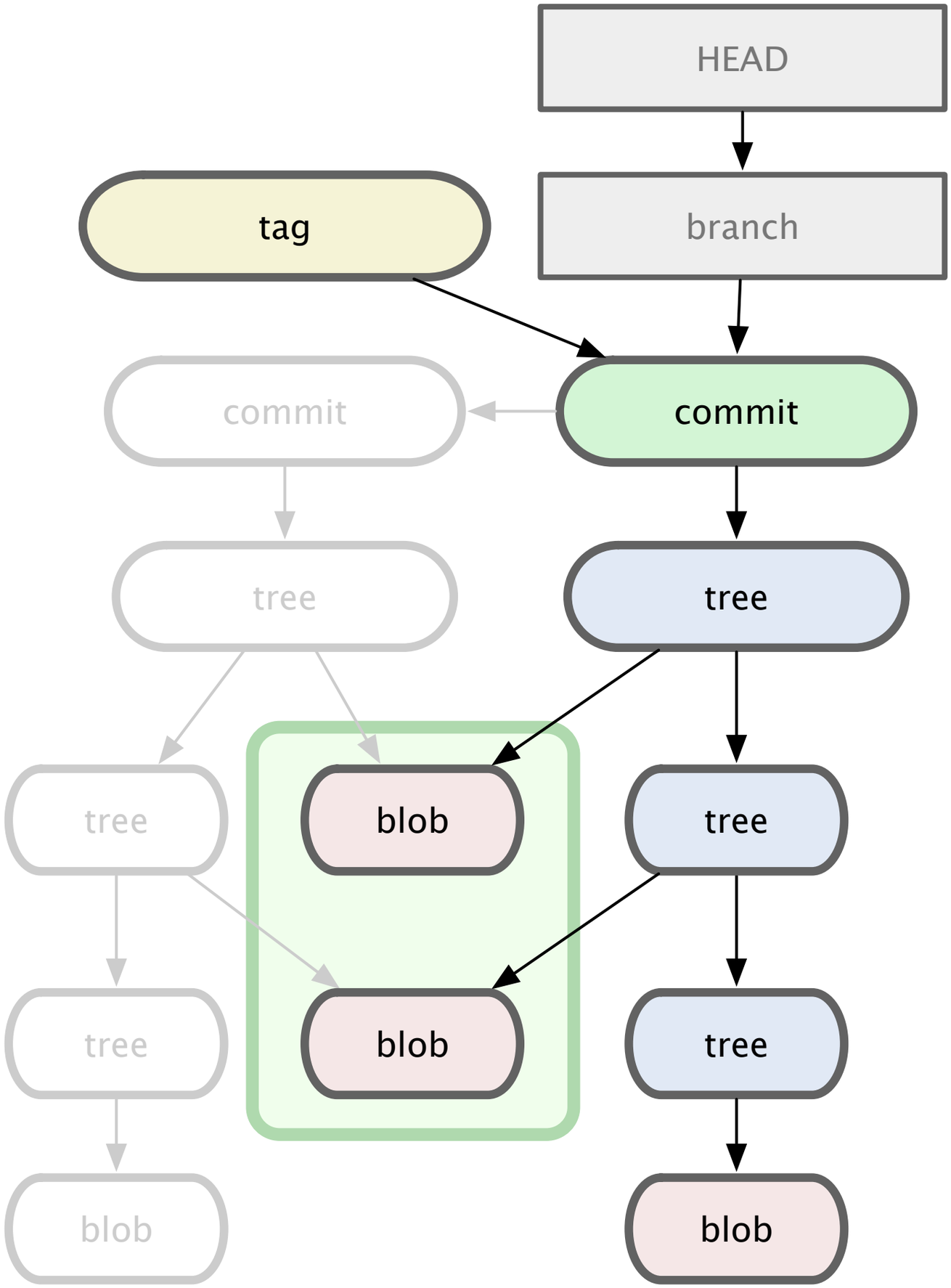

HEAD
branch
commit
tree
tree
blob
tree
blob
blob

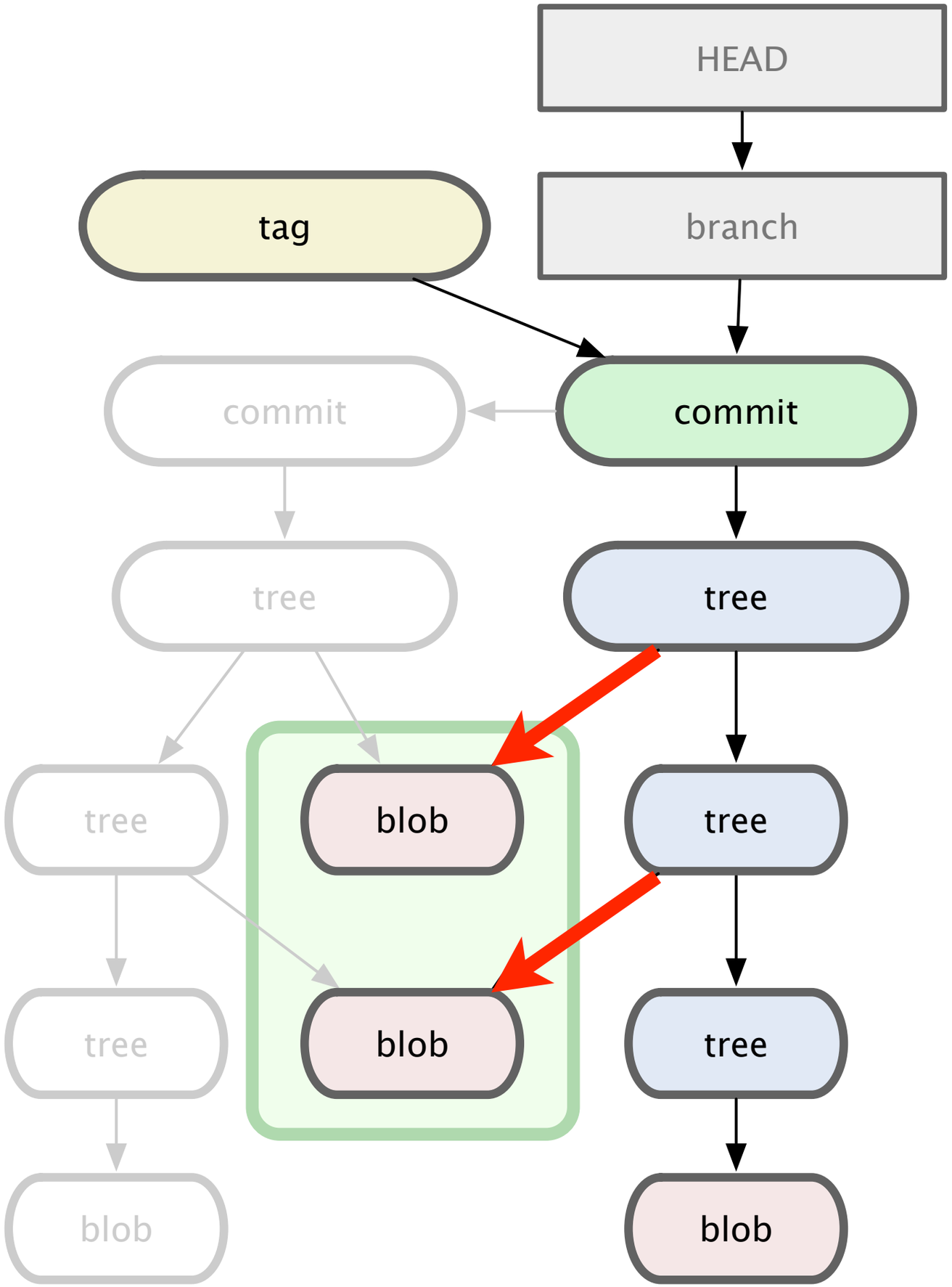

HEAD
branch
commit
tree
tree
blob
tree
blob
blob

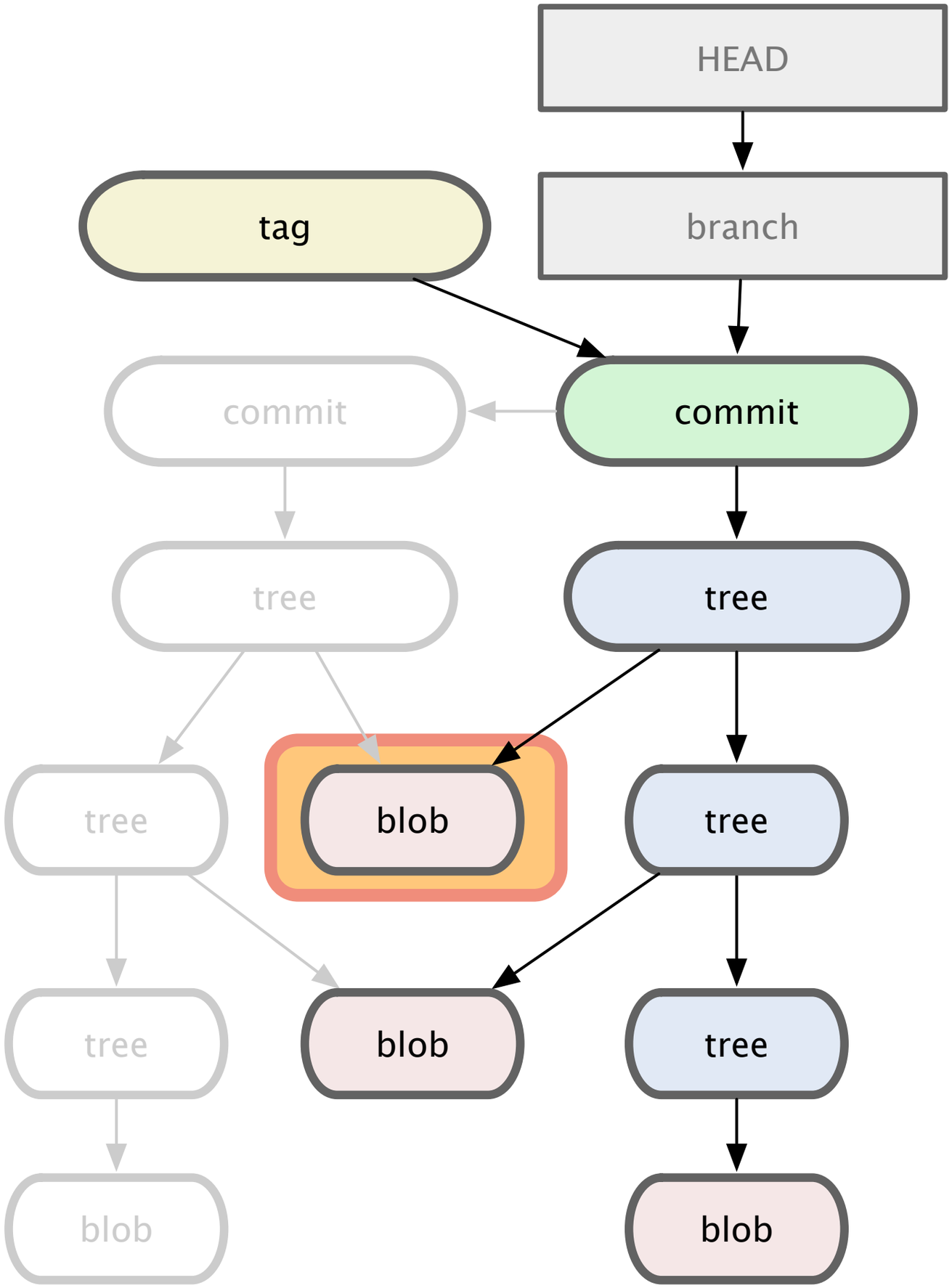

HEAD
branch
commit
commit
tree
tree
tree
blob
tree
tree
blob
tree
blob
blob

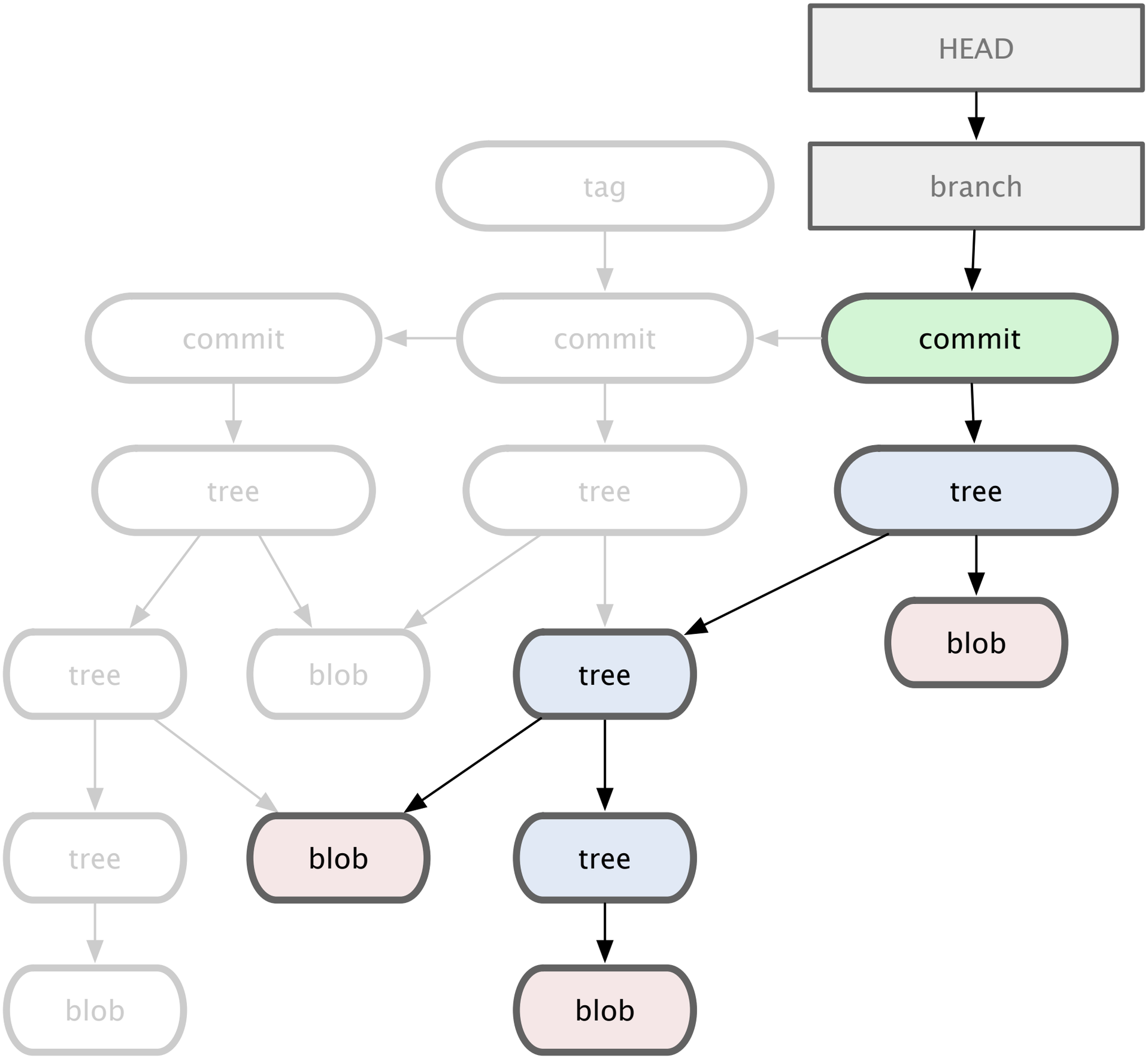

HEAD
branch
commit
commit
tree
tree
tree
blob
tree
tree
blob
tree
blob
blob

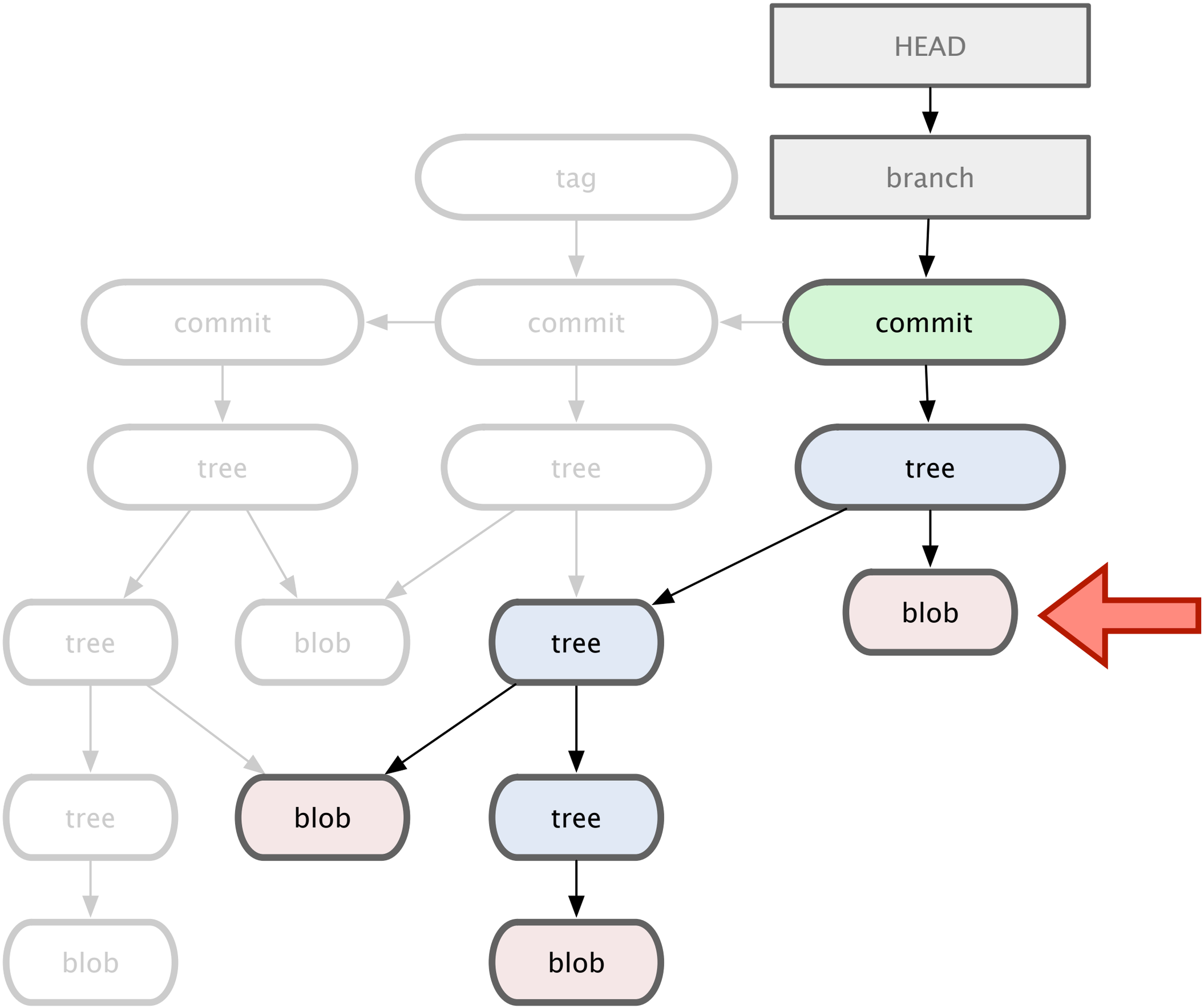

HEAD
tag
branch
commit
commit
tree
tree
tree
blob
tree
tree
blob
tree
blob
blob

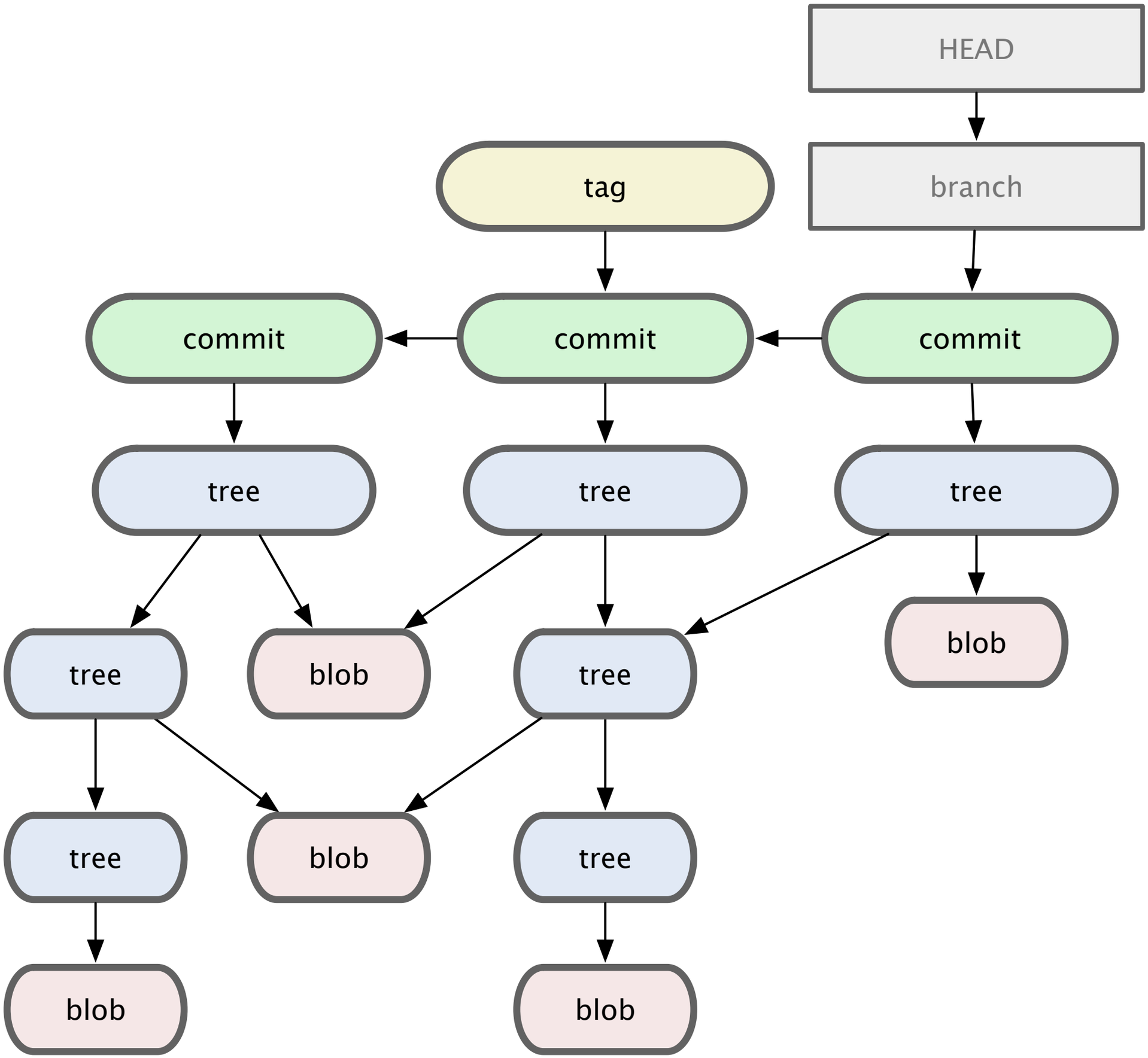

HEAD
tag
branch
commit
commit
tree
tree
tree
blob
tree
tree
blob
tree
blob


HEAD
tag
branch
commit
commit
tree
tree
tree
blob
tree
tree
blob
tree
blob


HEAD
tag
branch
commit
commit
tree
tree
tree
blob
tree
tree
blob
tree
blob
blob


HEAD
branch
tag
commit
commit
commit
tree
tree
tree
tree
blob
tree
blob
tree
blob
tree
blob


HEAD
branch
tag
commit
commit
commit
tree
tree
tree
tree
blob
tree
blob
tree
blob
tree
blob


HEAD
branch
tag
commit
commit
commit
tree
tree
tree
tree
blob
tree
blob
tree
blob
tree
blob
blob

1

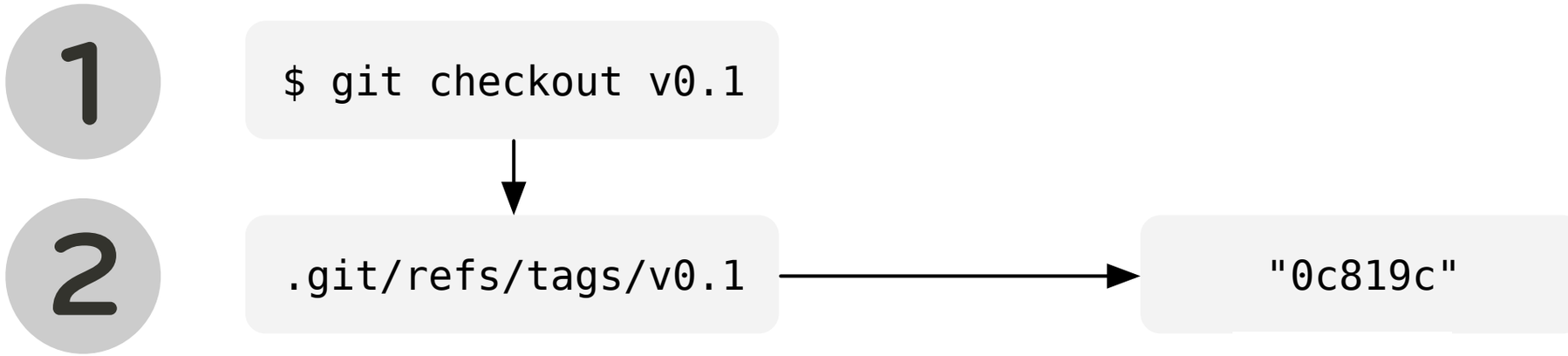
```
$ git checkout v0.1
```

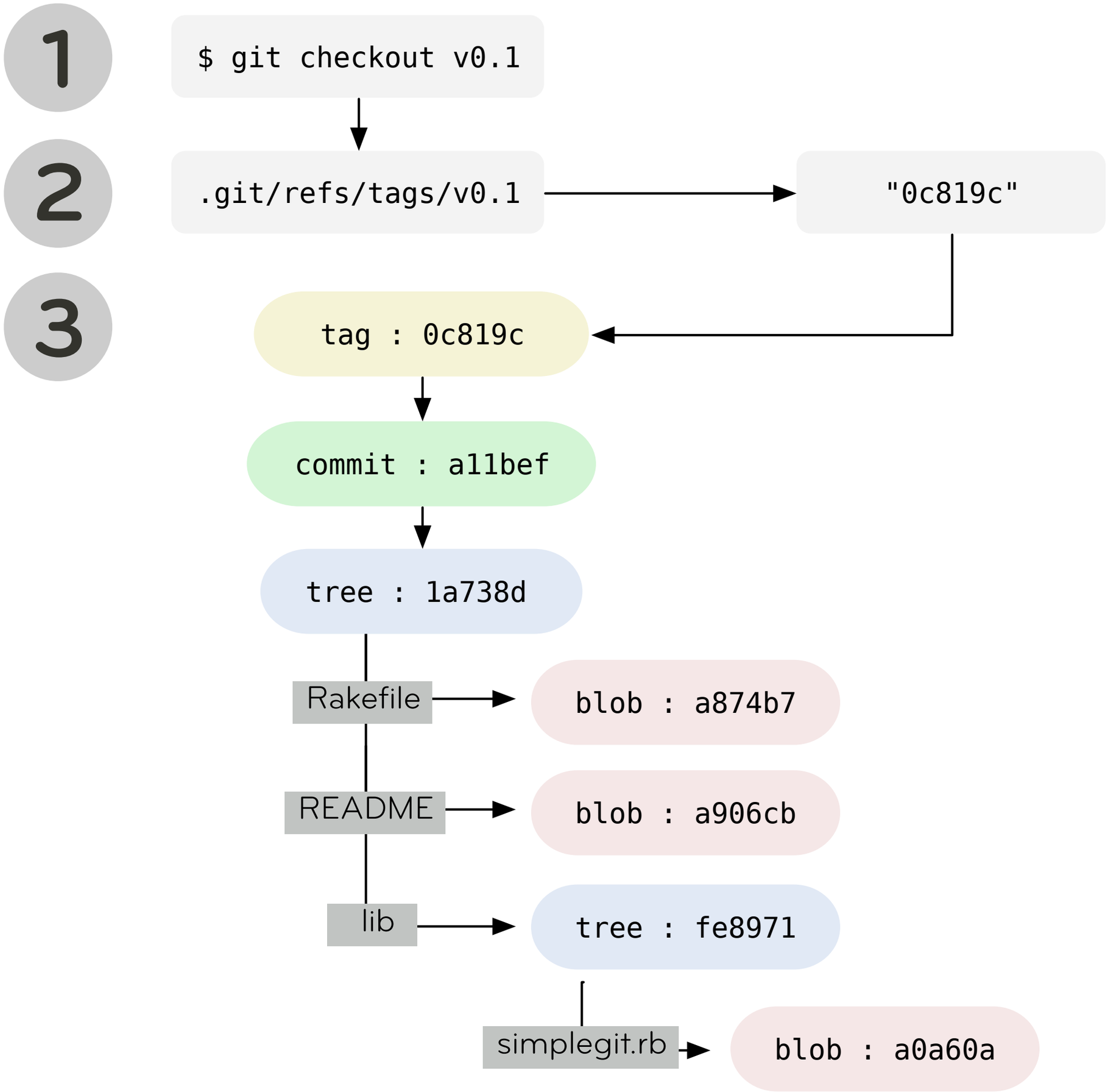
1

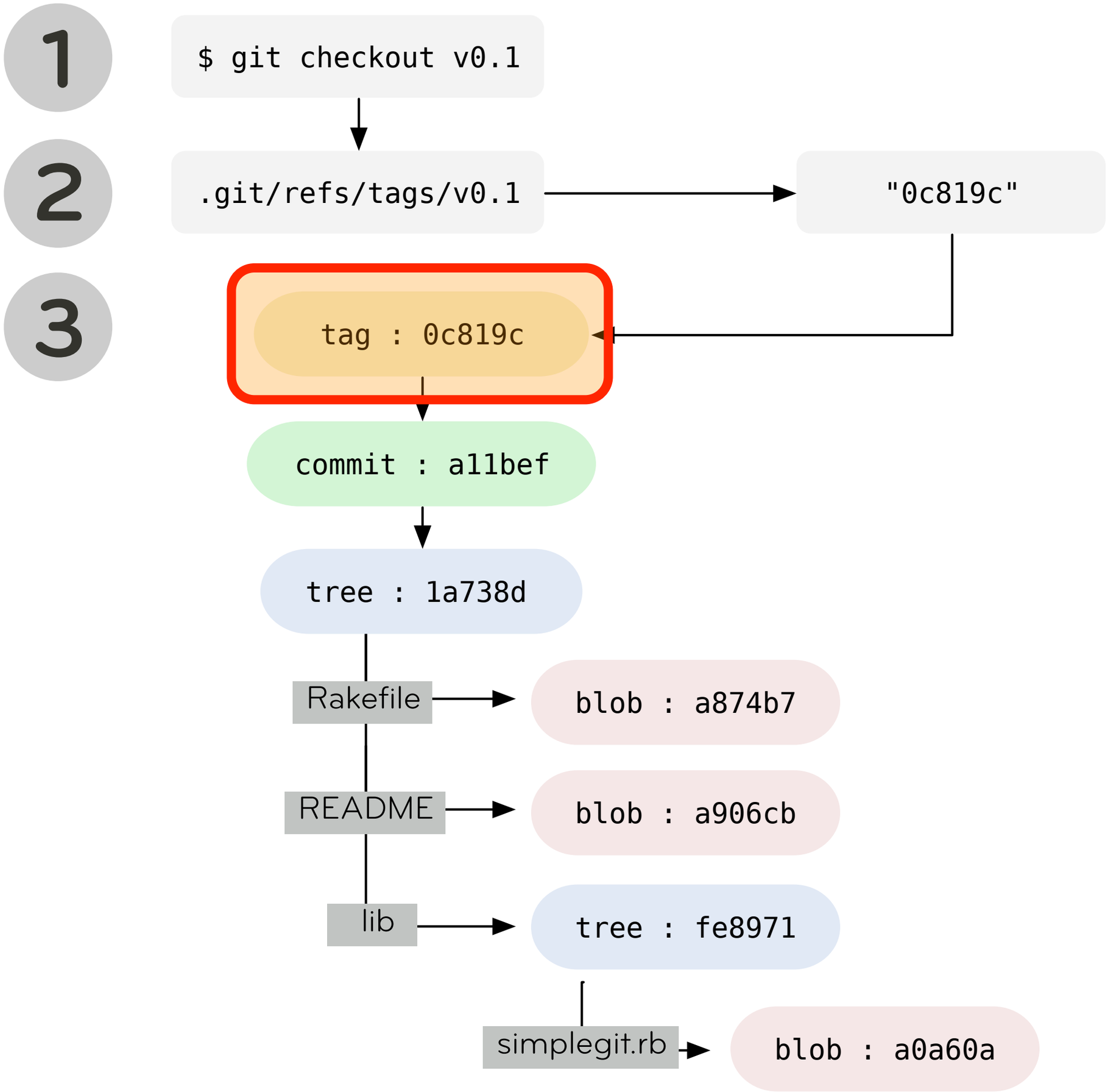
```
$ git checkout v0.1
```

2

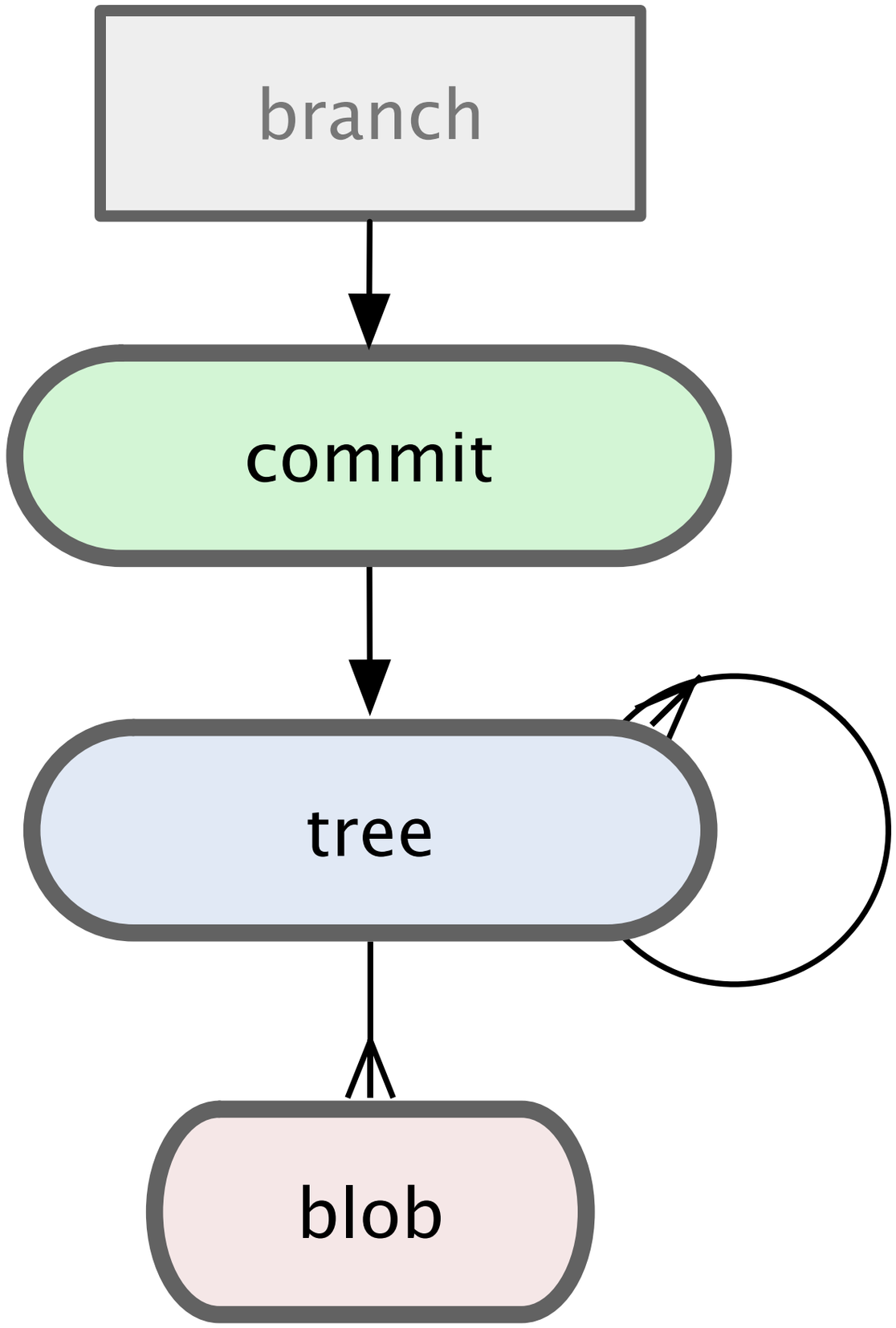
```
.git/refs/tags/v0.1
```


1
$ git checkout v0.1
2
.git/refs/tags/v0.1
"0c819c"

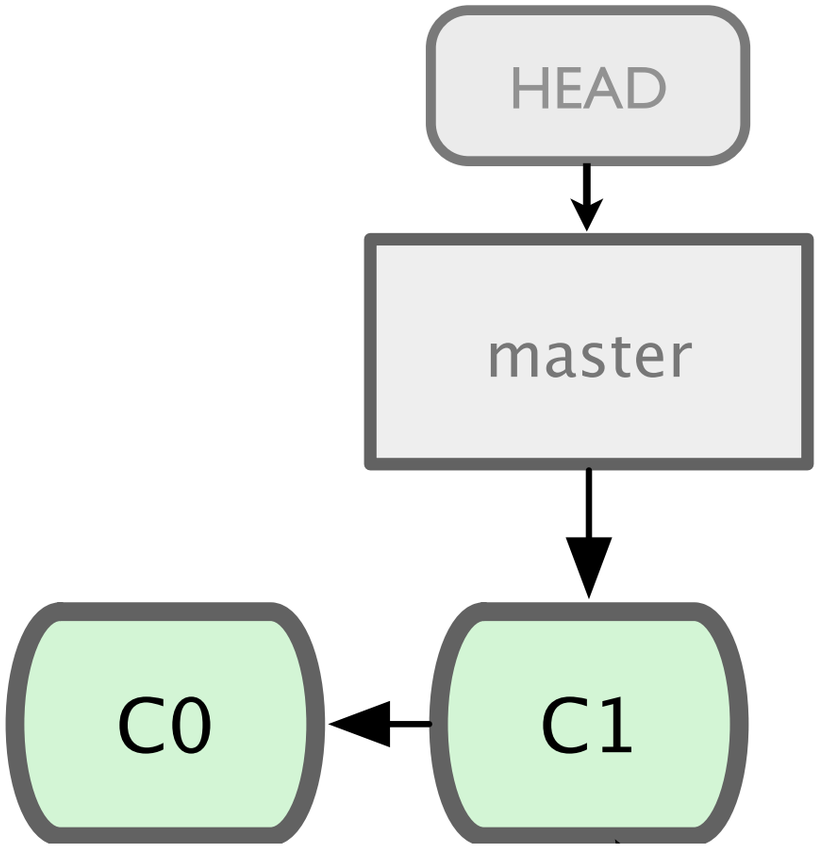

1
$ git checkout v0.1
2
.git/refs/tags/v0.1
"0c819c"
3
tag : 0c819c
commit : a11bef
tree : 1a738d
Rakefile
blob : a874b7
README
blob : a906cb
lib
tree : fe8971
simplegit.rb
blob : a0a60a

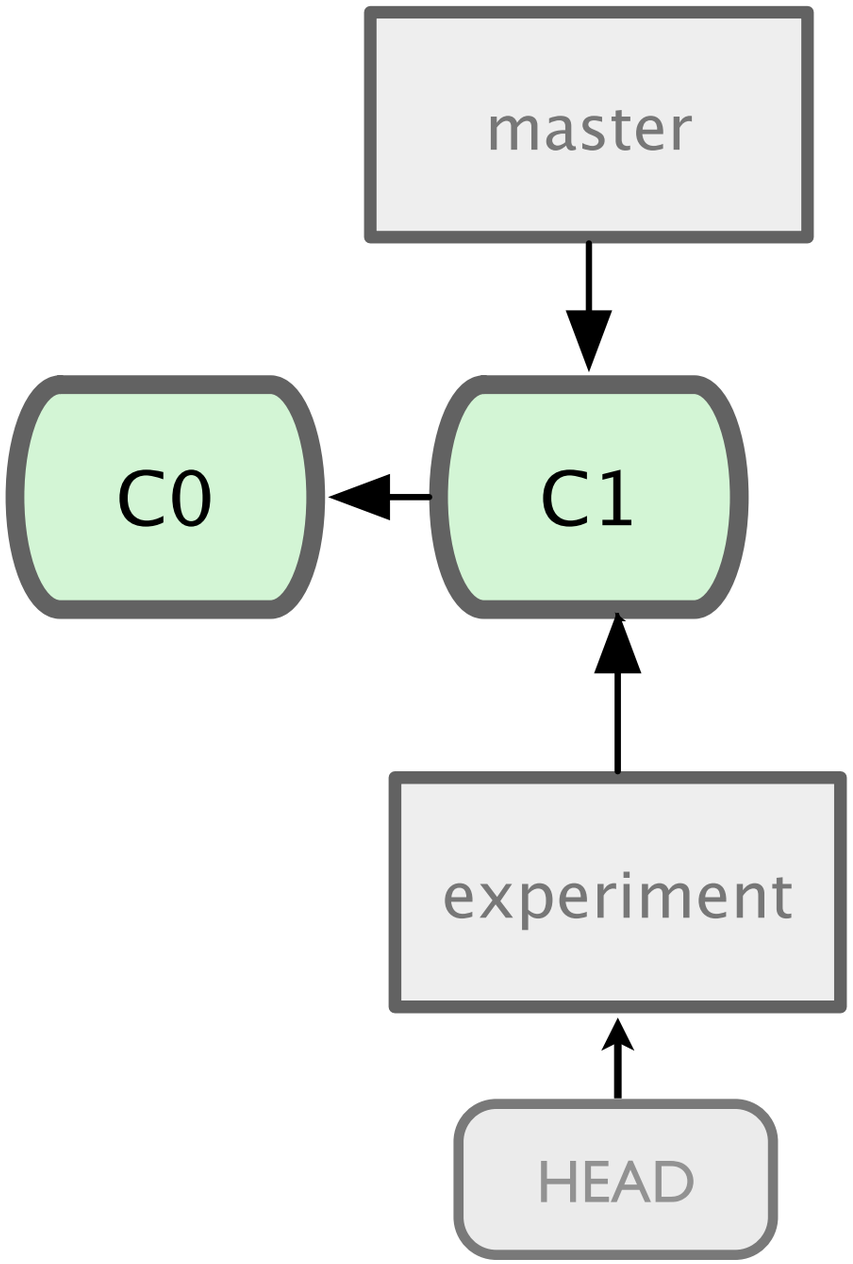

1
$ git checkout v0.1
2
.git/refs/tags/v0.1
"0c819c"
3
tag : 0c819c
commit : a11bef
tree : 1a738d
Rakefile
blob : a874b7
README
blob : a906cb
lib
tree : fe8971
simplegit.rb
blob : a0a60a

the commit history

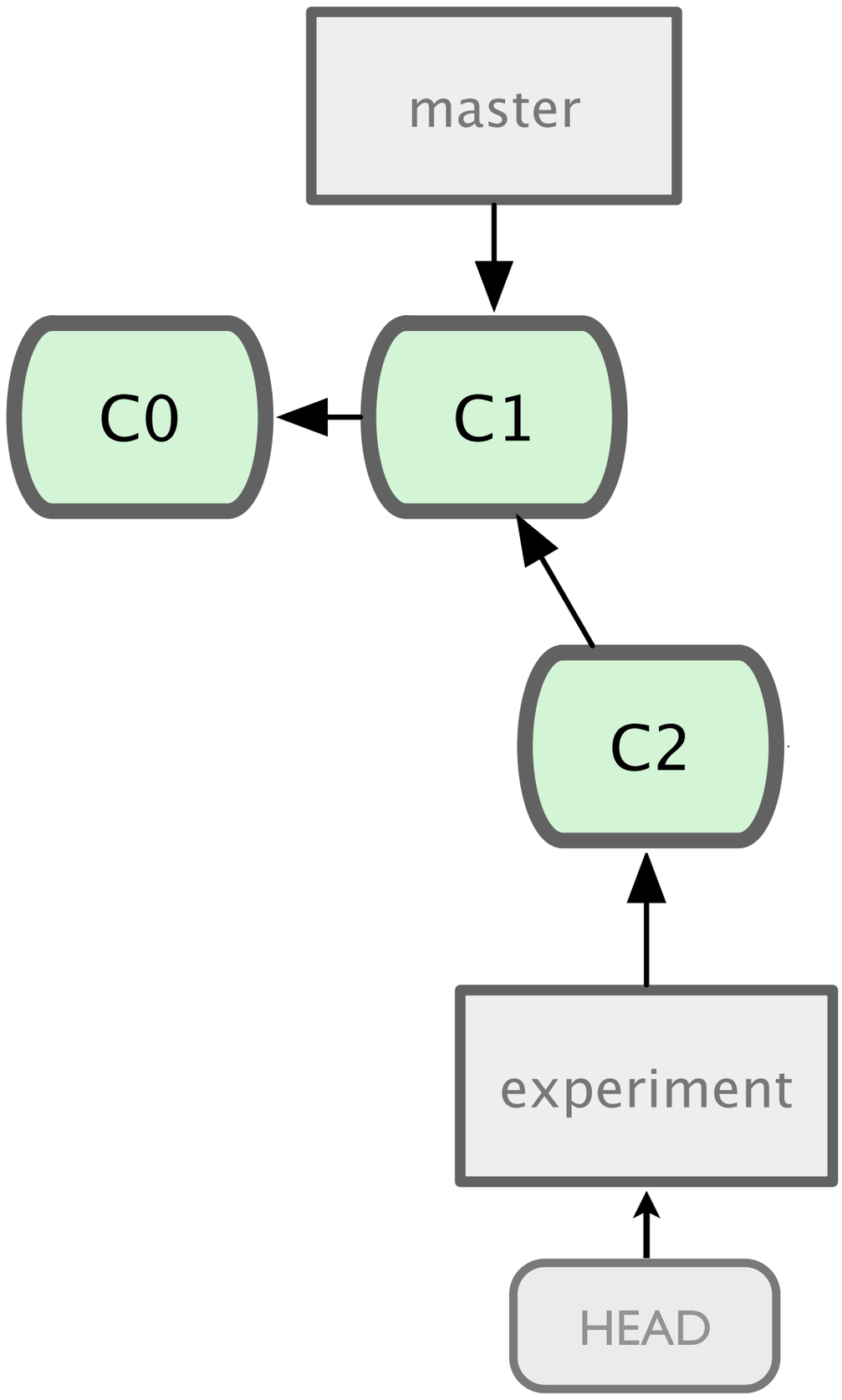

branch
commit
tree
blob

branching and merging

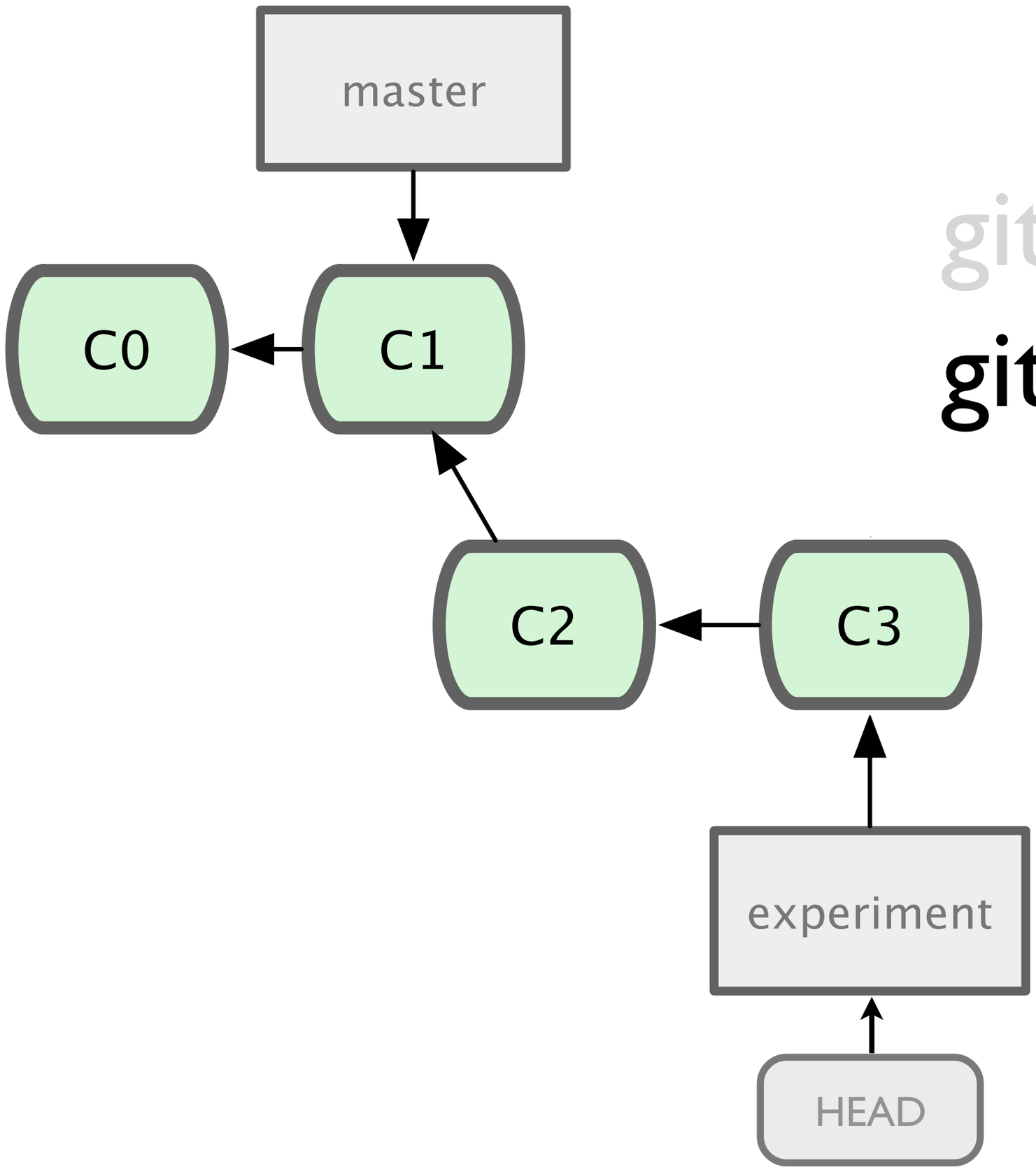

HEAD
master
C0
C1



git checkout -b experiment

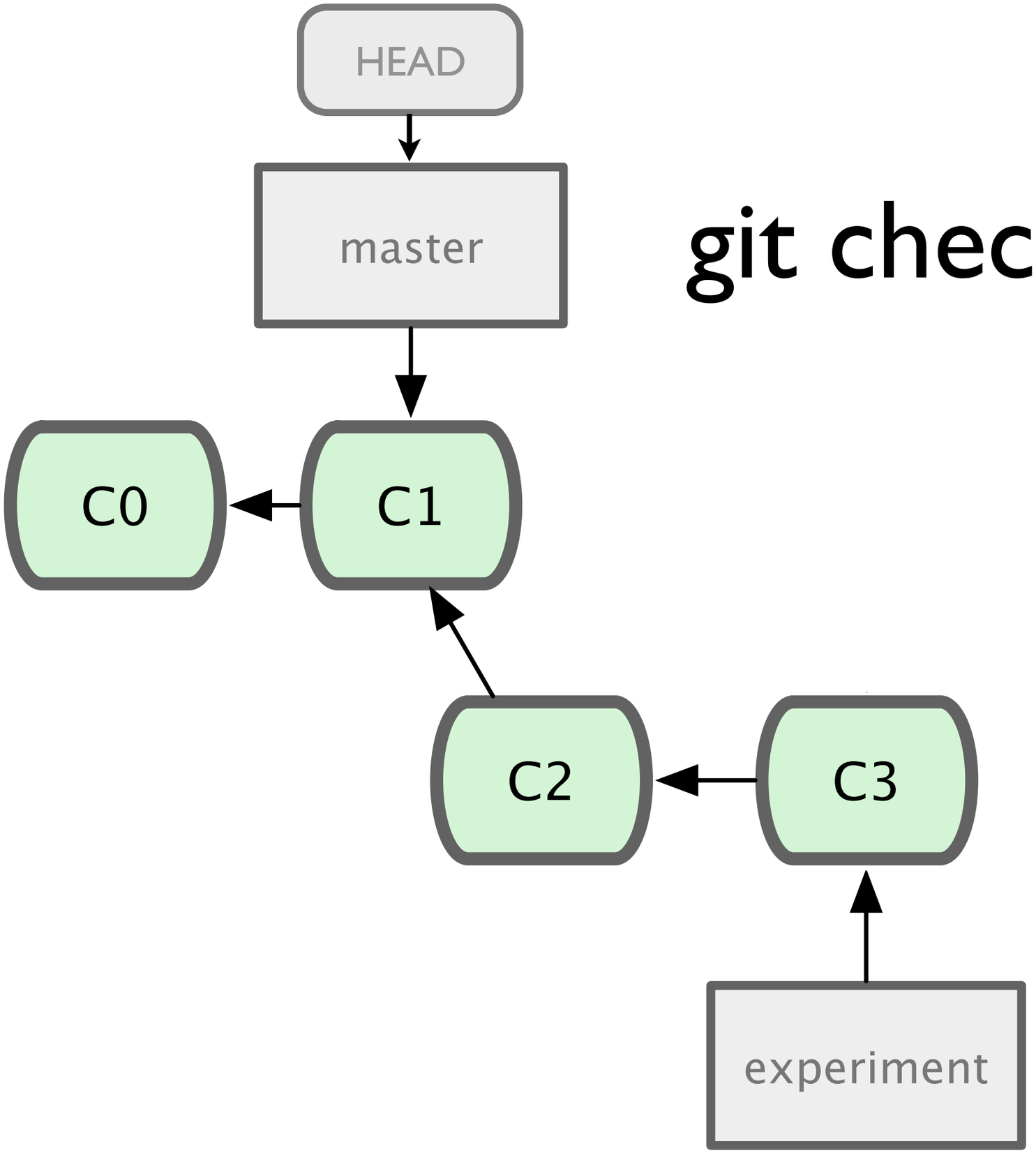


git commit



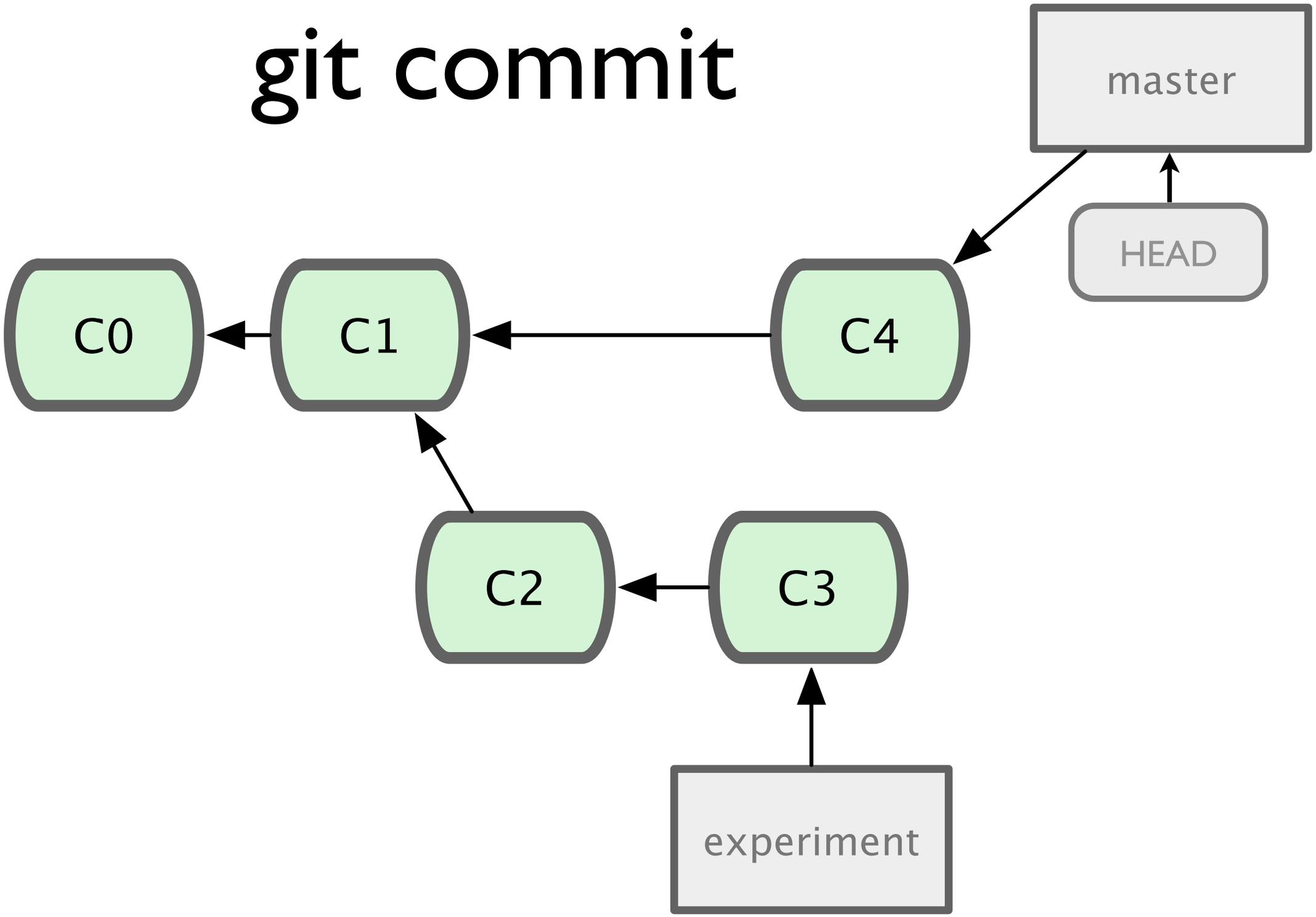
git commit

git commit

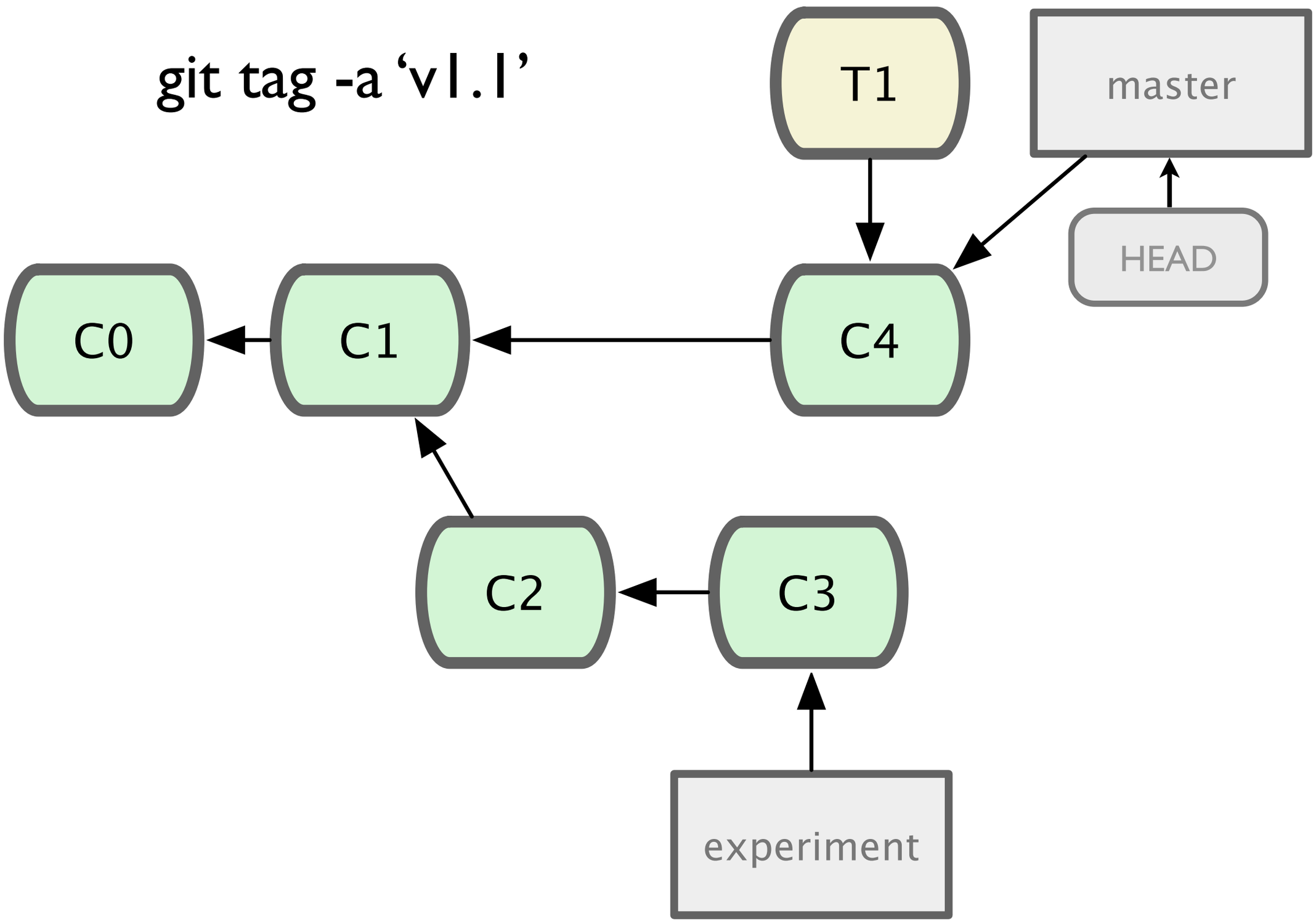


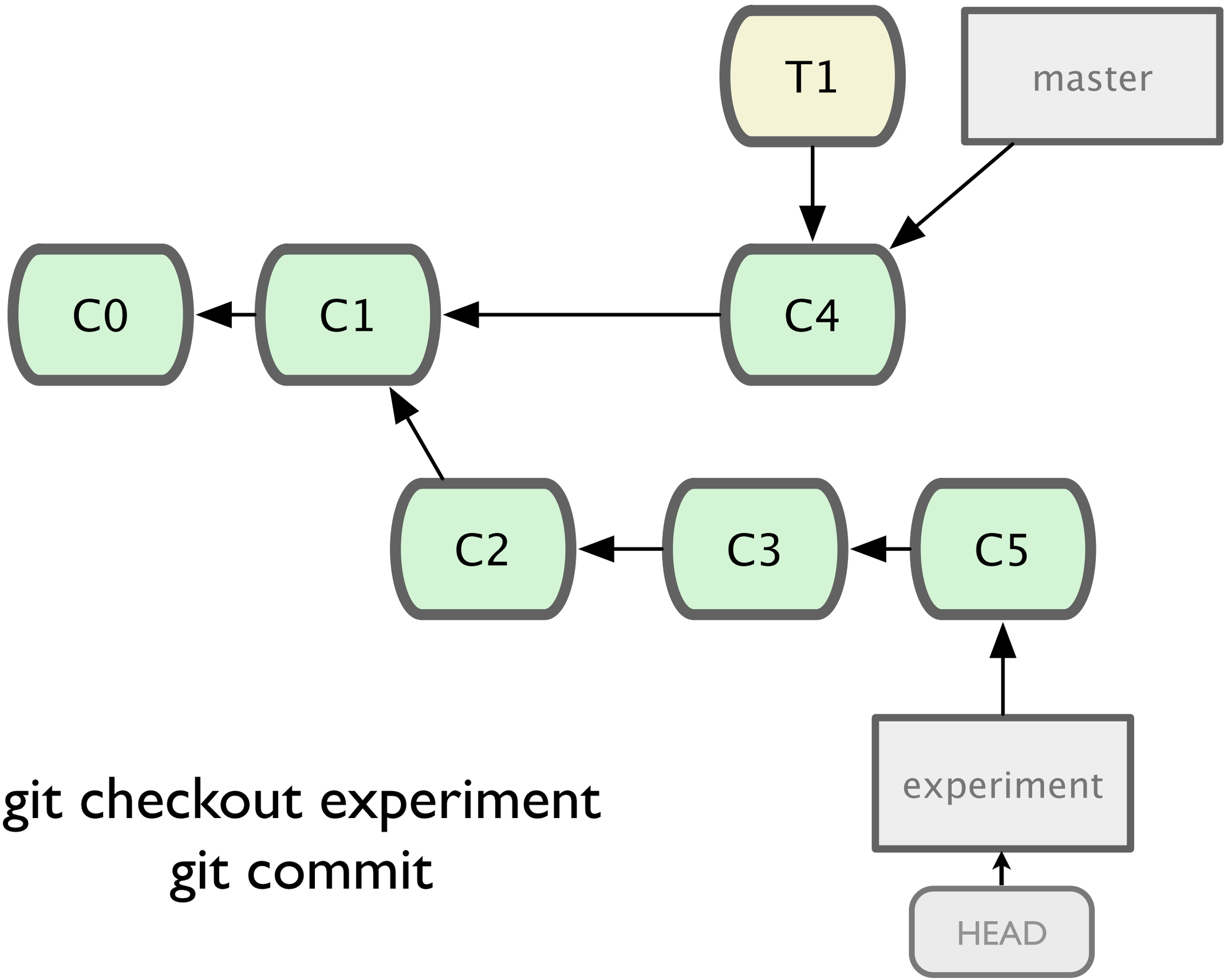
git checkout master

git commit

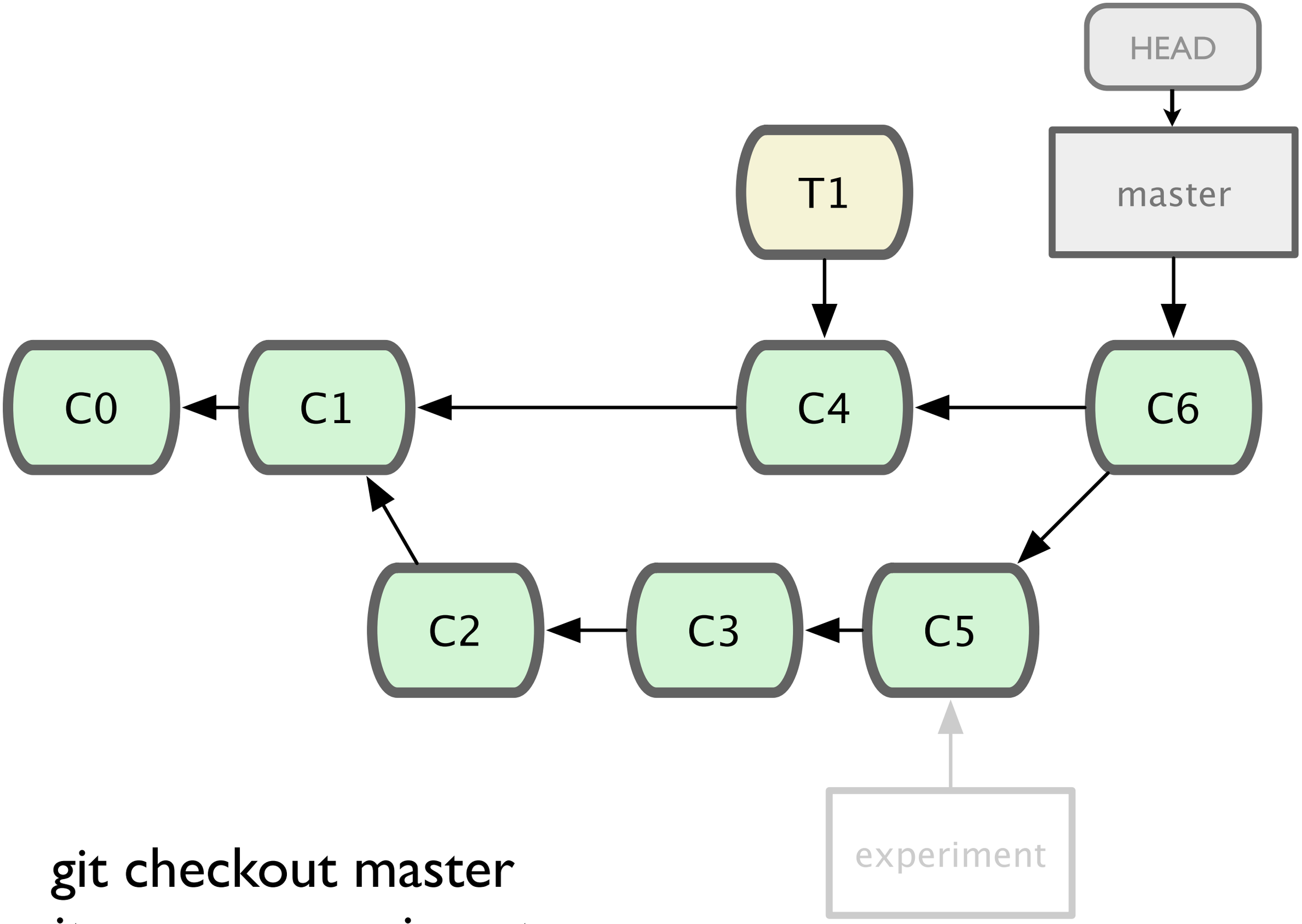


git tag -a ‘v1.1’



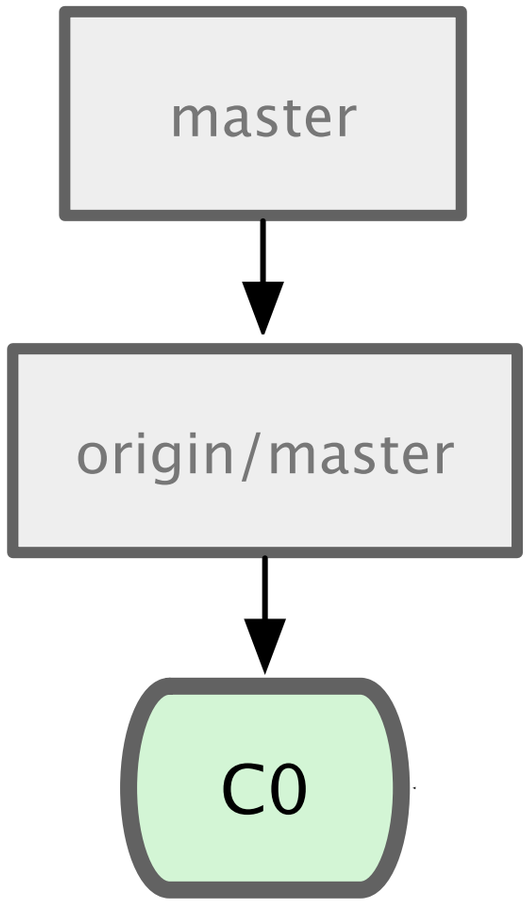


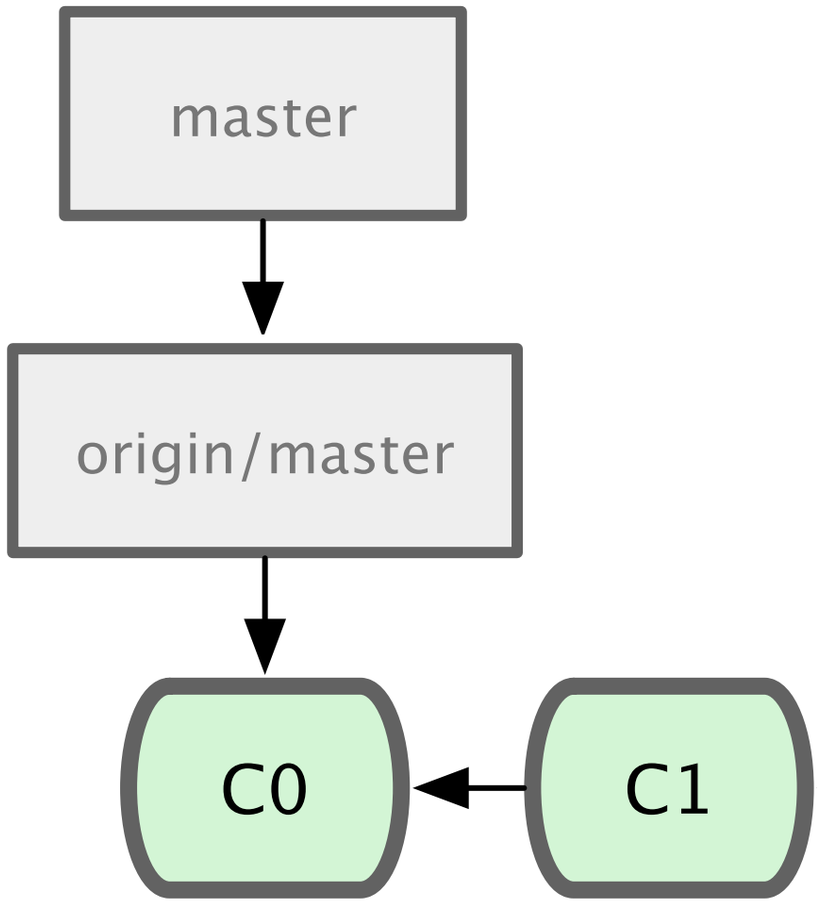
git checkout experiment
git commit

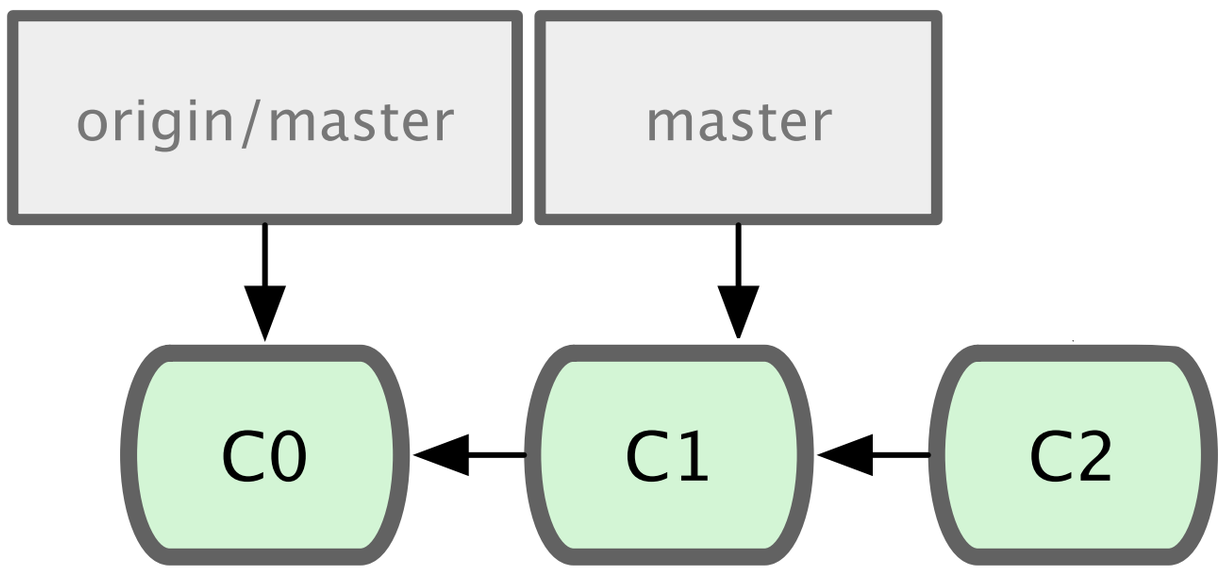


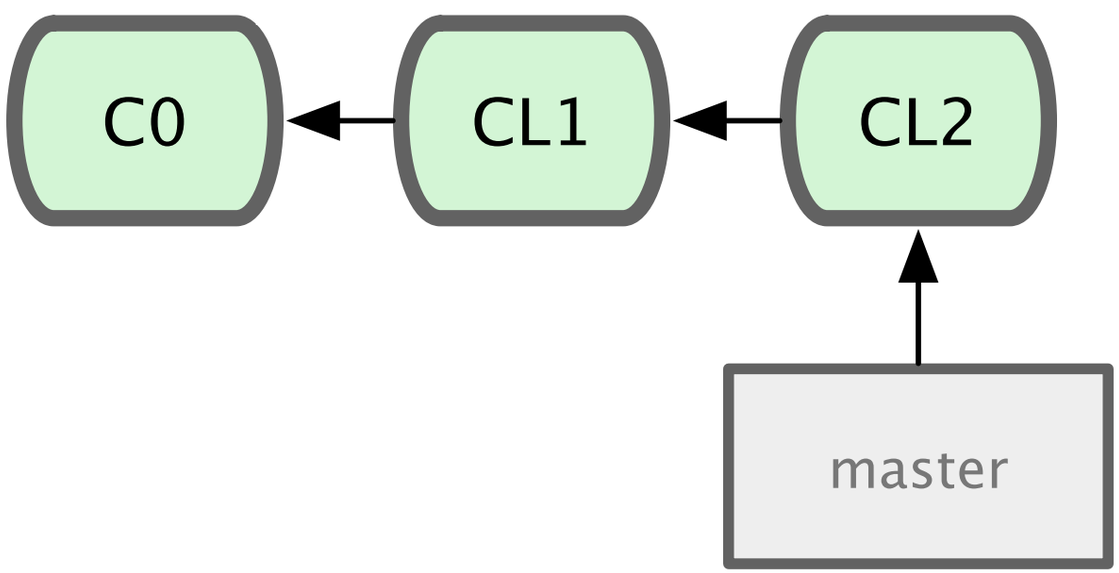

```
git checkout master
git merge experiment
```

remotes

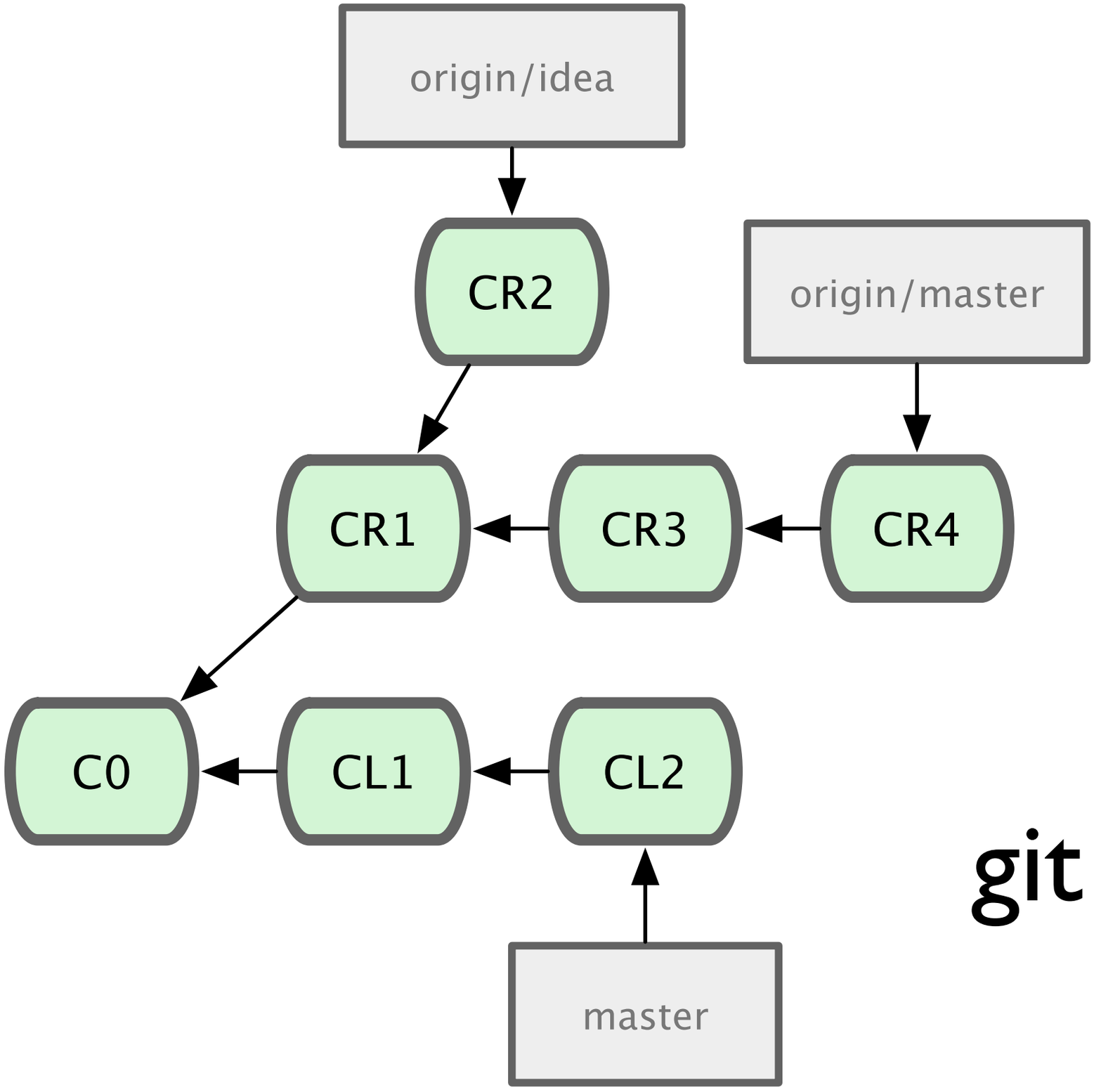

master
origin/master
C0


master
origin/master
C0
C1

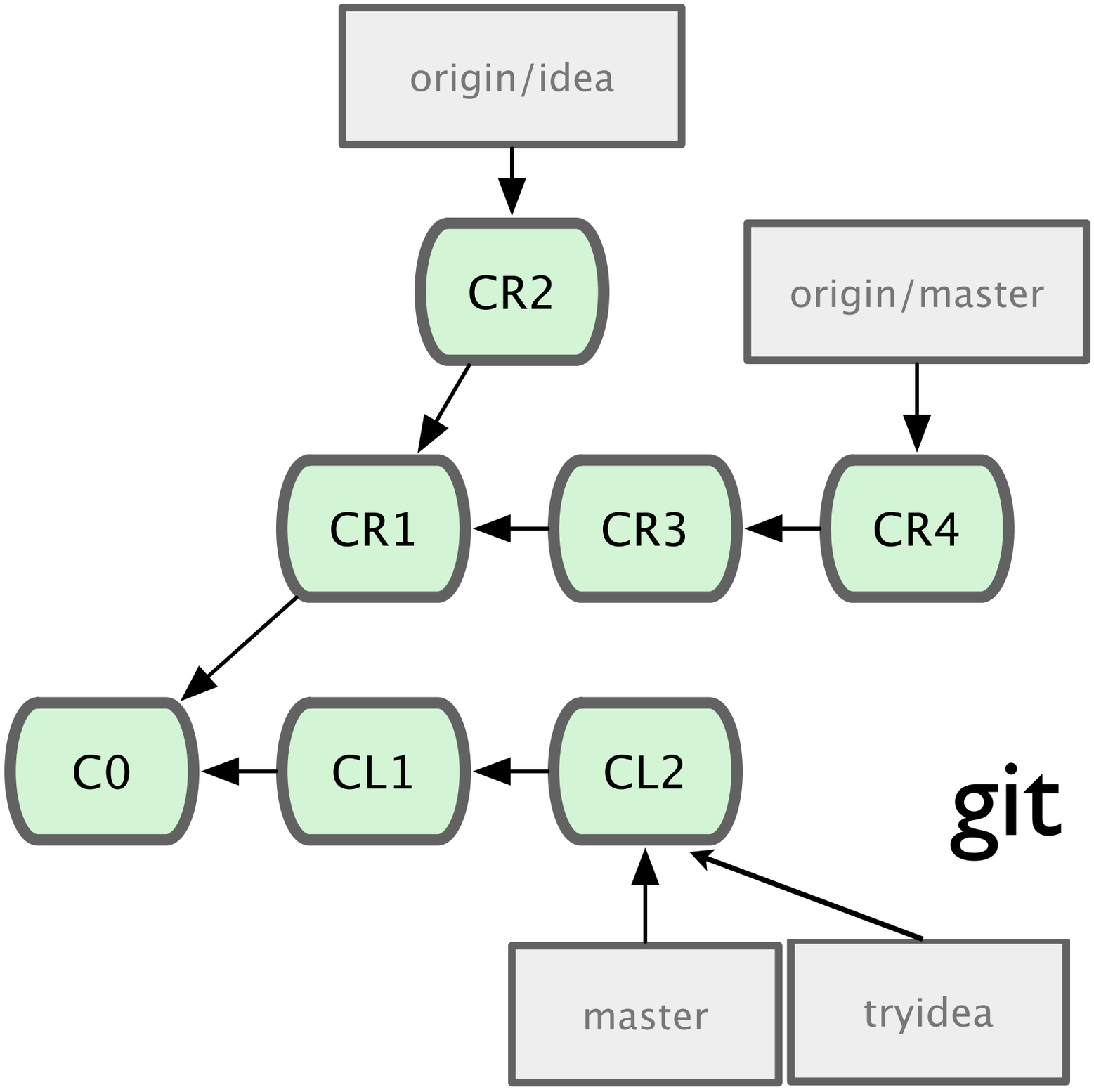

origin/master
master
C0
C1
C2



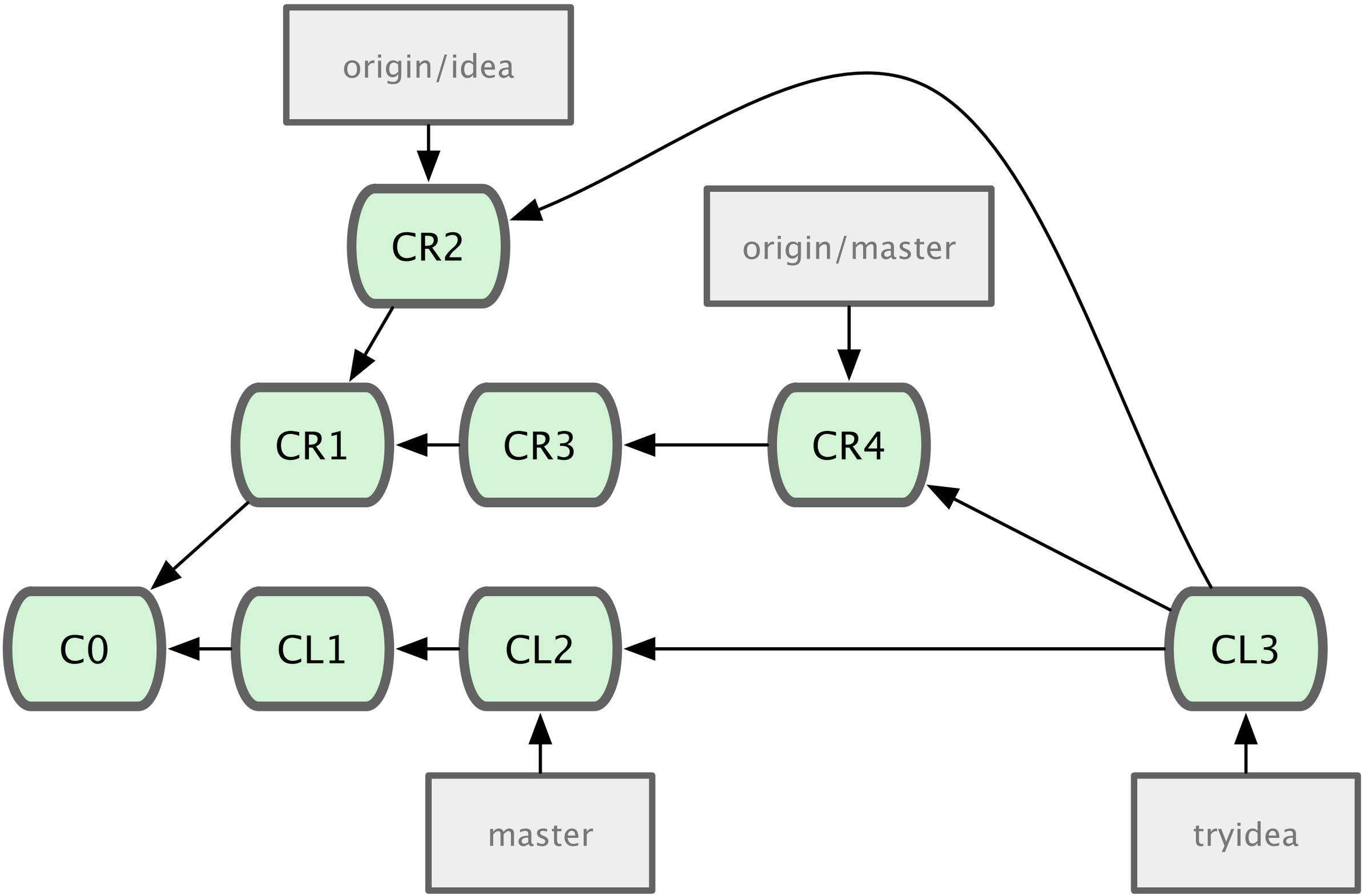
git fetch origin



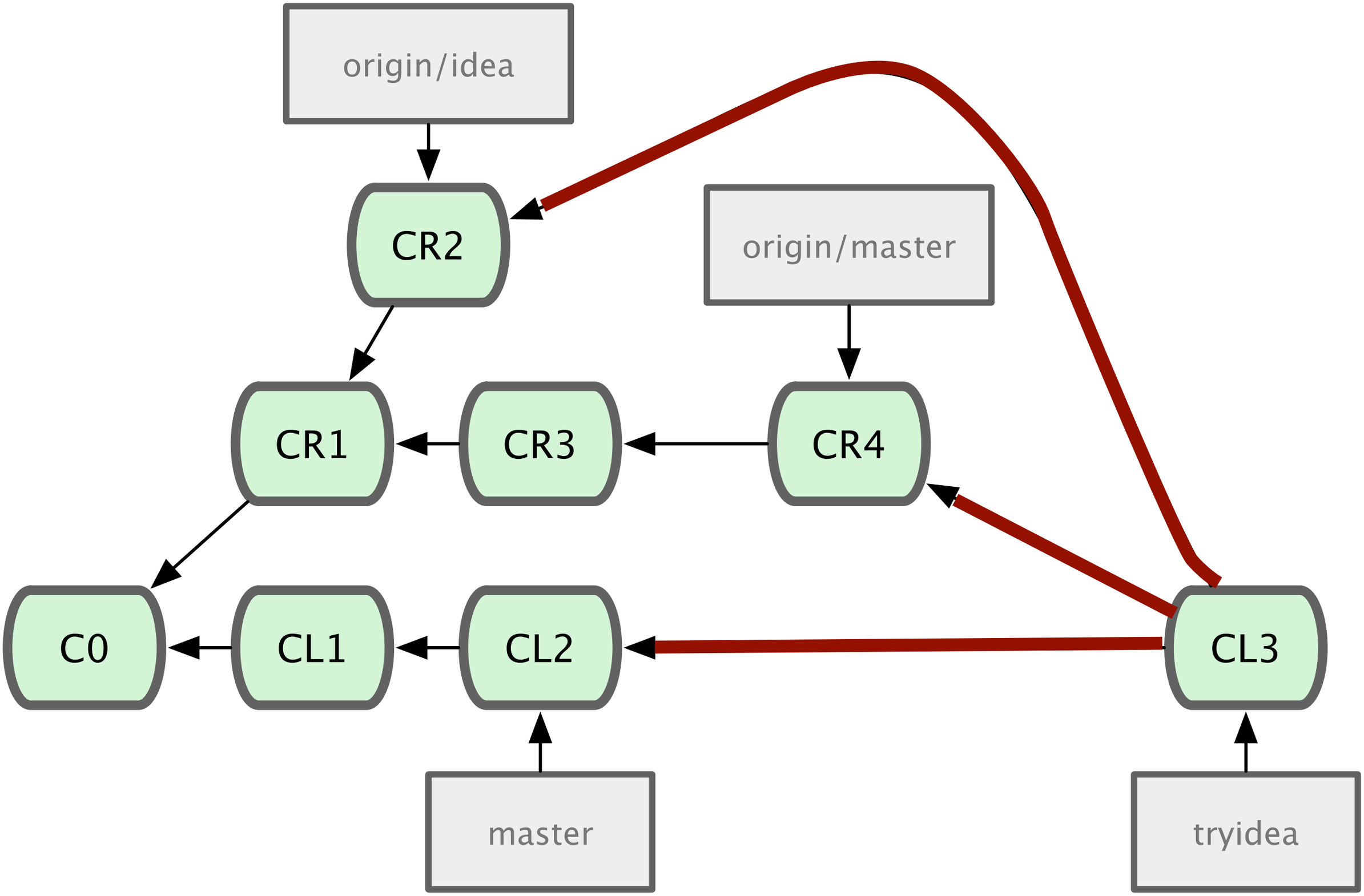
git fetch origin

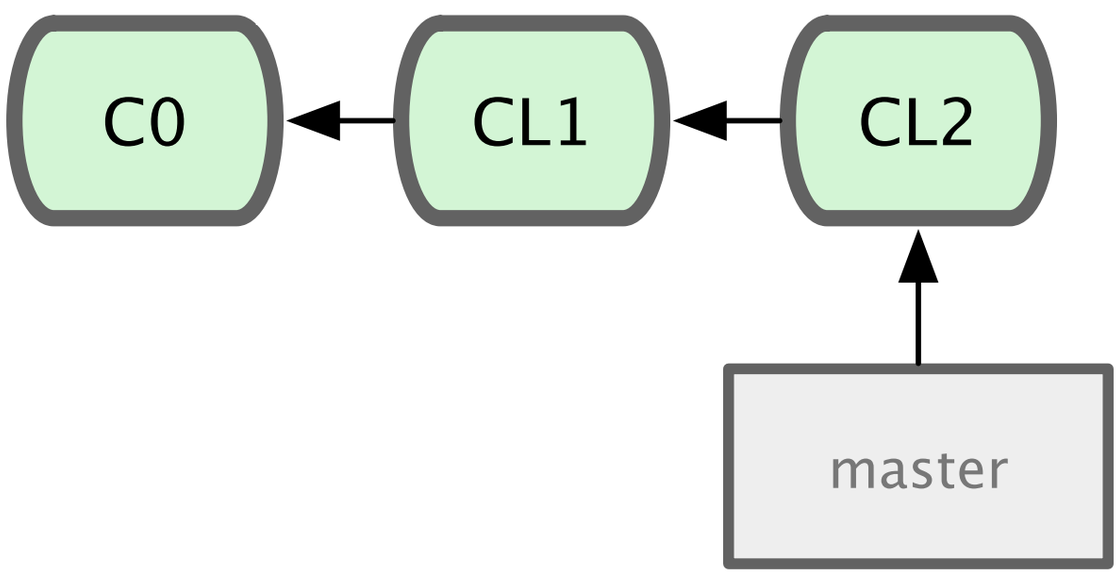


git checkout -b tryidea

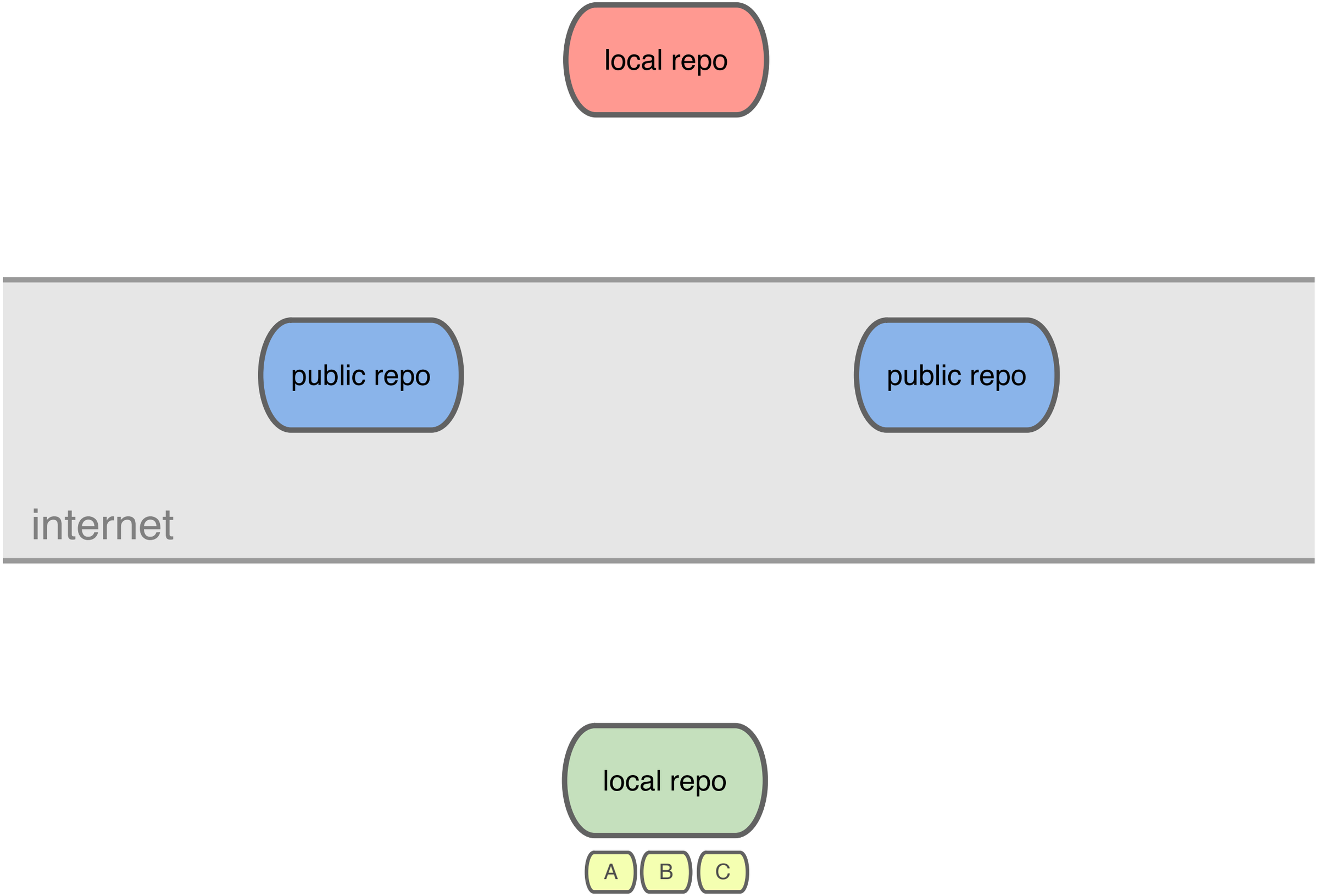


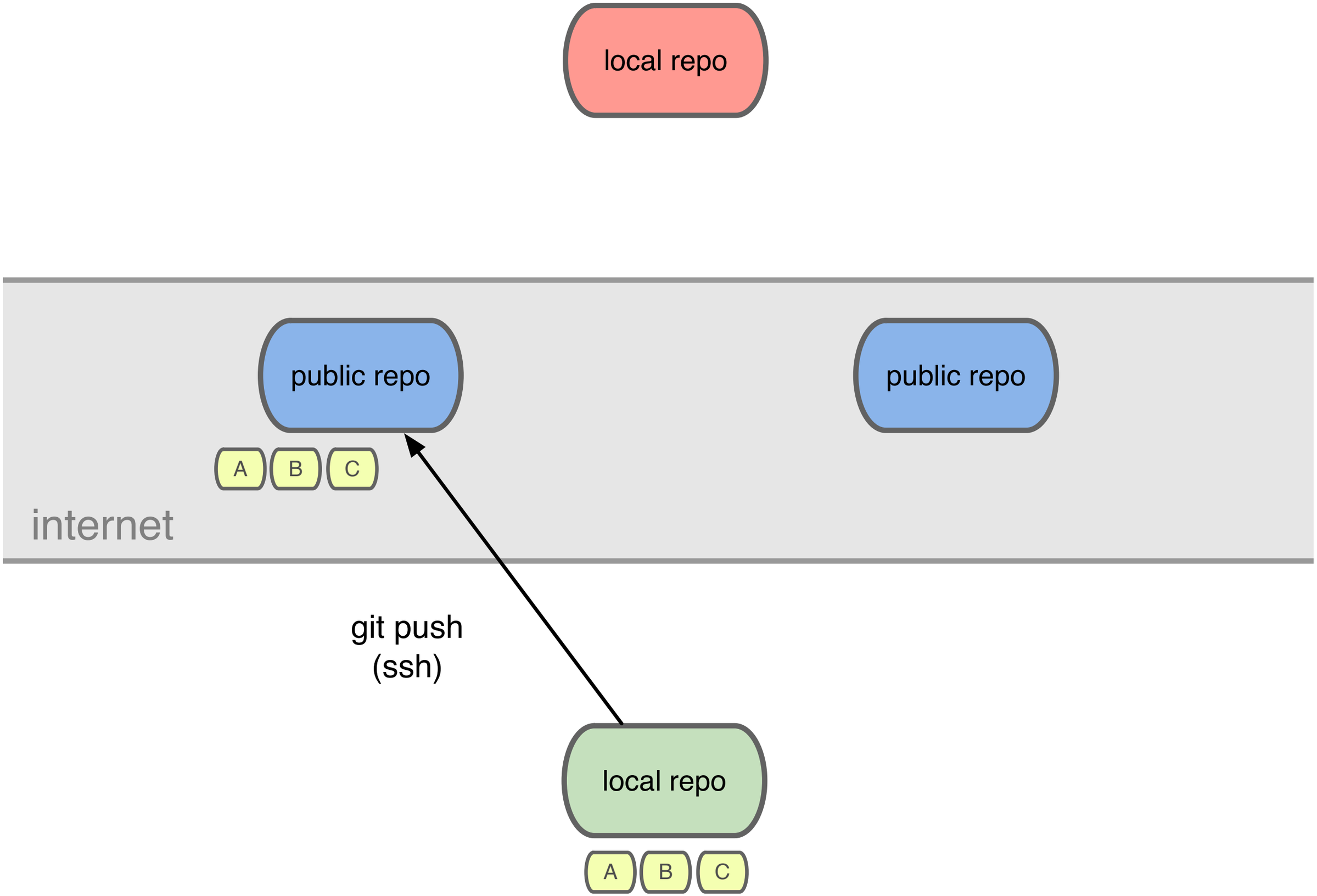
git merge origin/master origin/idea

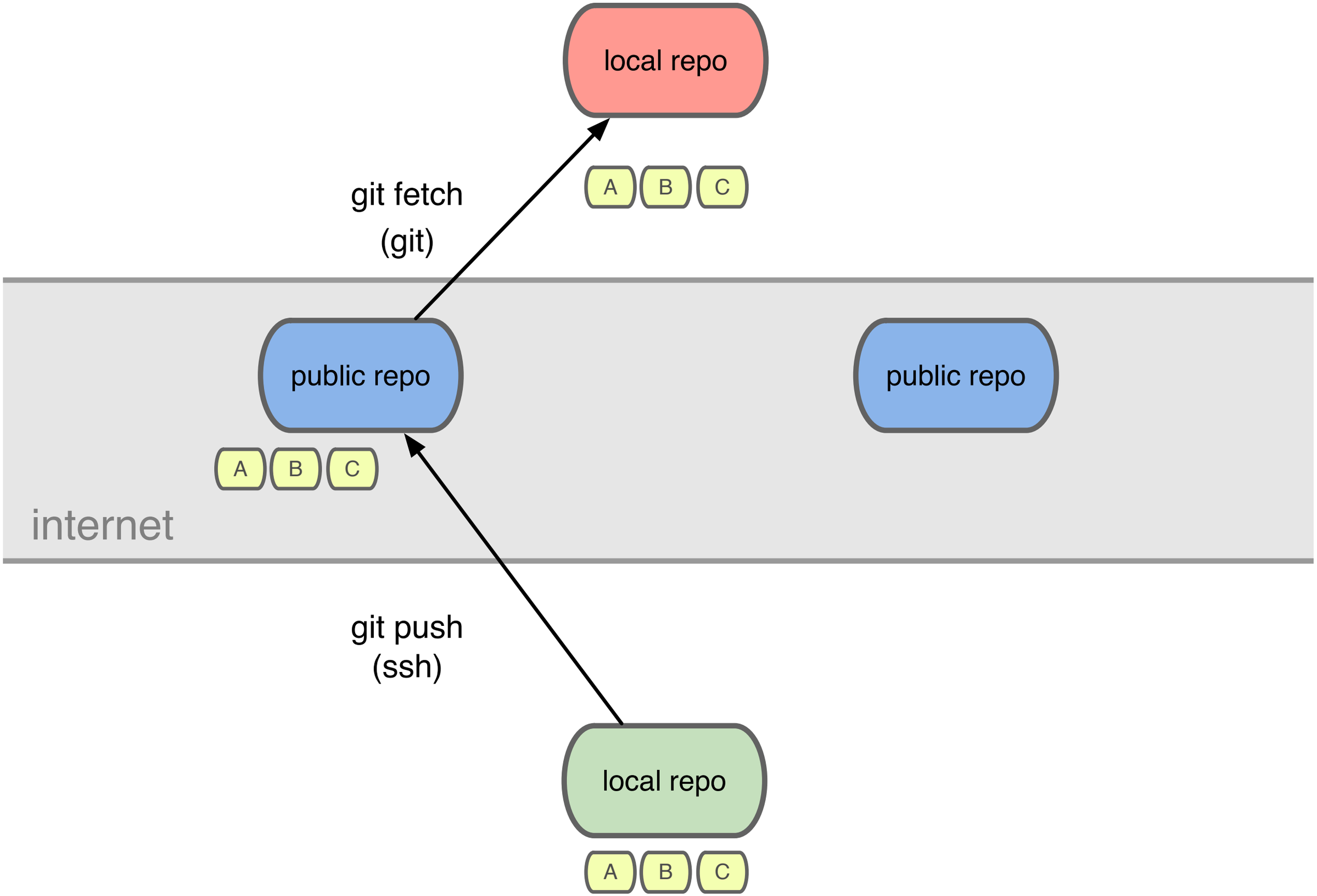

origin/idea
CR2
origin/master
CR1
CR3
CR4
C0
CL1
CL2
CL3
master
tryidea

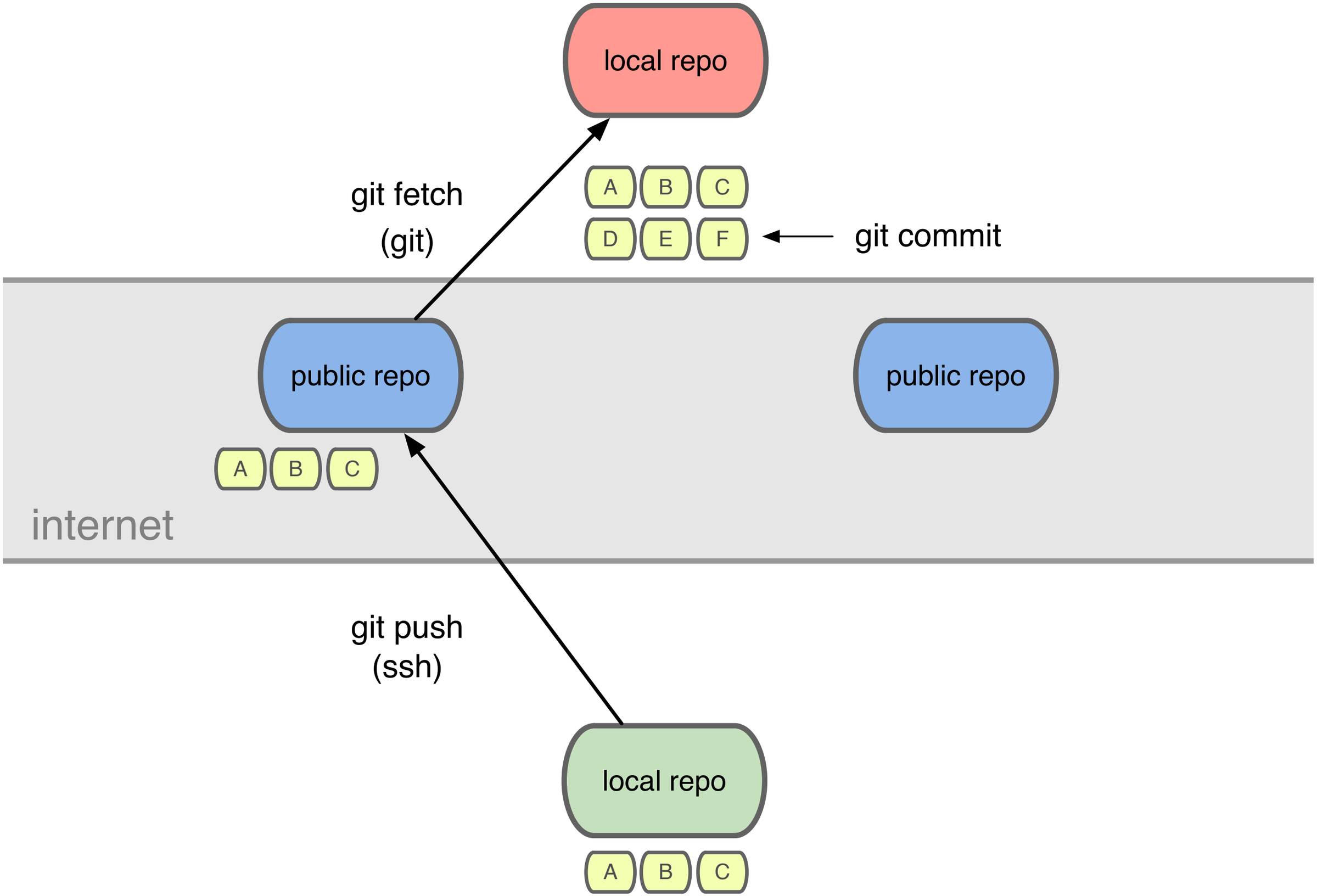

C0
CL1
CL2
master

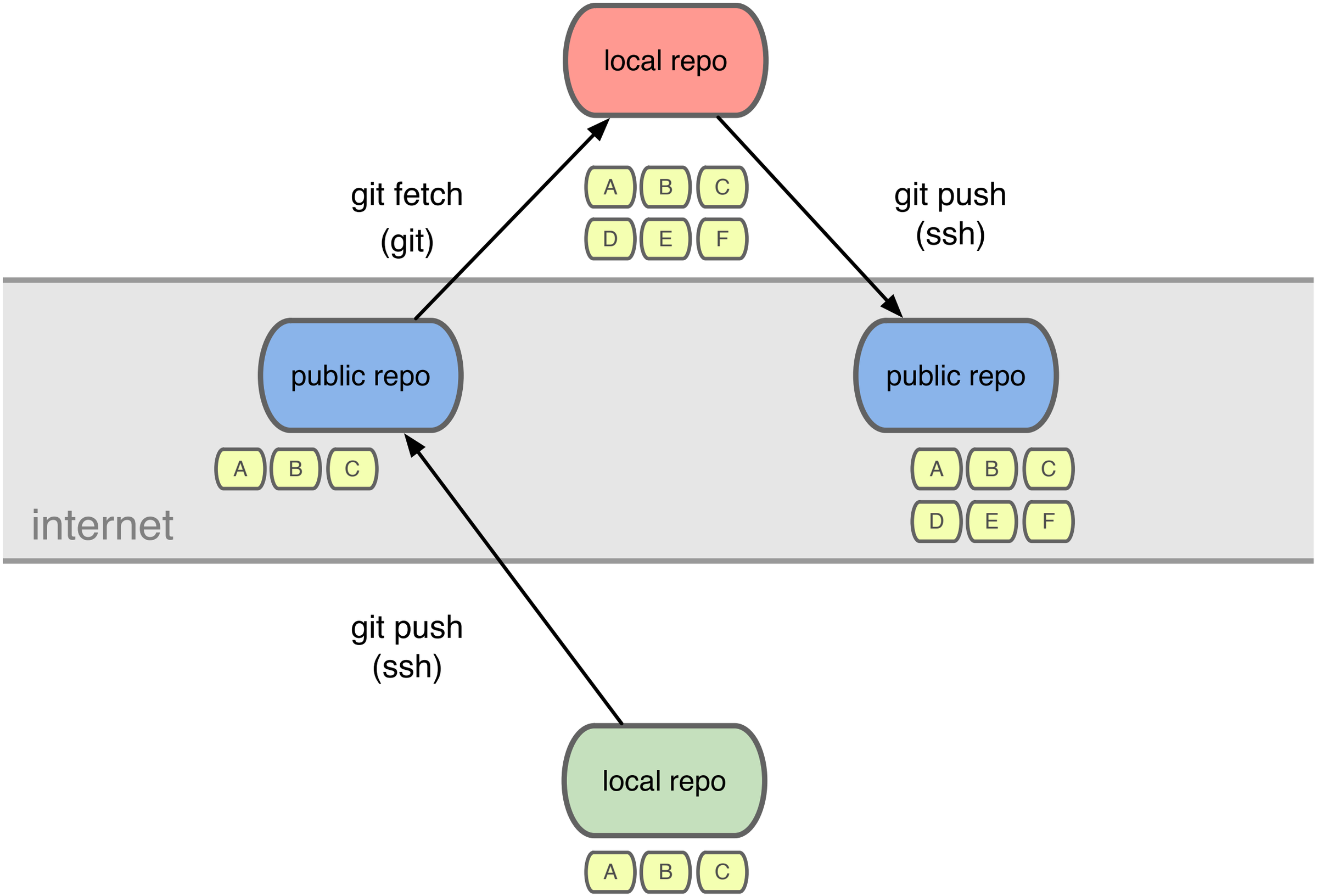
remote workflow

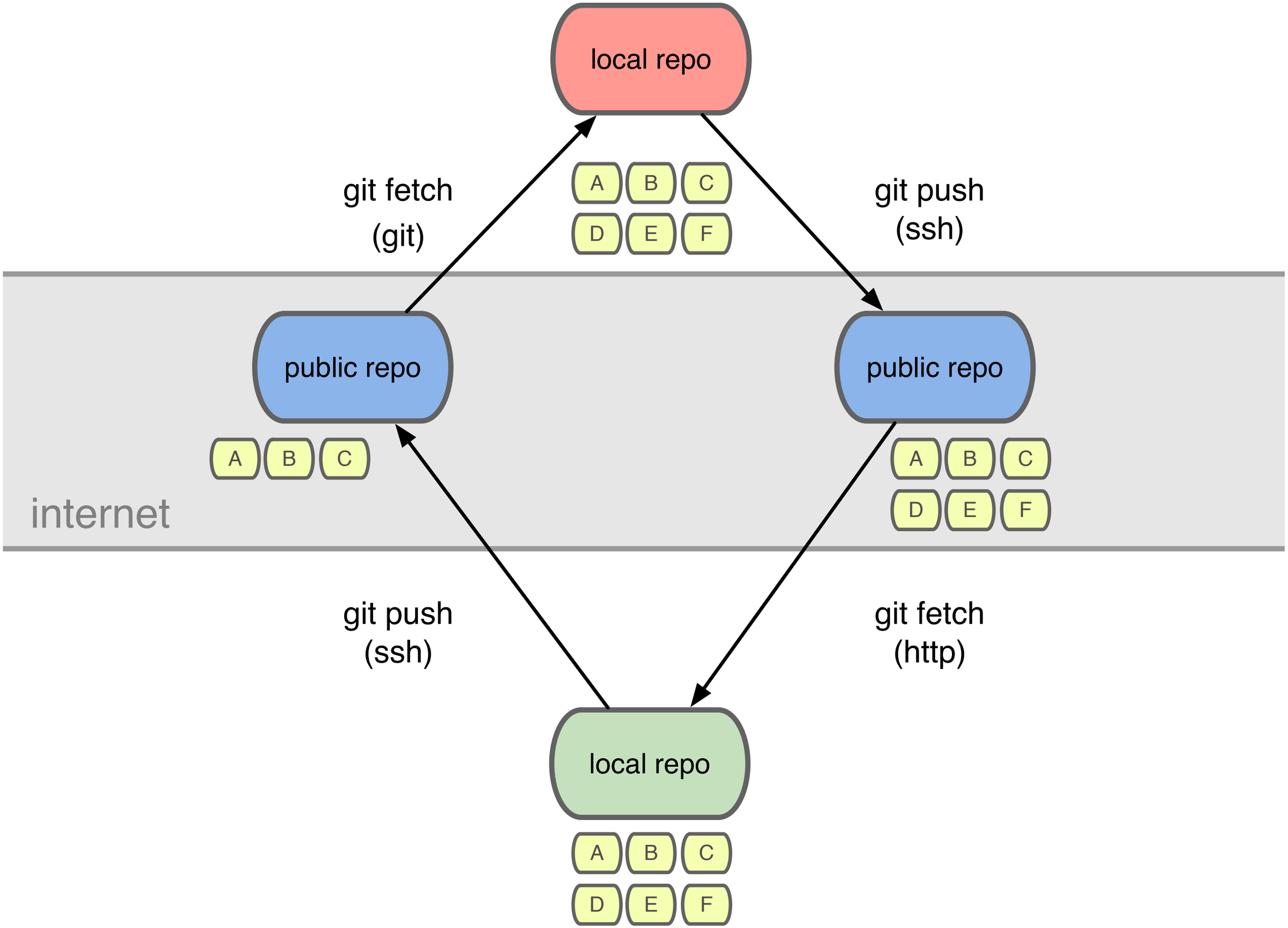

local repo
public repo
public repo
internet
local repo
A
B
C

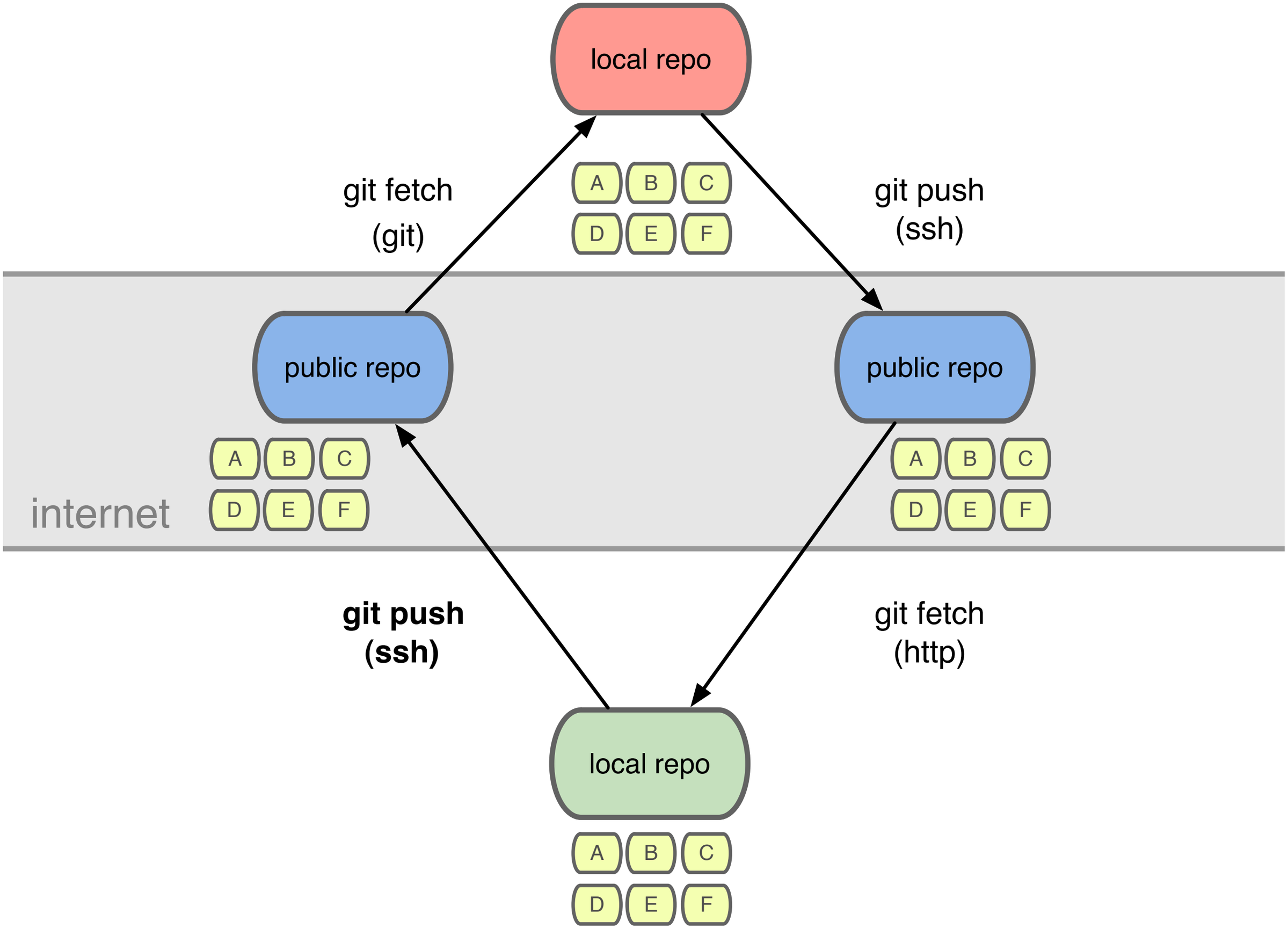

local repo
public repo
A
B
C
public repo
internet
git push
(ssh)
local repo
A
B
C


local repo
A
B
C
git fetch
(git)
public repo
public repo
A
B
C
internet
git push
(ssh)
local repo
A
B
C

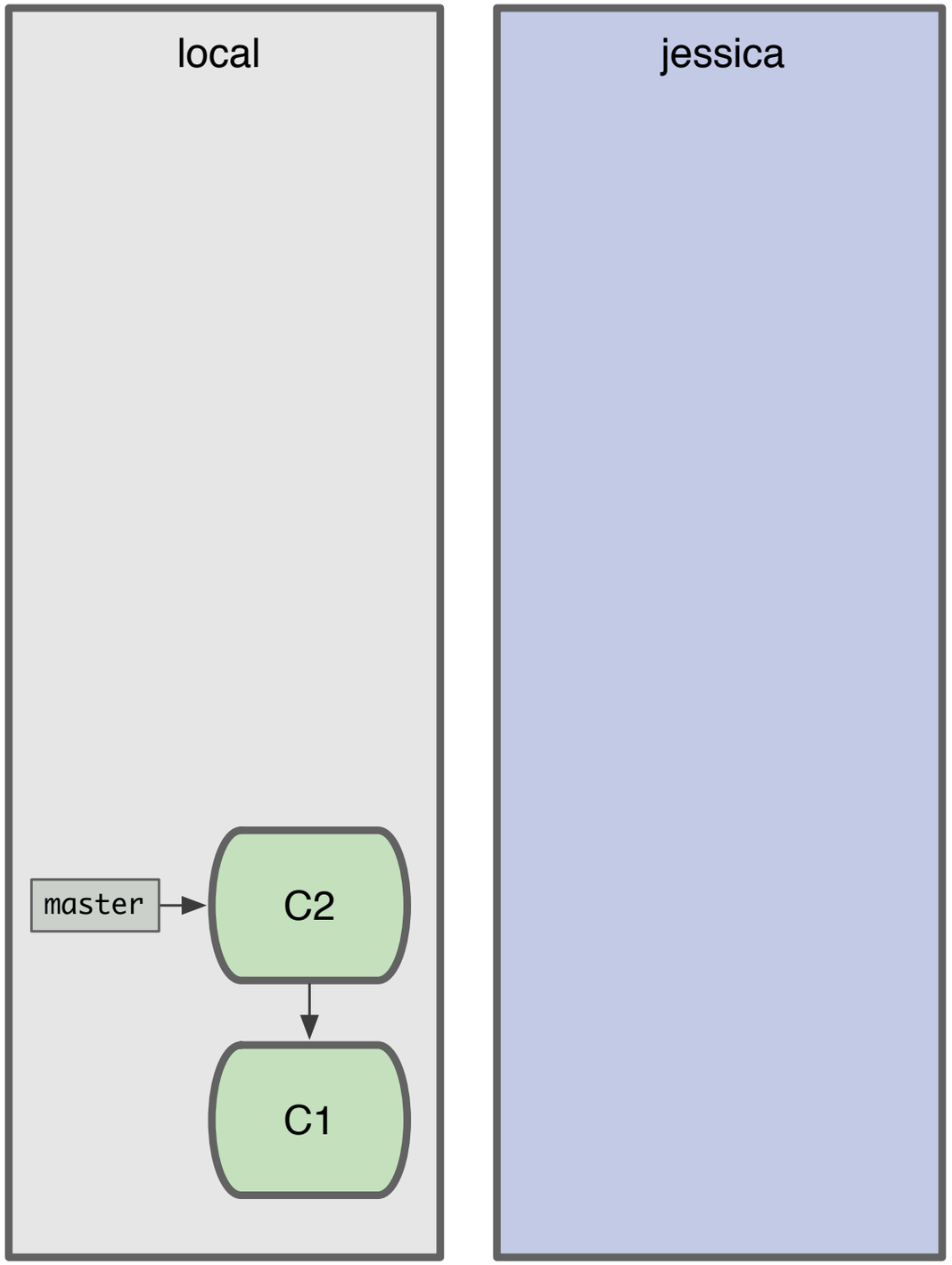

local repo
git fetch
(git)
A
B
C
D
E
F
git commit
public repo
public repo
A
B
C
internet
git push
(ssh)
local repo
A
B
C

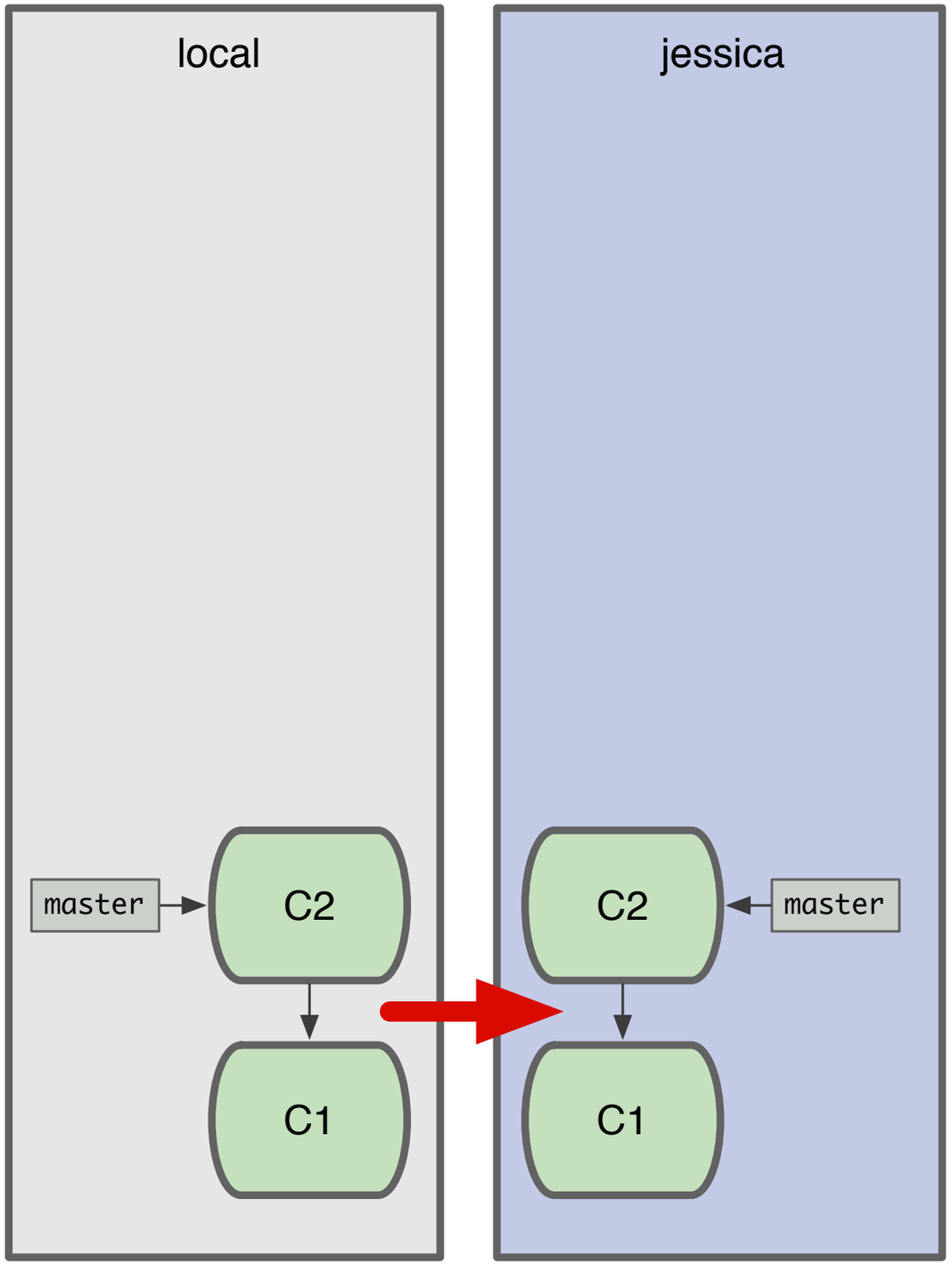

local repo
A
B
C
D
E
F
git fetch
(git)
git push
(ssh)
public repo
A
B
C
public repo
A
B
C
D
E
F
internet
git push
(ssh)
local repo
A
B
C


local repo
A
B
C
D
E
F
git fetch
(git)
git push
(ssh)
public repo
public repo
A
B
C
A
B
C
D
E
F
internet
git push
(ssh)
git fetch
(http)
local repo
A
B
C
D
E
F

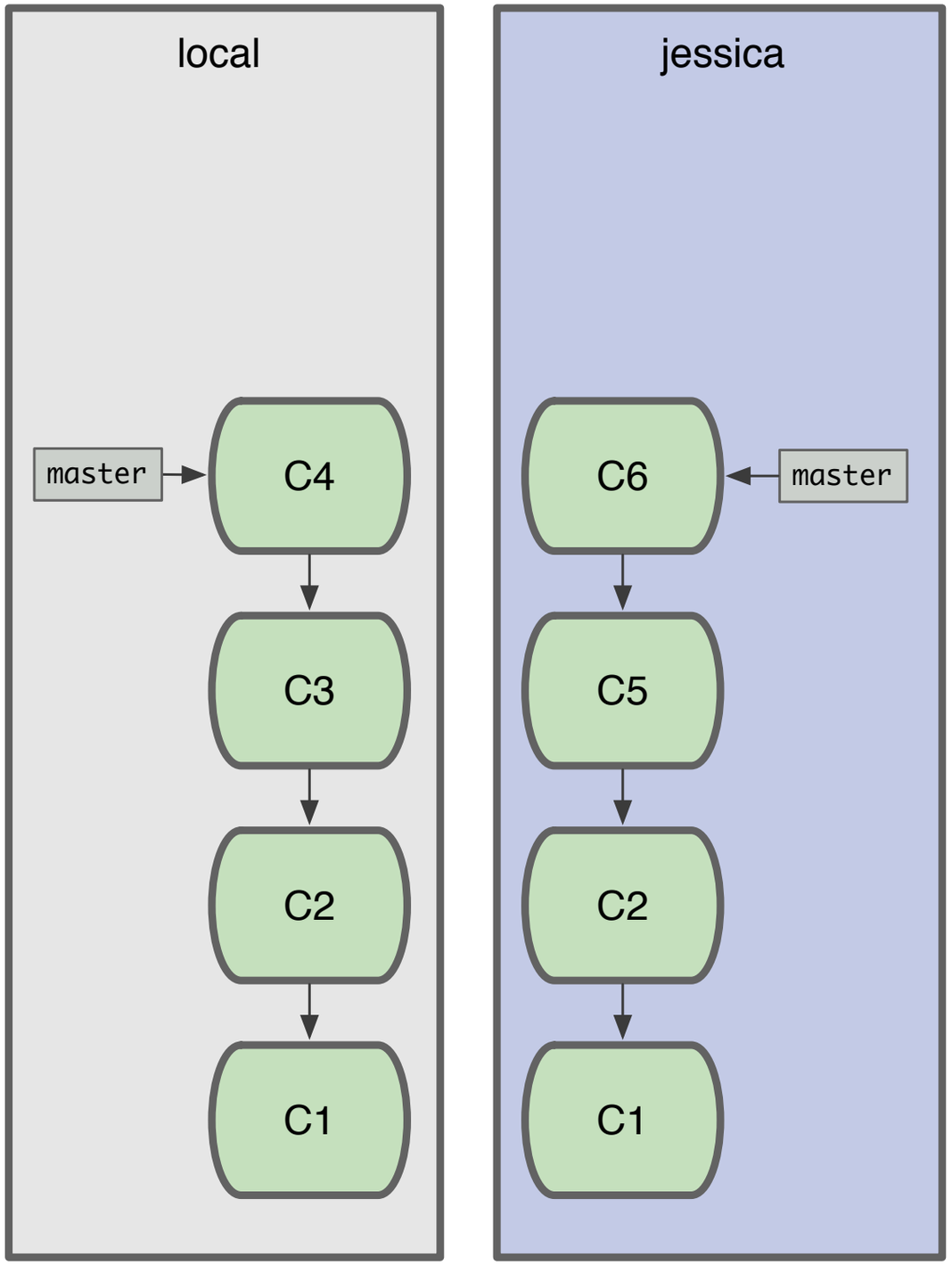

local repo
A B C
D E F
git fetch
(git)
git push
(ssh)
public repo
public repo
A B C
D E F
A B C
D E F
internet
git push
(ssh)
git fetch
(http)
local repo
A B C
D E F

rebasing


local
jessica
master
C2
C1

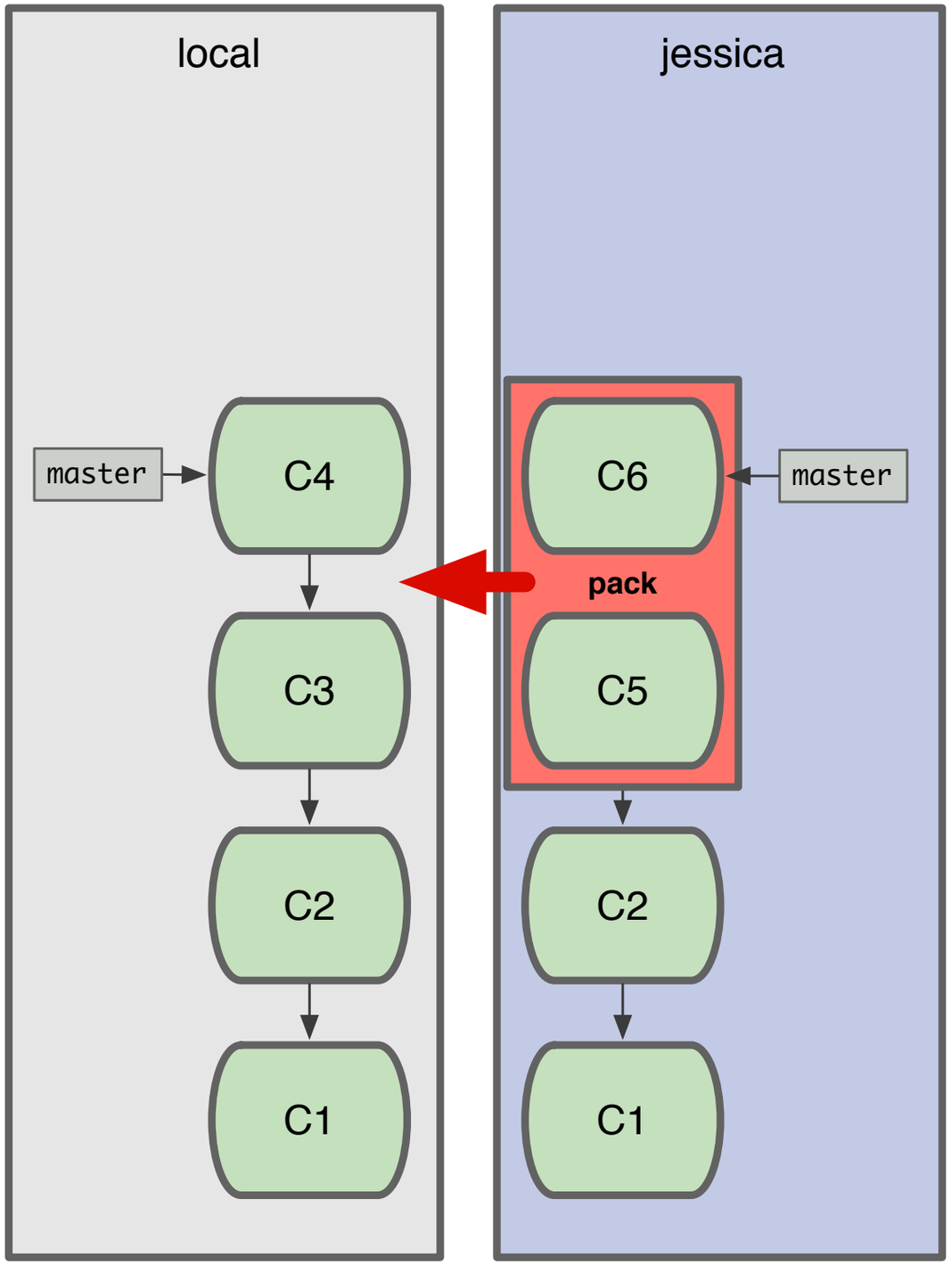


git clone

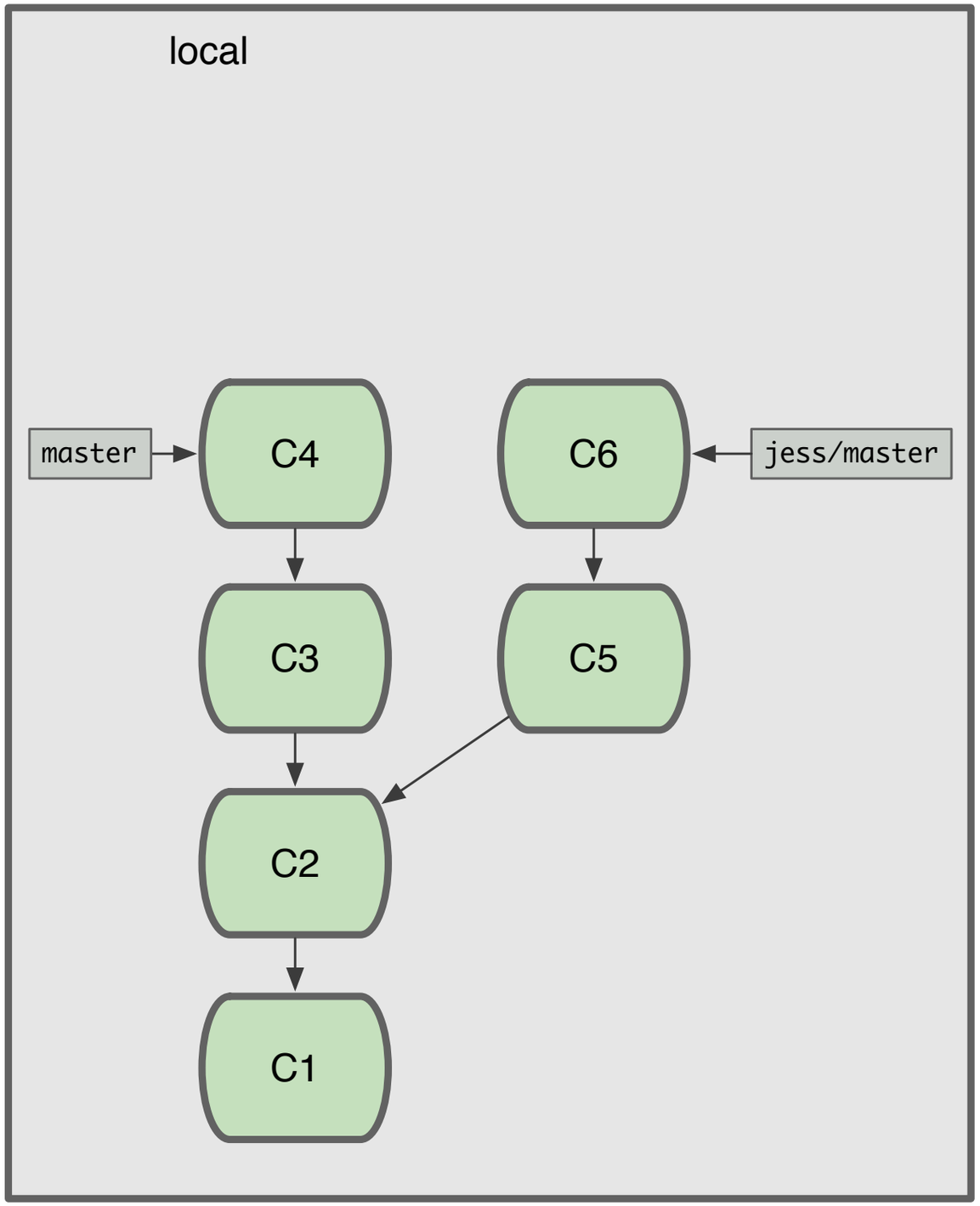


git commit

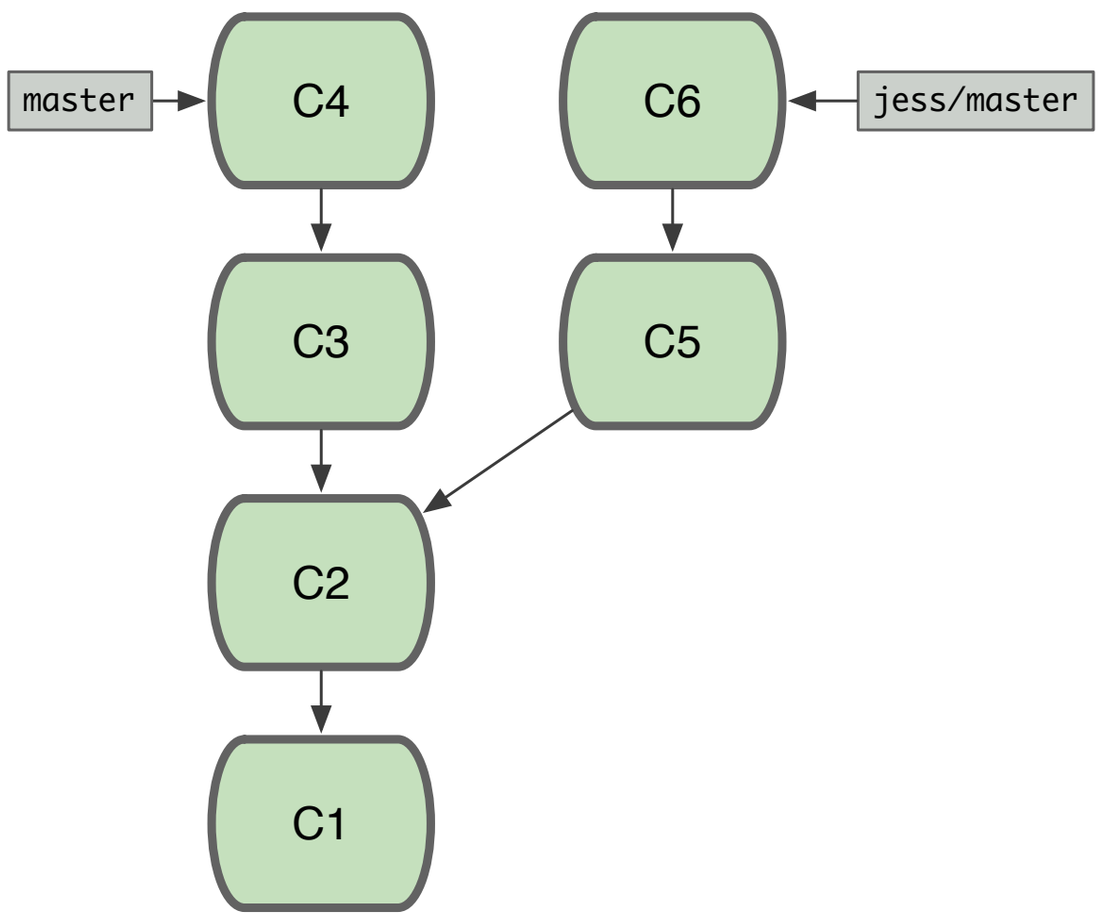
git commit



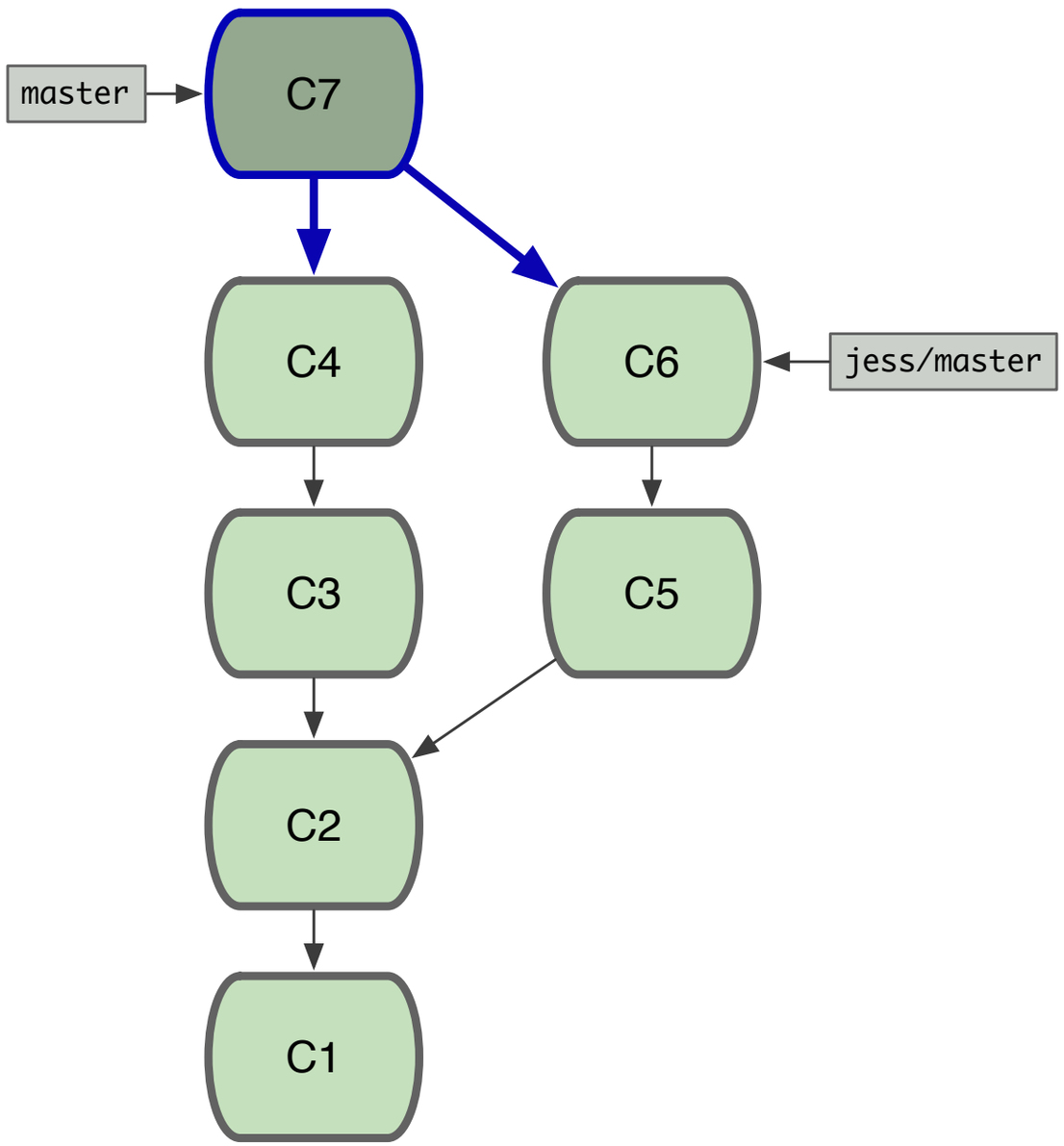
git fetch jess


local
master
C4
C6
jess/master
C3
C5
C2
C1

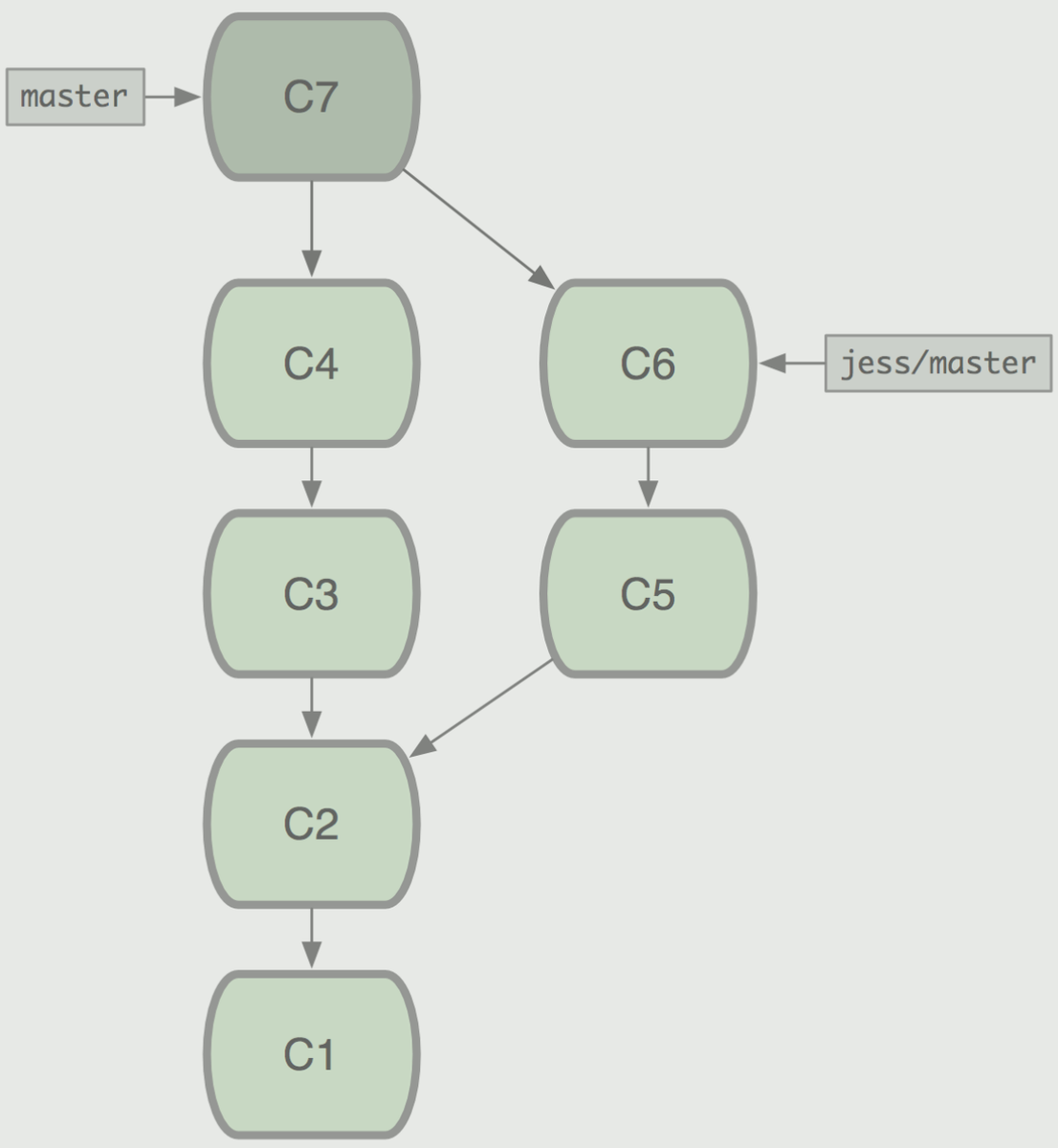
git merge



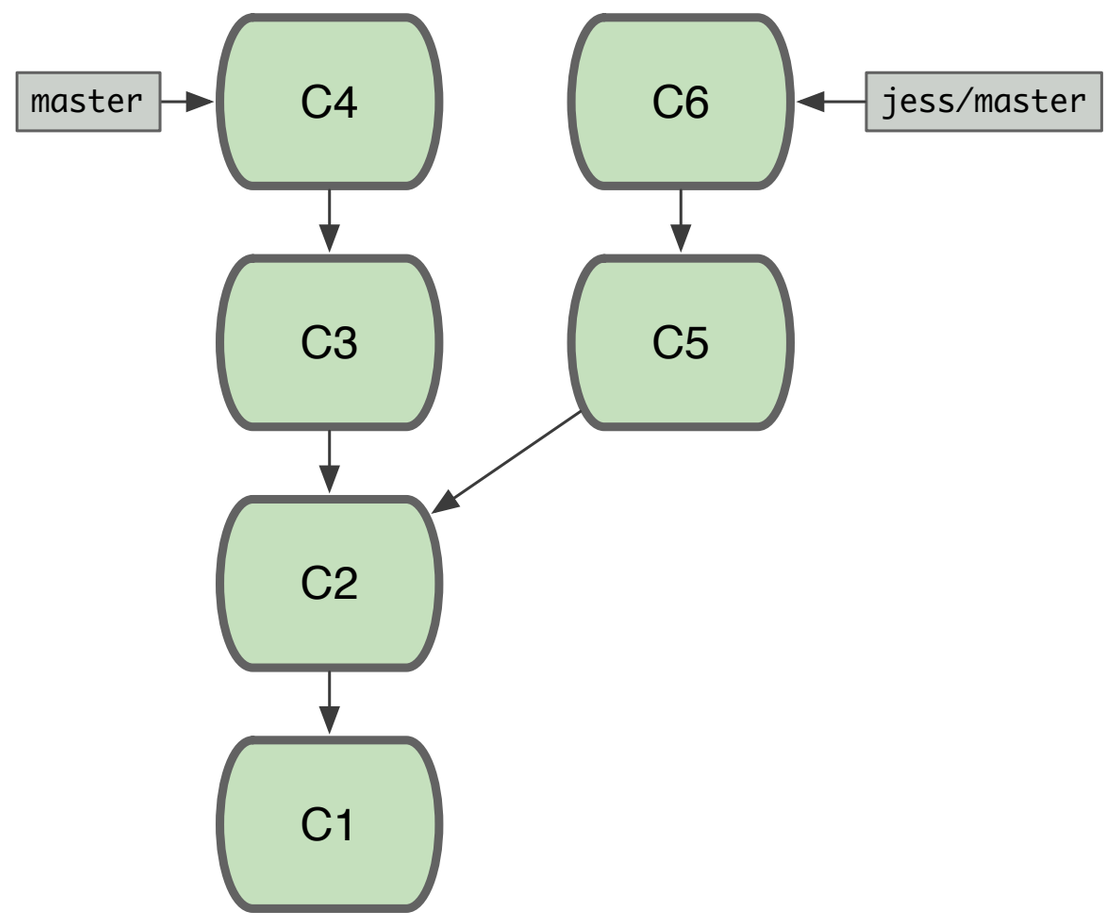
git merge



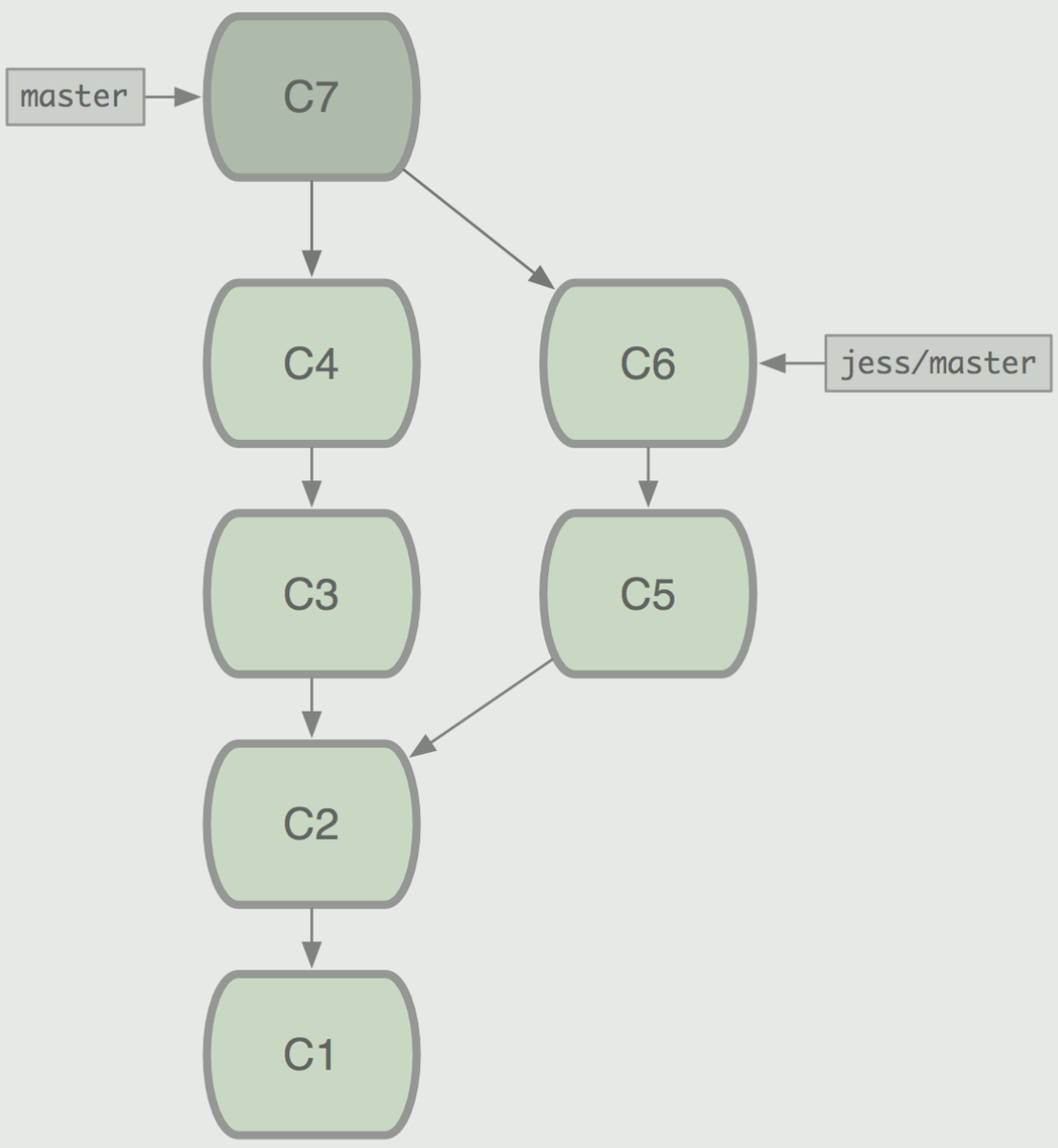
git merge



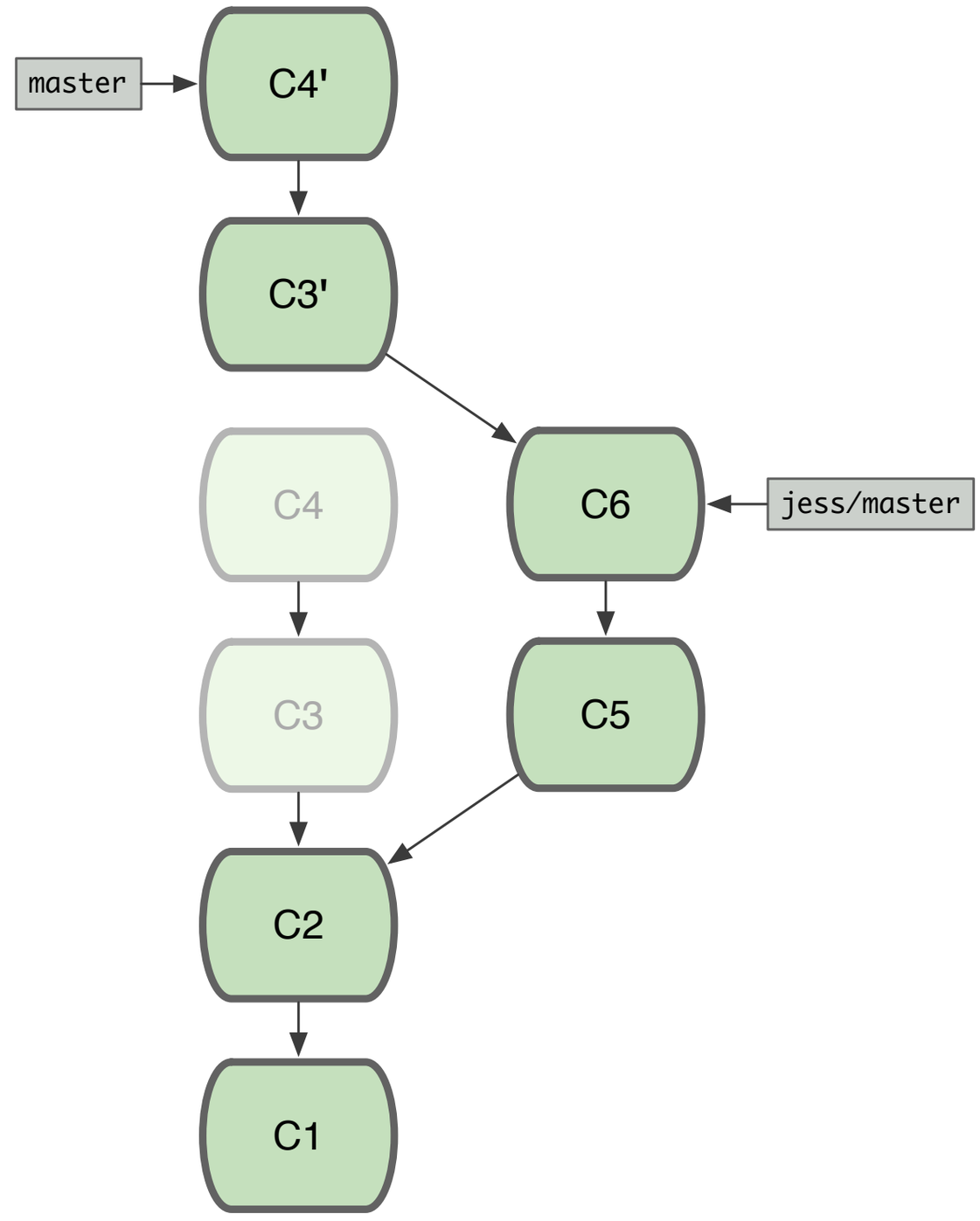
git rebase



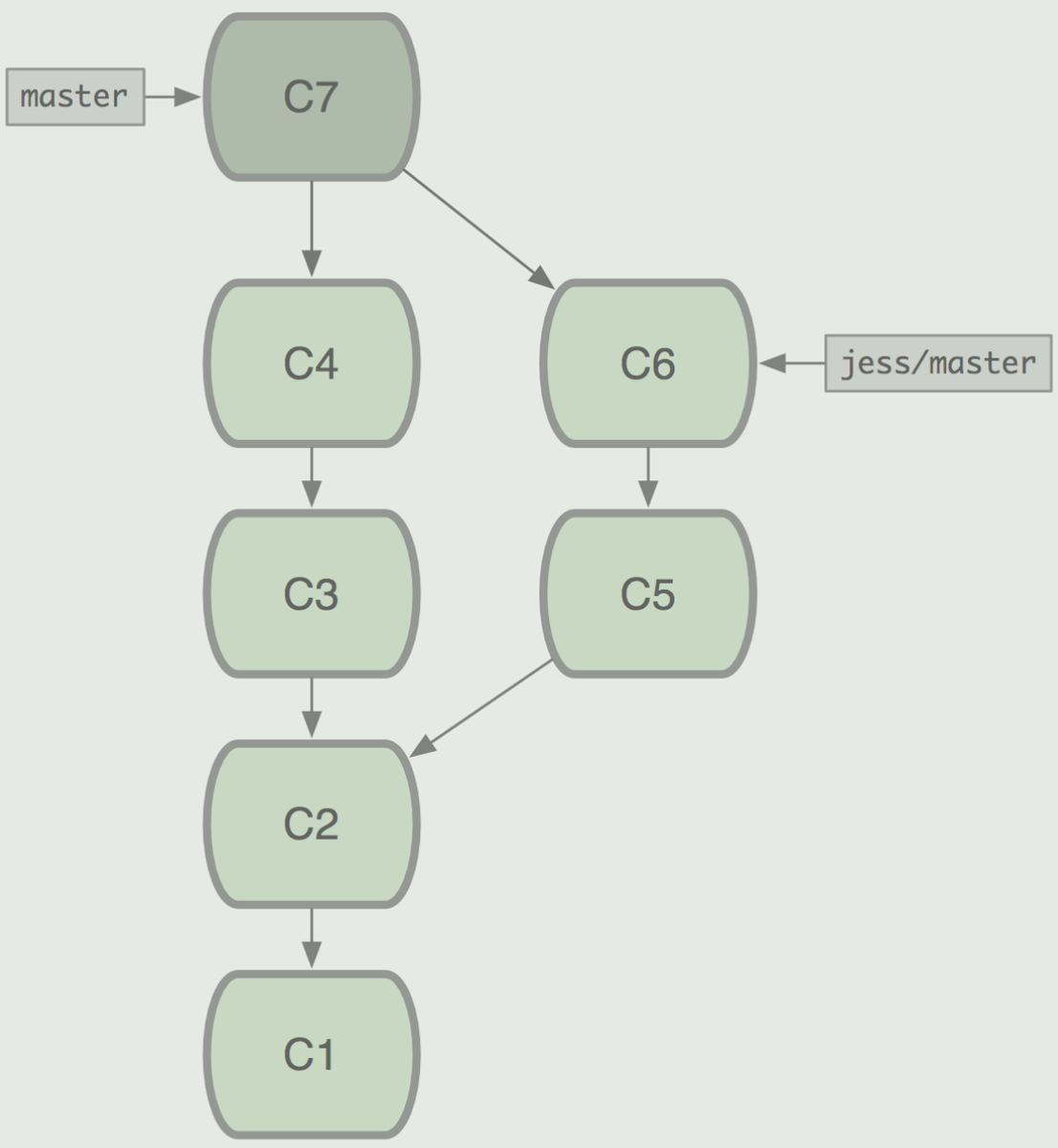
git merge



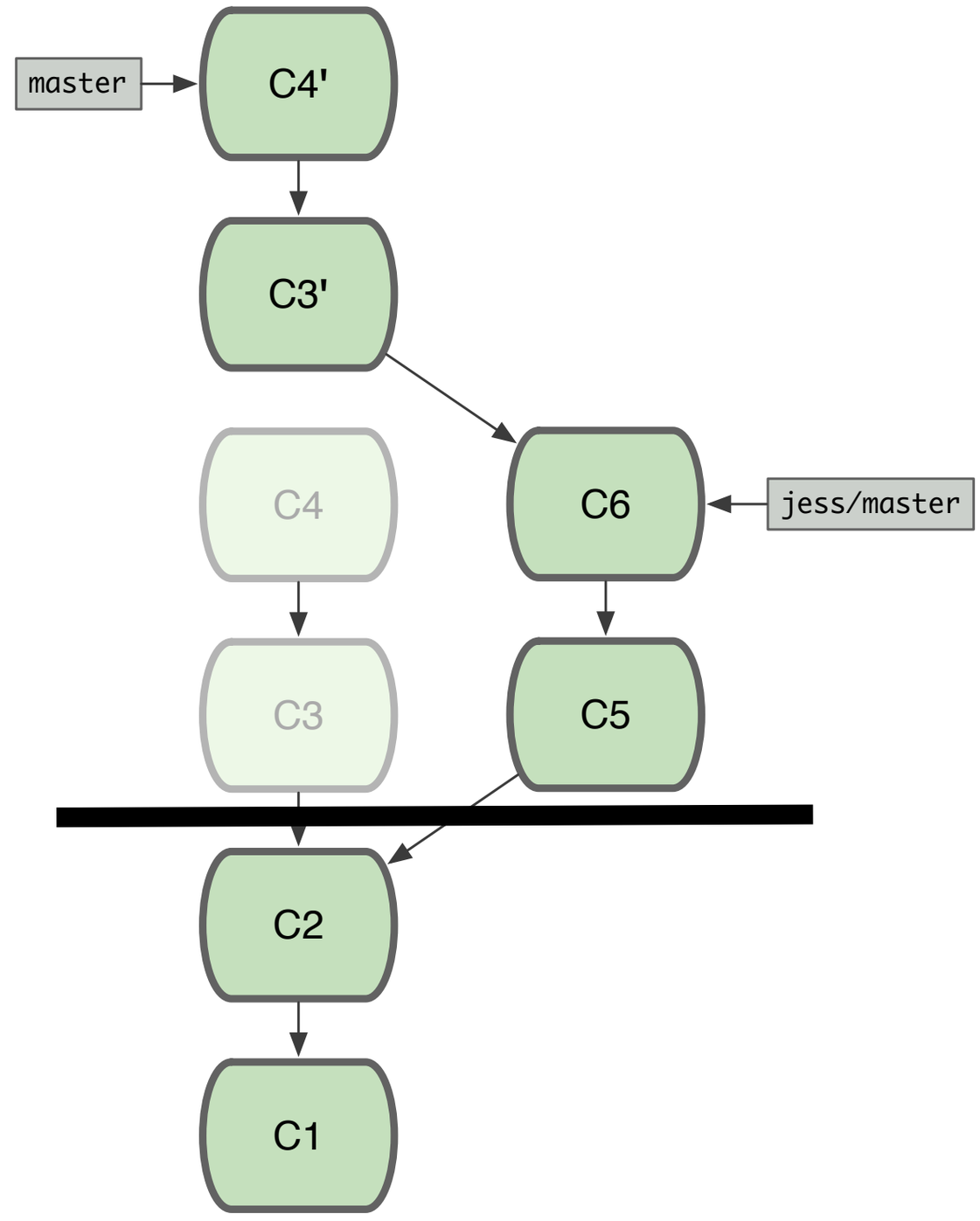
git rebase

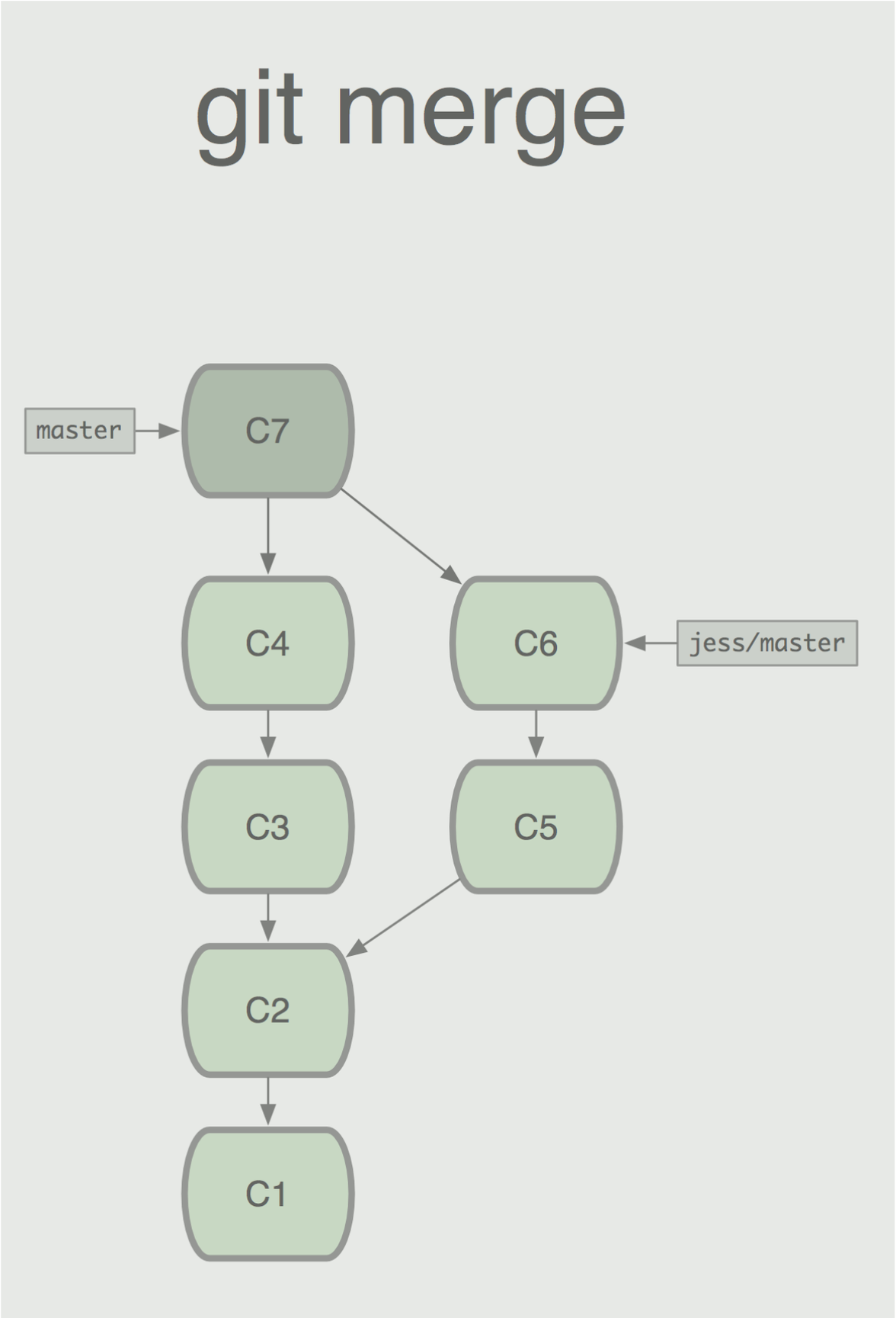


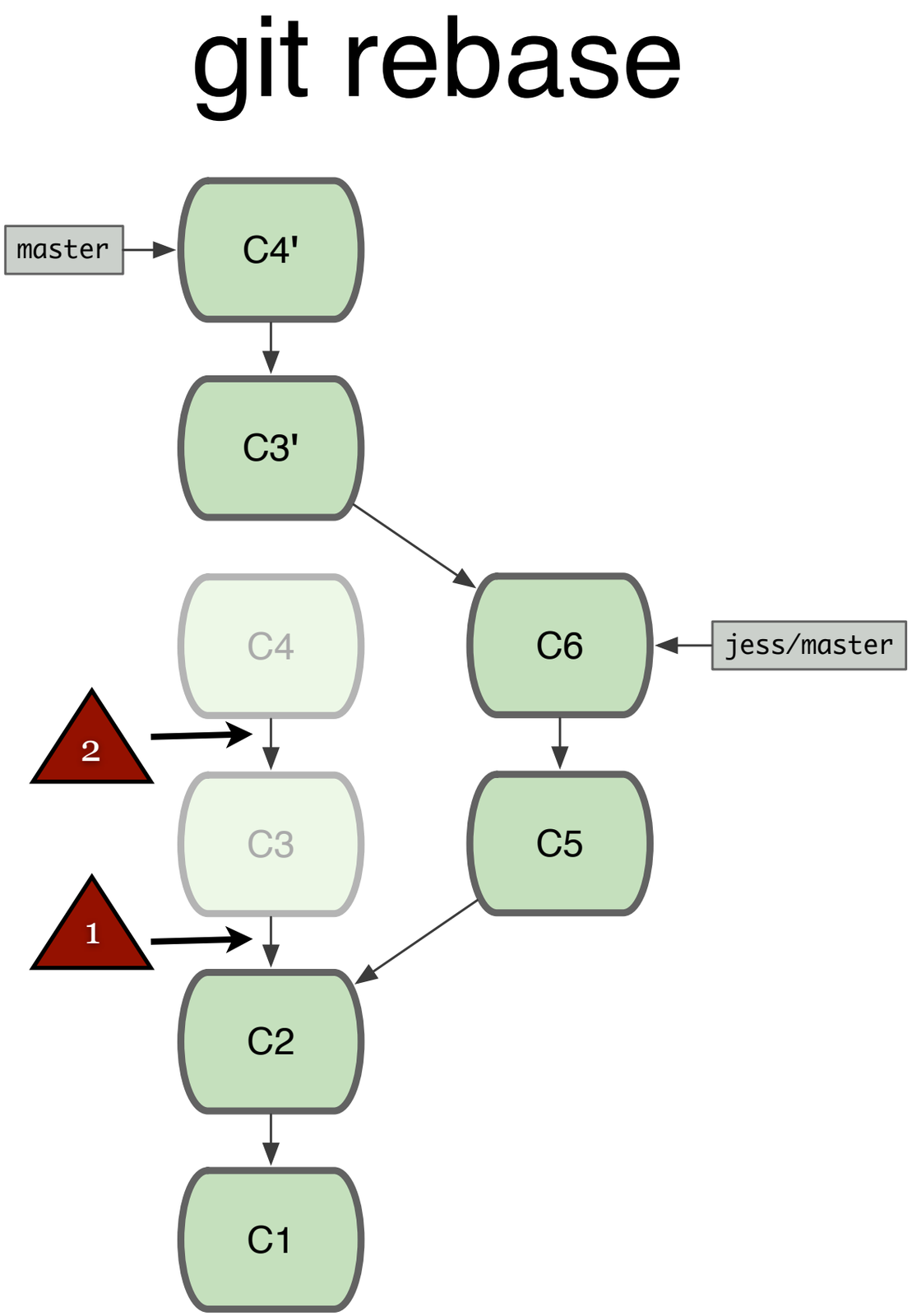
git merge



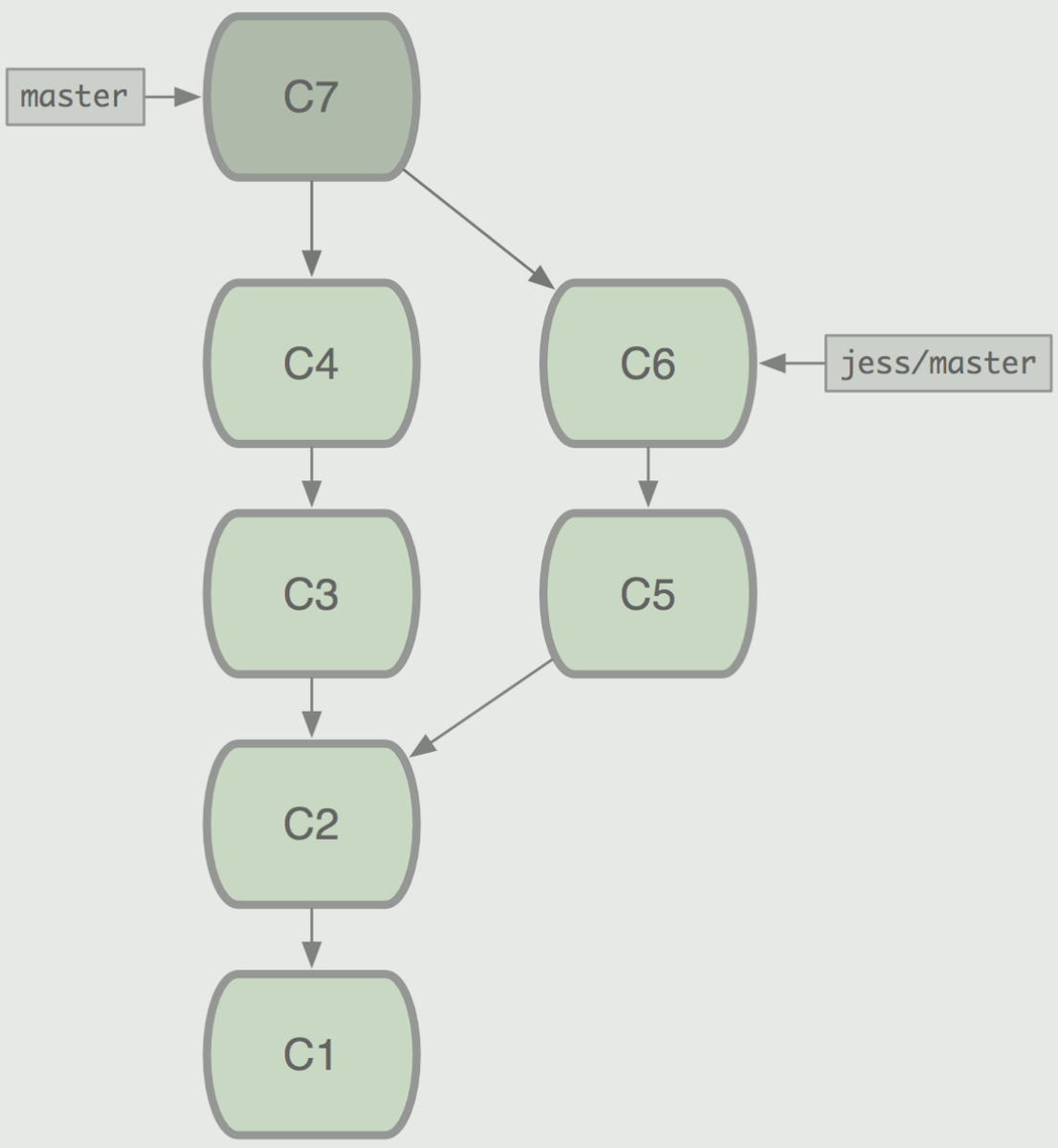
git rebase



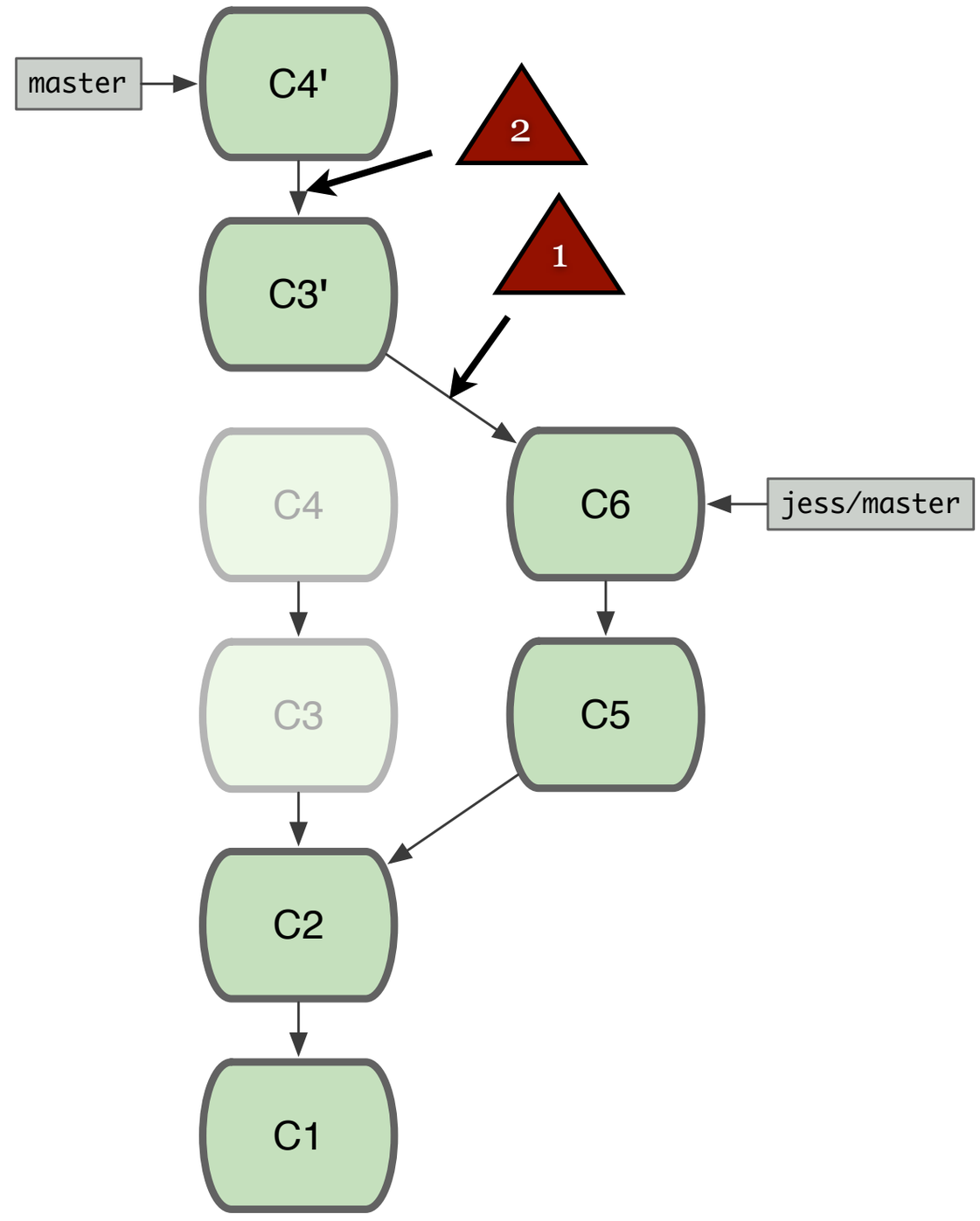

git merge
master
C7
C4
C6
jess/master
C3
C5
C2
C1

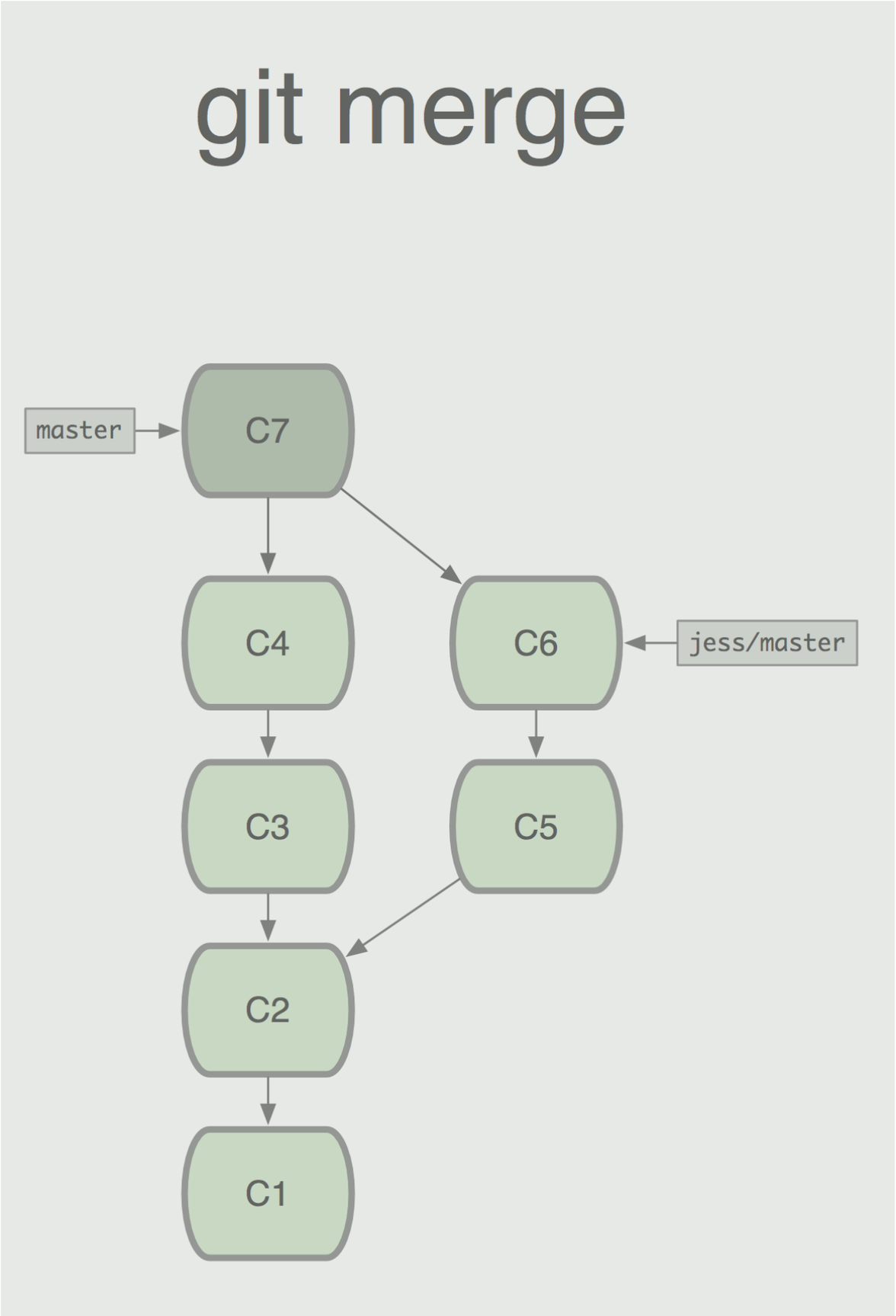

git rebase
master
C4'
C3'
C4
C6
jess/master
2
C3
C5
1
C2
C1

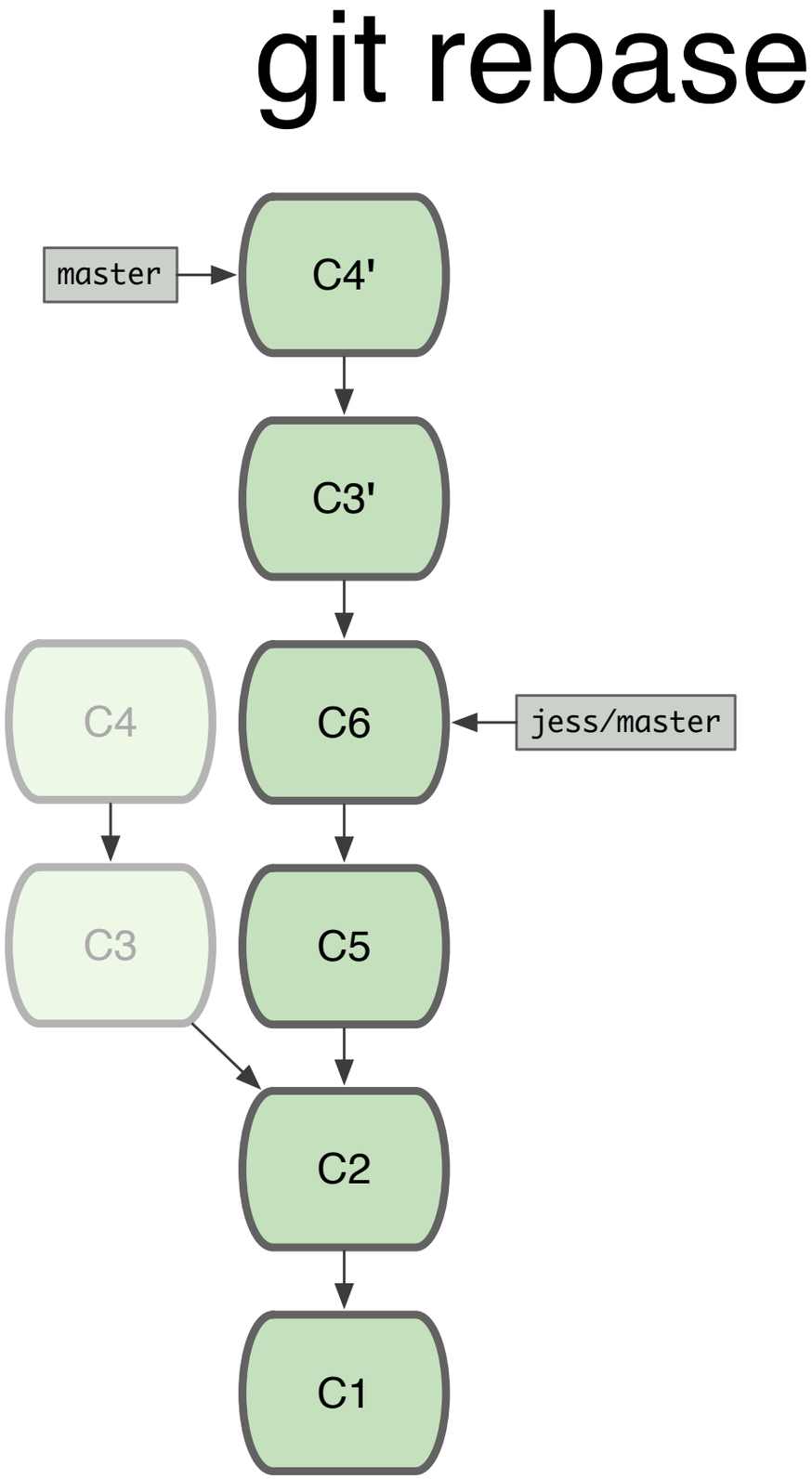
git merge



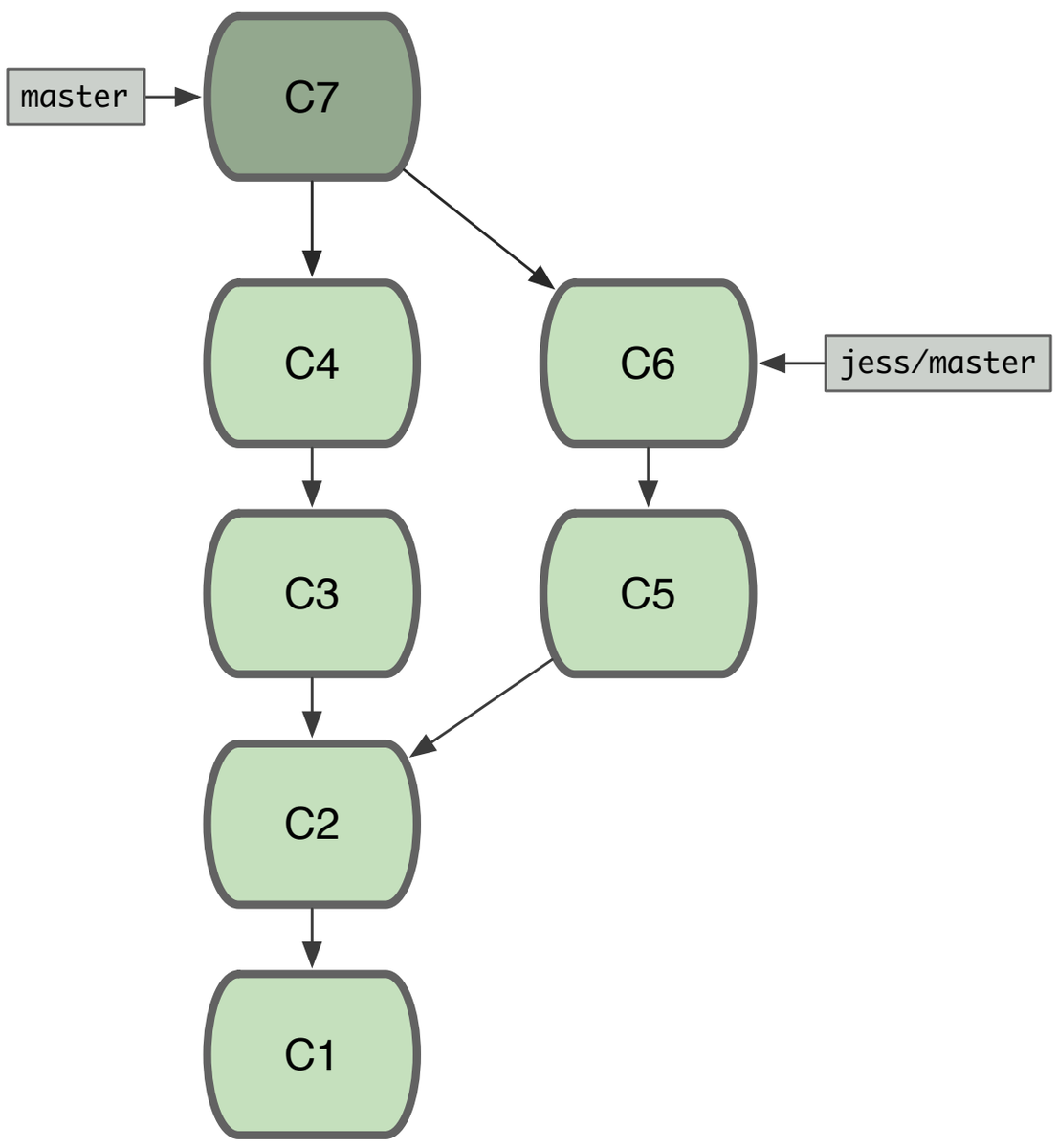
git rebase



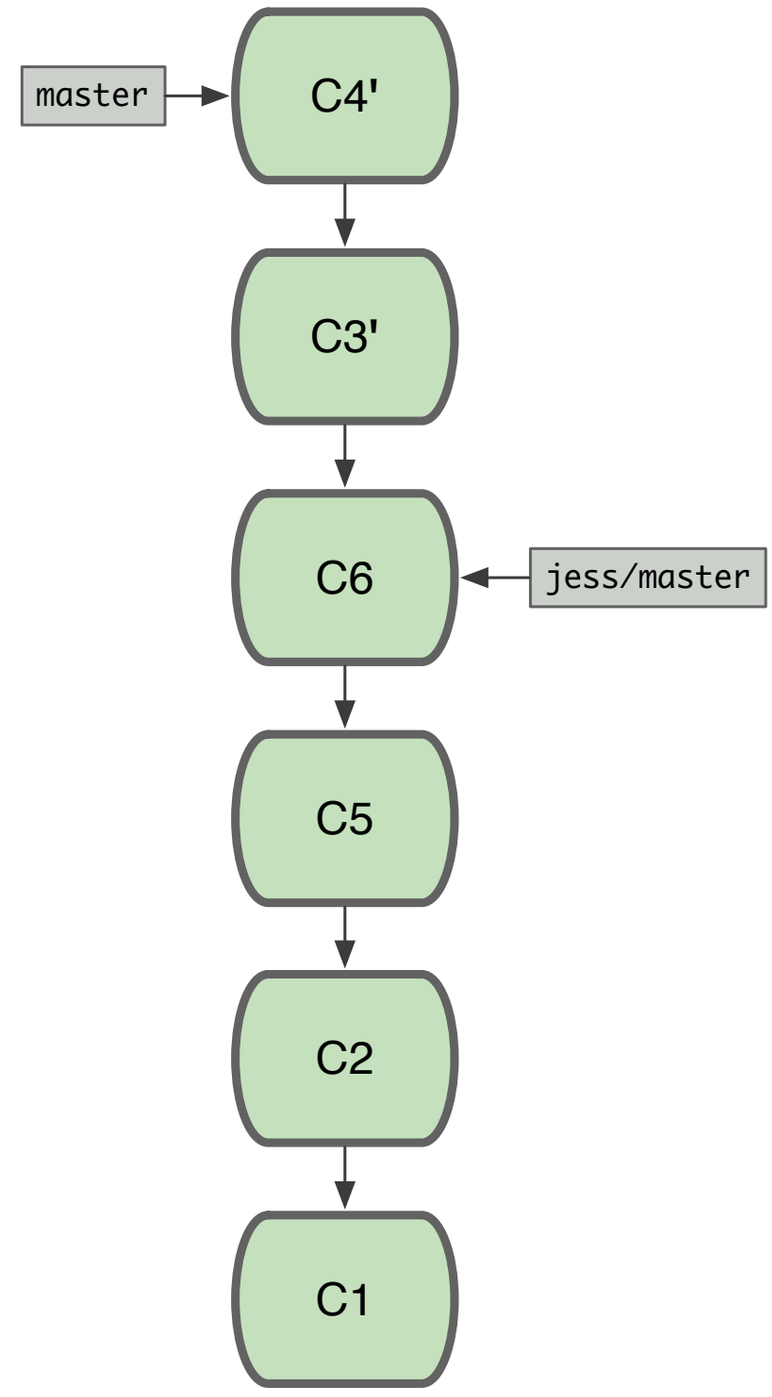

git merge
master
C7
C4
C6
jess/master
C3
C5
C2
C1


git rebase
master
C4'
C3'
C4
C6
jess/master
C3
C5
C2
C1

git merge



git rebase



the treeish

the treeish

alternate ways to refer to
objects or ranges of objects

Treeish

- full sha-1
- partial sha-1
- branch or tag name
- date spec
- ordinal spec
- carrot parent
- tilde spec
- tree pointer
- blob spec
- ranges

Full SHA1

6e453f523fa1da50ecb04431101112b3611c6a4d

Partial SHA1

6e453f523fa1da50ecb04431101112b3611c6a4d

6e453f523fa1da50

6e453

Branch, Remote or Tag Name

v1.0

master

origin/testing

Date Spec

```
master@{yesterday}

master@{1 month ago}
```

Ordinal Spec

```
master@{5}
```

5th prior value of ‘master’

Carrot Parent

`master^2`

2nd parent of ‘master’

Tilde Spec

`master~2`

2nd generation grandparent of ‘master’

Tree Pointer

```
master^{tree}
```

tree that ‘master’ points to

Blob Spec

`master:/path/to/file`

blob of that file in ‘master’ commit

Ranges

`ce0e4..e4272`

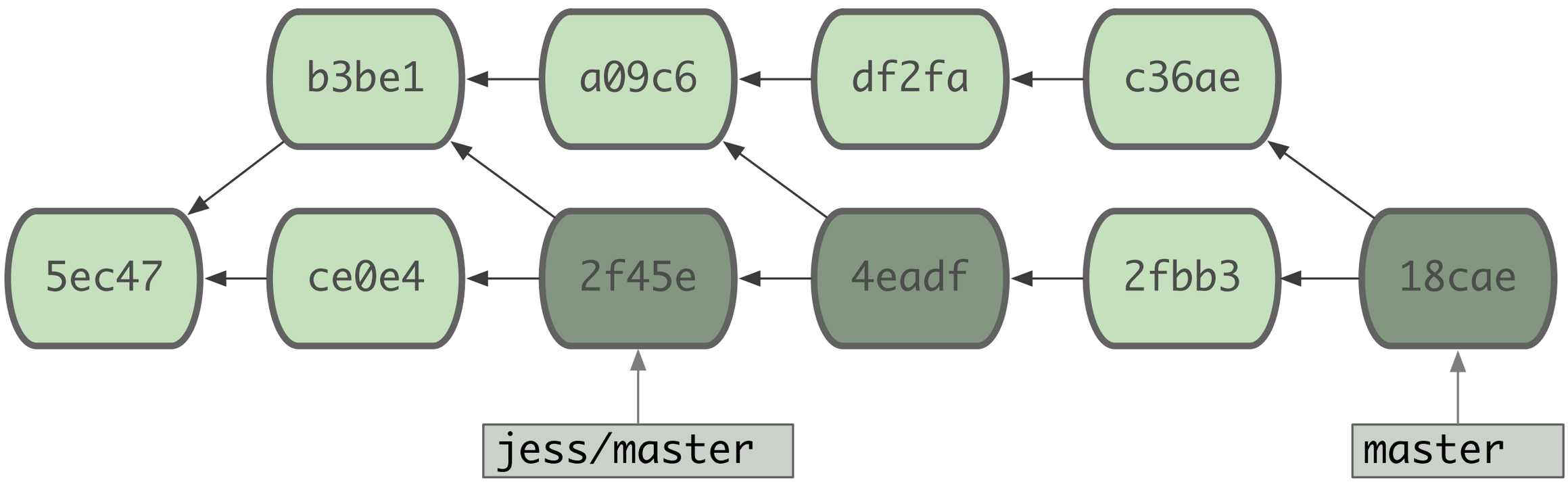
everything between two commits

Ranges

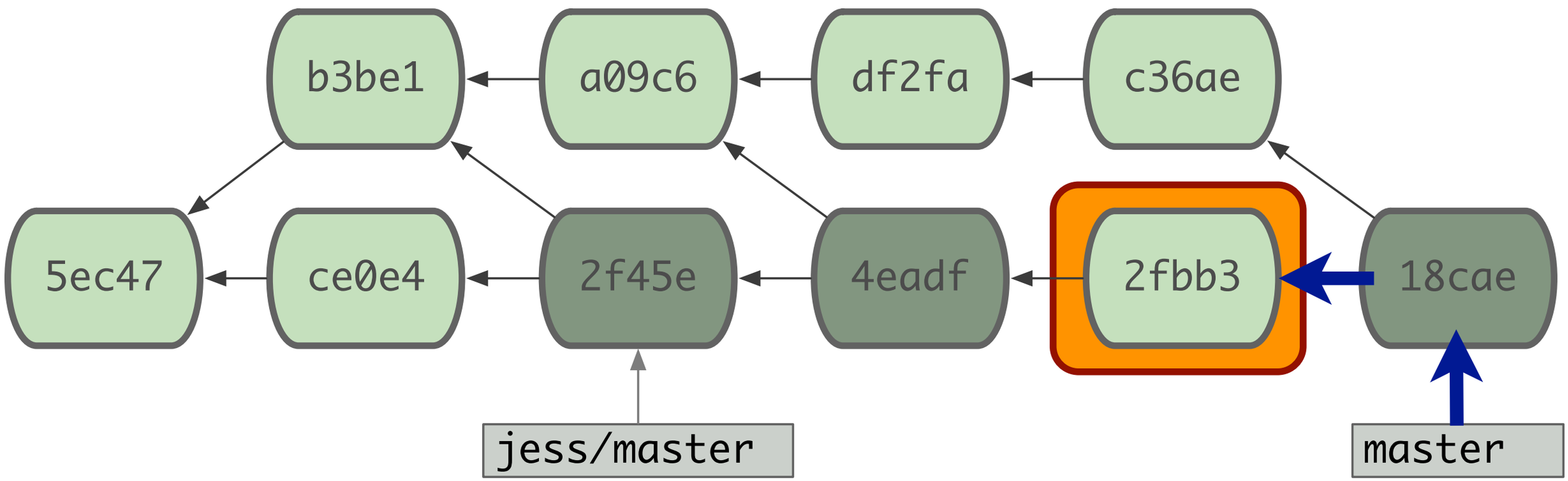
`ce0e4..`

everything since a commit

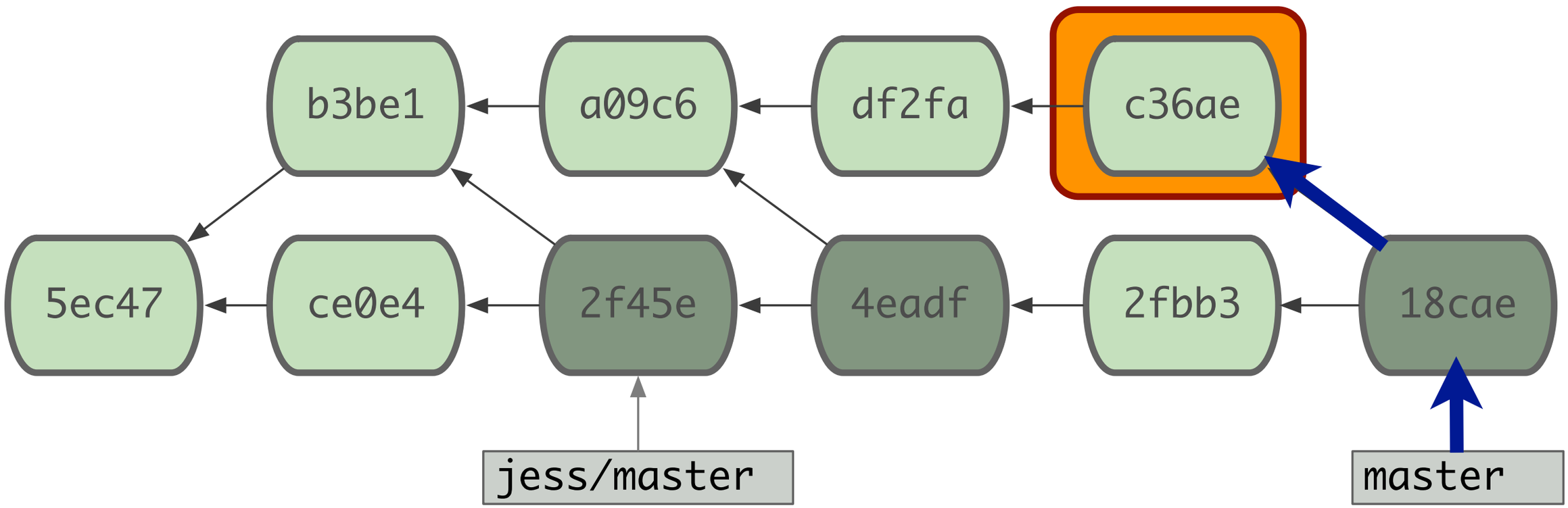
examples


b3be1
a09c6
df2fa
c36ae
5ec47
ce0e4
2f45e
4eadf
2fbb3
18cae
jess/master
master

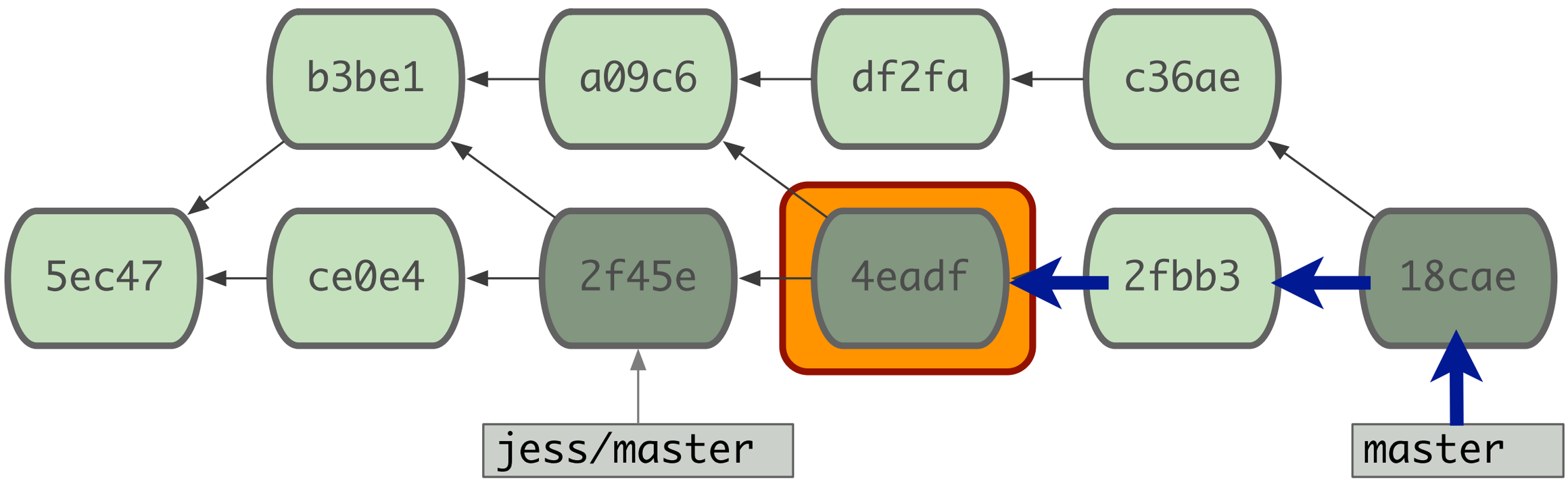
master^


b3be1
a09c6
df2fa
c36ae
5ec47
ce0e4
2f45e
4eadf
2fbb3
18cae
jess/master
master

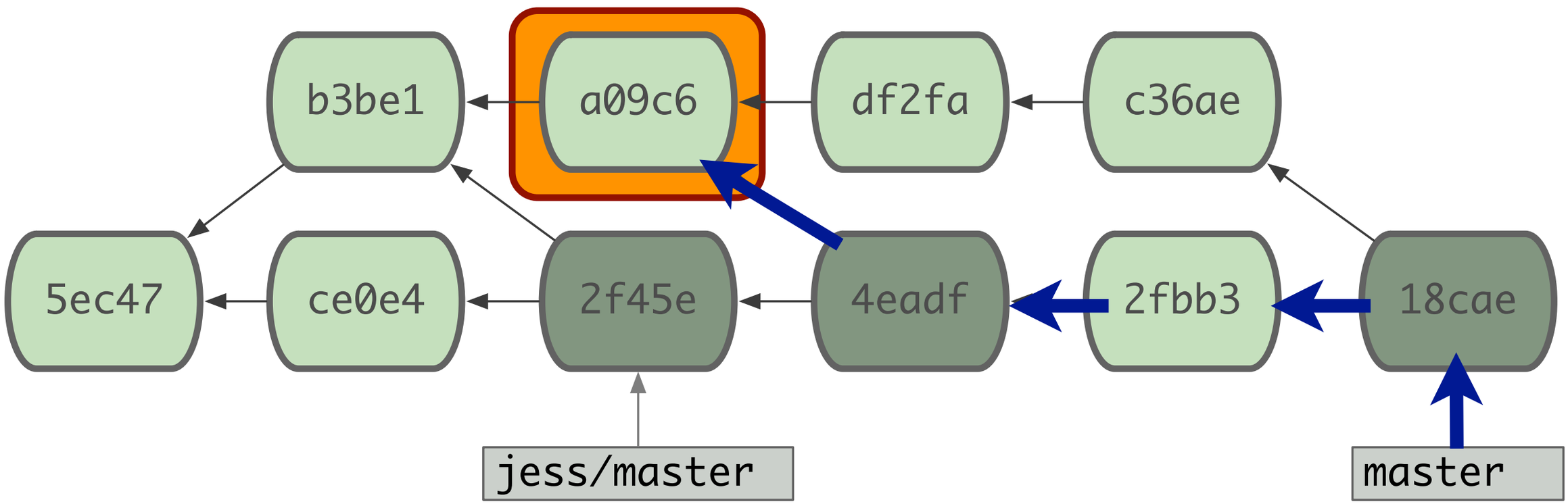
master^2


b3be1
a09c6
df2fa
c36ae
5ec47
ce0e4
2f45e
4eadf
2fbb3
18cae
jess/master
master

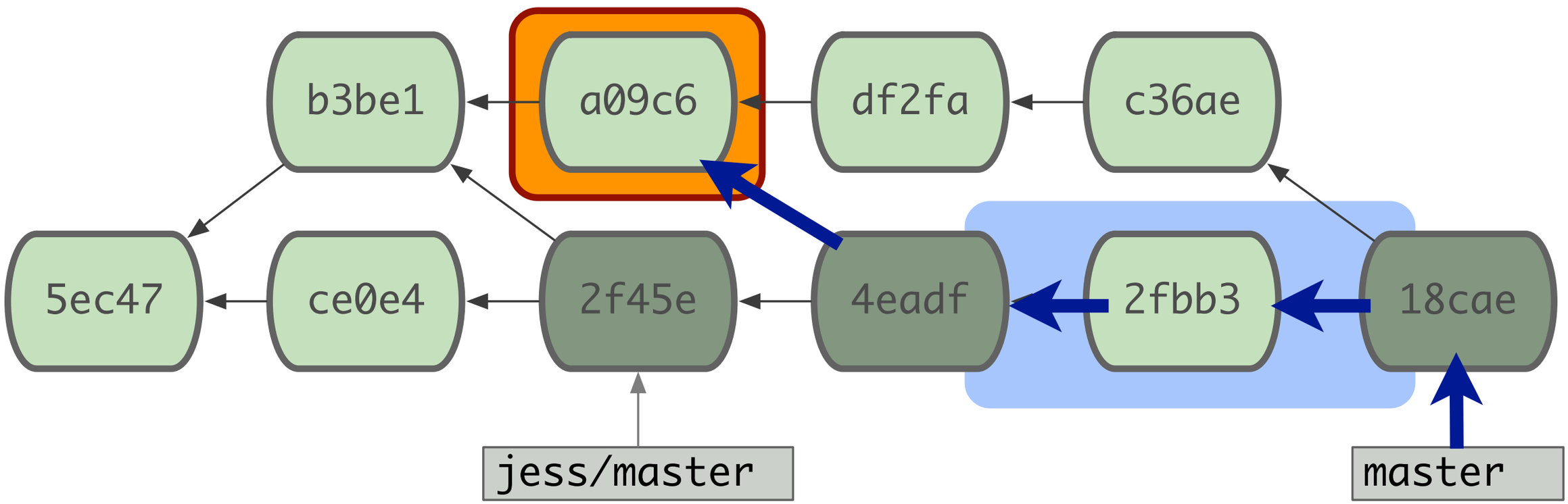
master~2


b3be1
a09c6
df2fa
c36ae
5ec47
ce0e4
2f45e
4eadf
2fbb3
18cae
jess/master
master

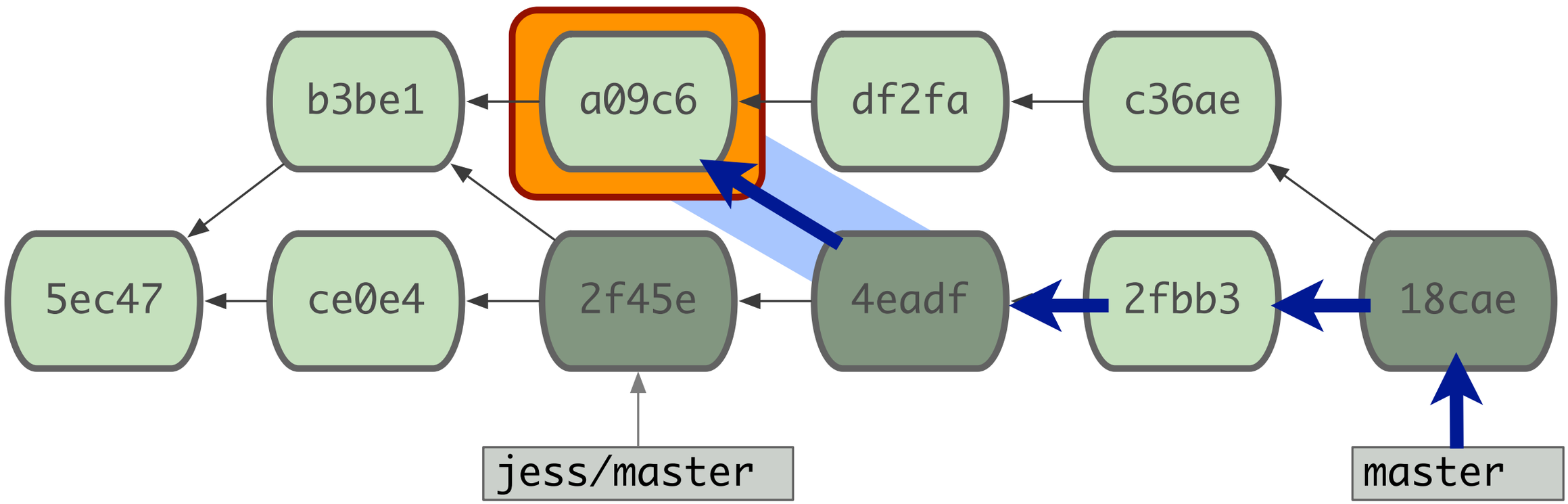
master^^^2
master~2^2



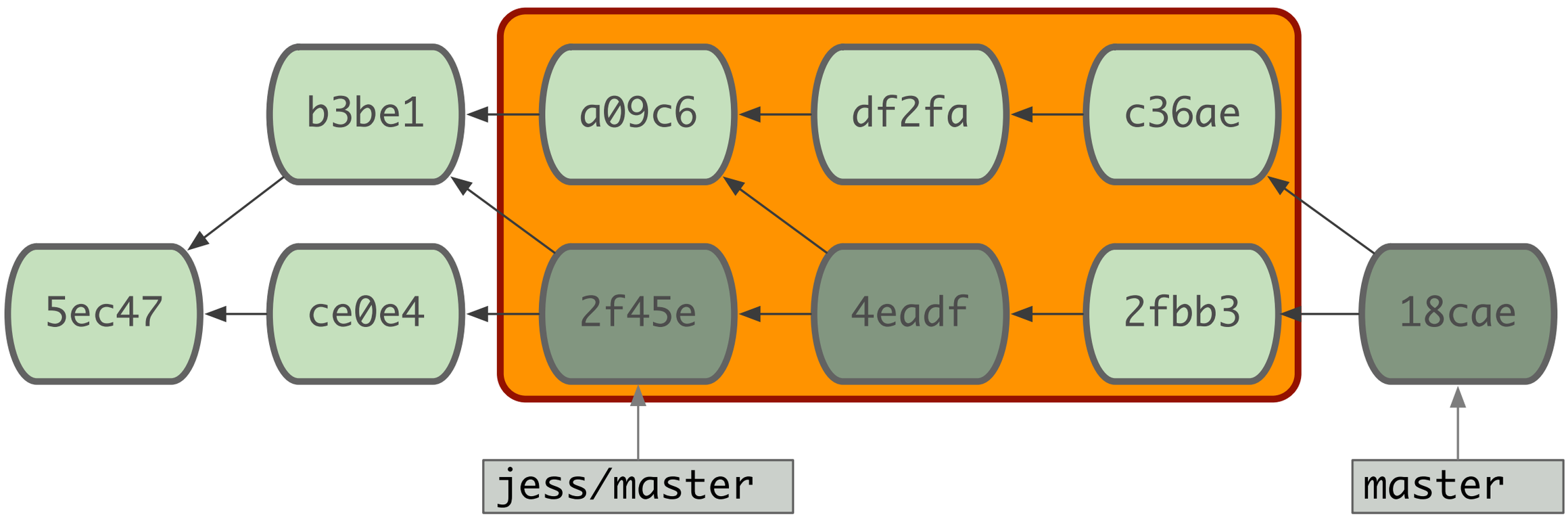
master^^^2
master~2^2



master^^^2
master~2^2



master~3..master^



local stuff

the index

Git Directory

config file

hooks

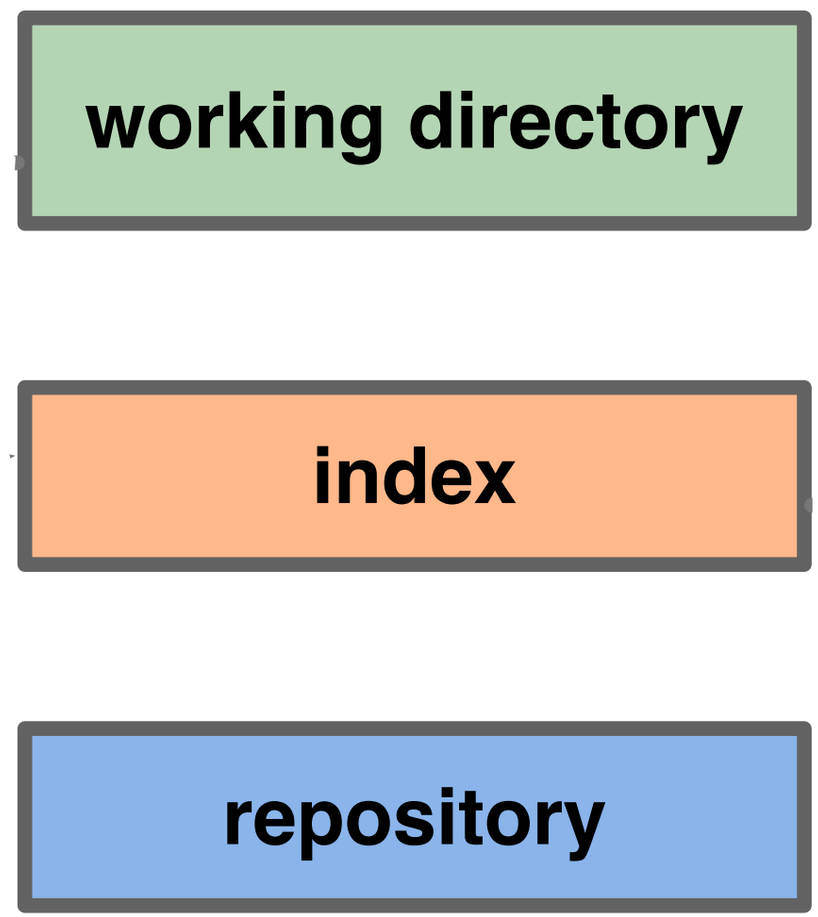
index

object database

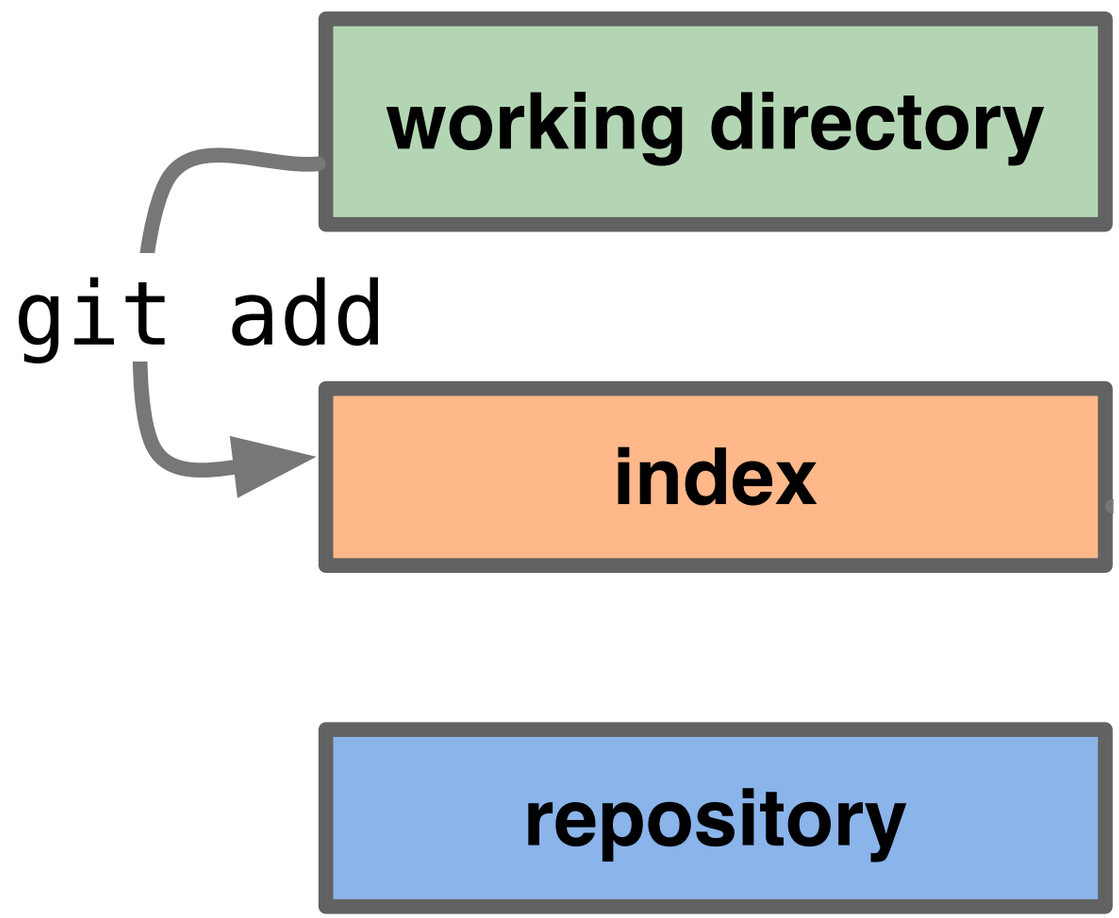
references

index

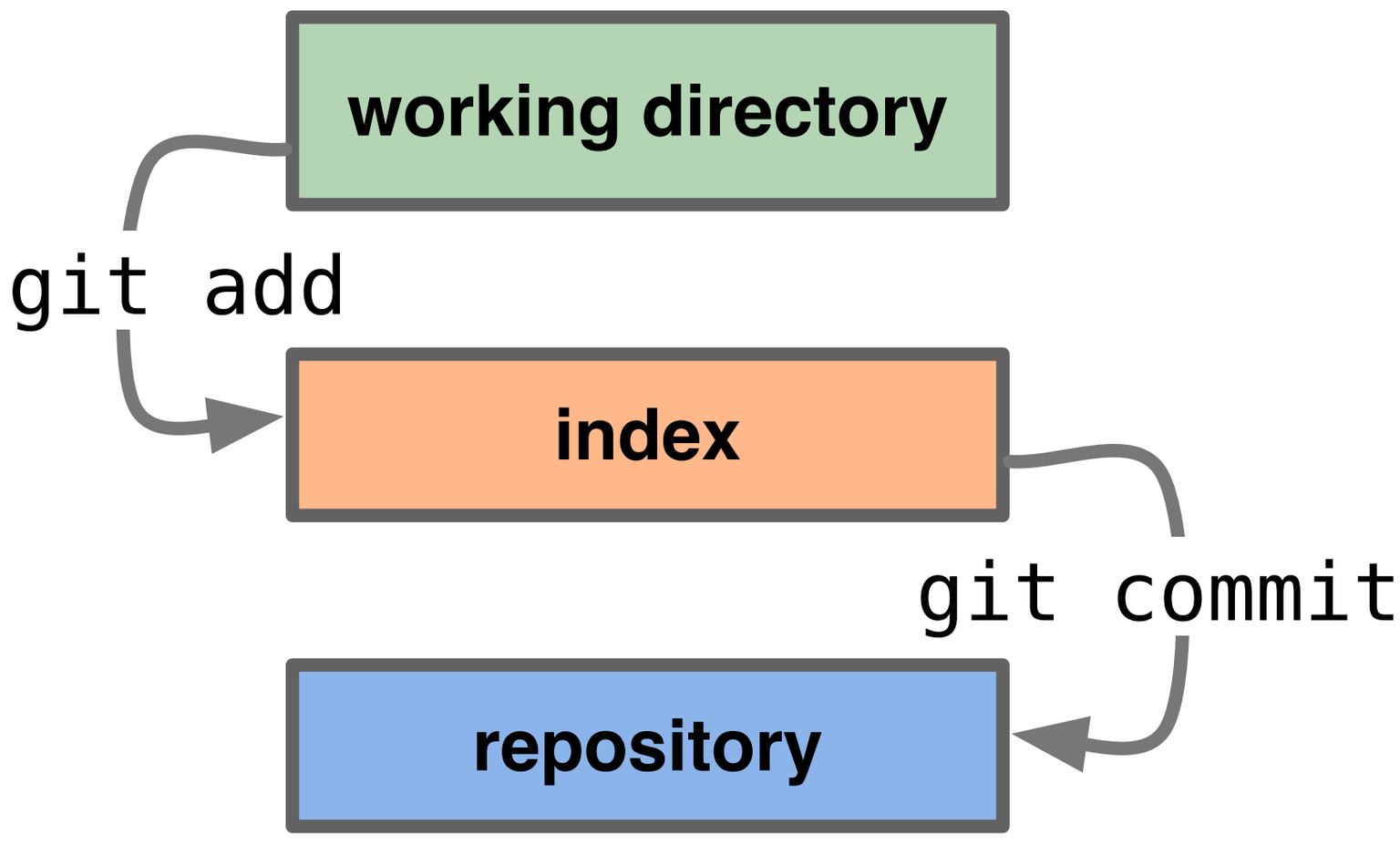
index



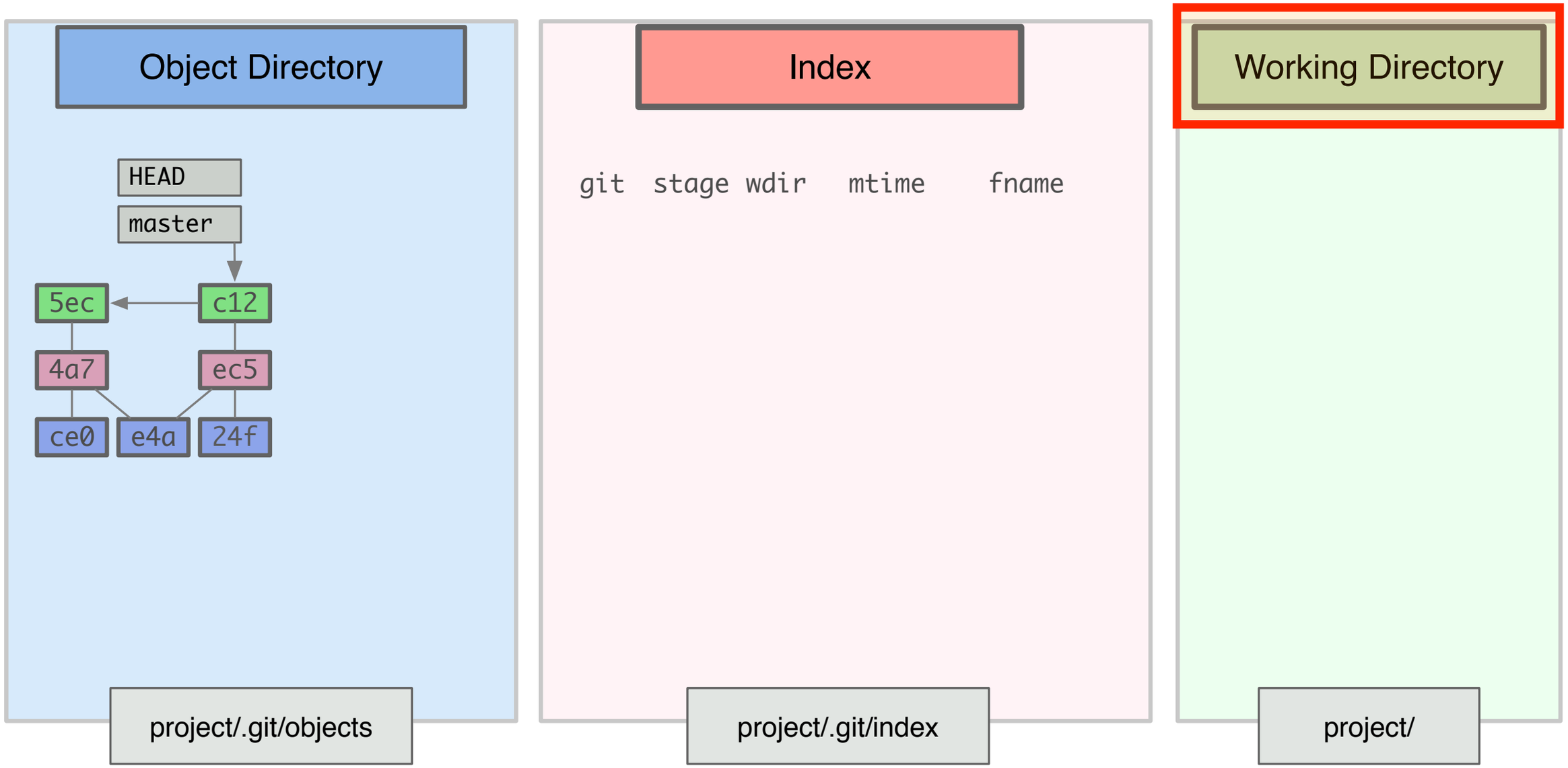
index



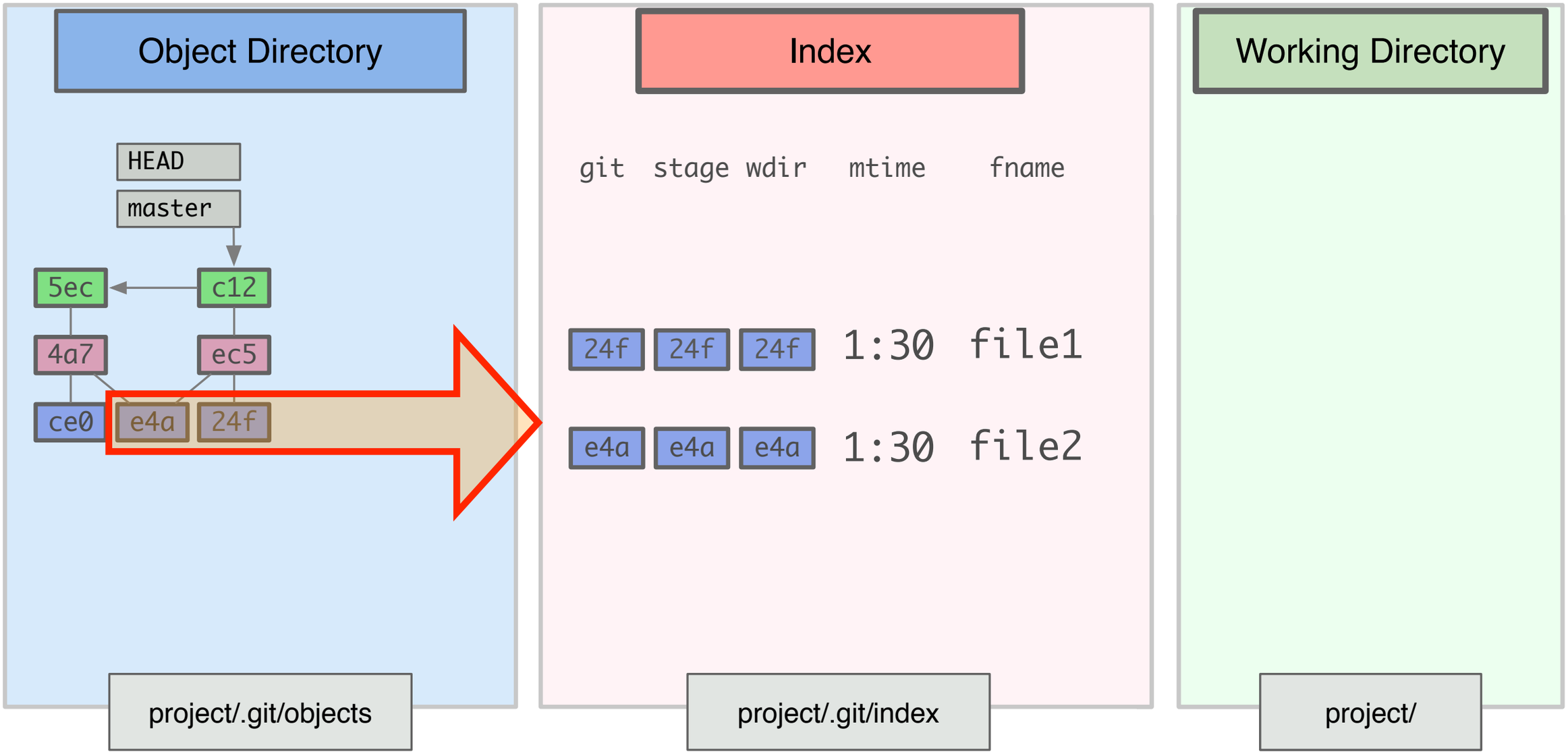
index



what?


Object Directory
HEAD
master
5ec
c12
4a7
ec5
ce0
e4a
24f
project/.git/objects
Index
git stage wdir mtime fname
project/.git/index
Working Directory
project/

git checkout

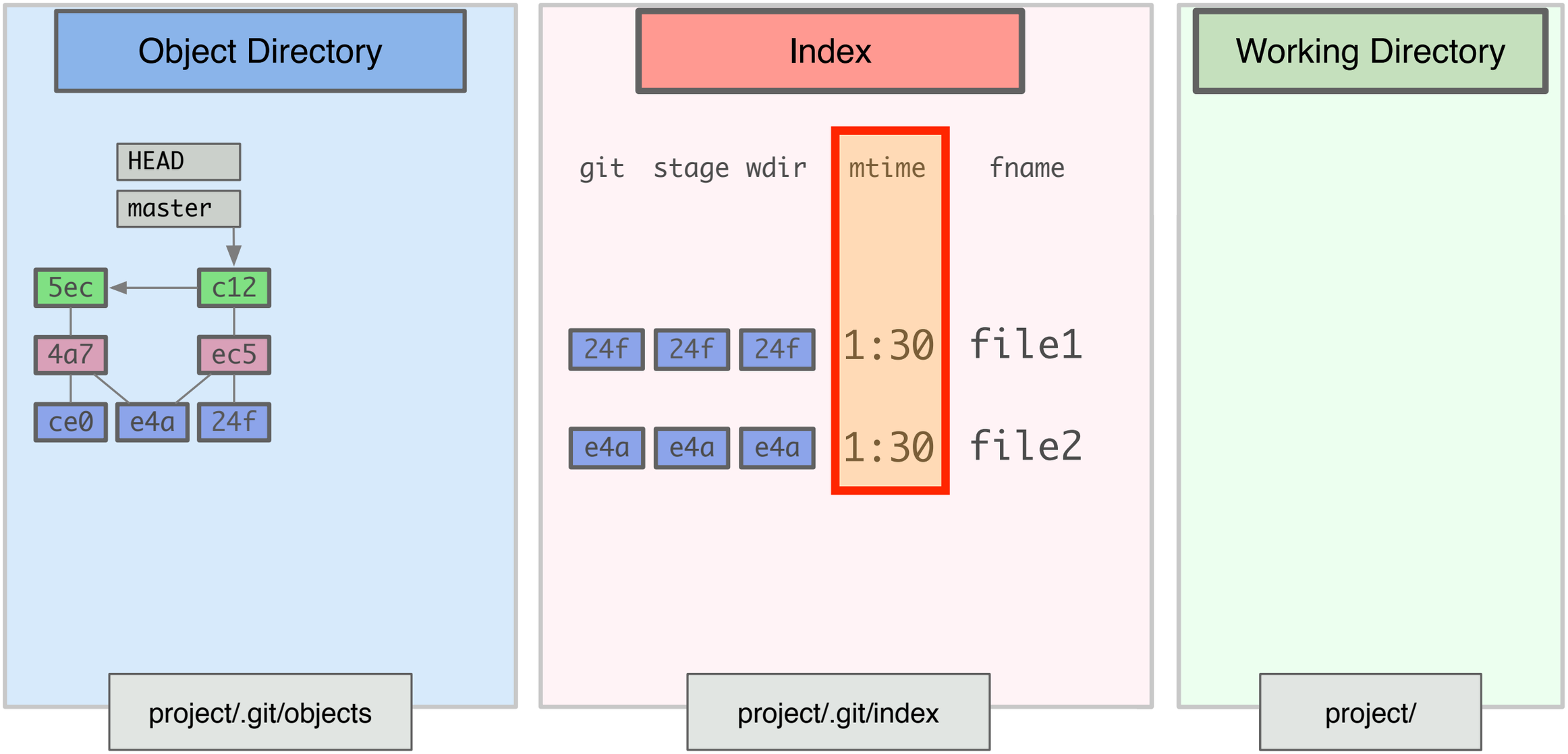


git checkout

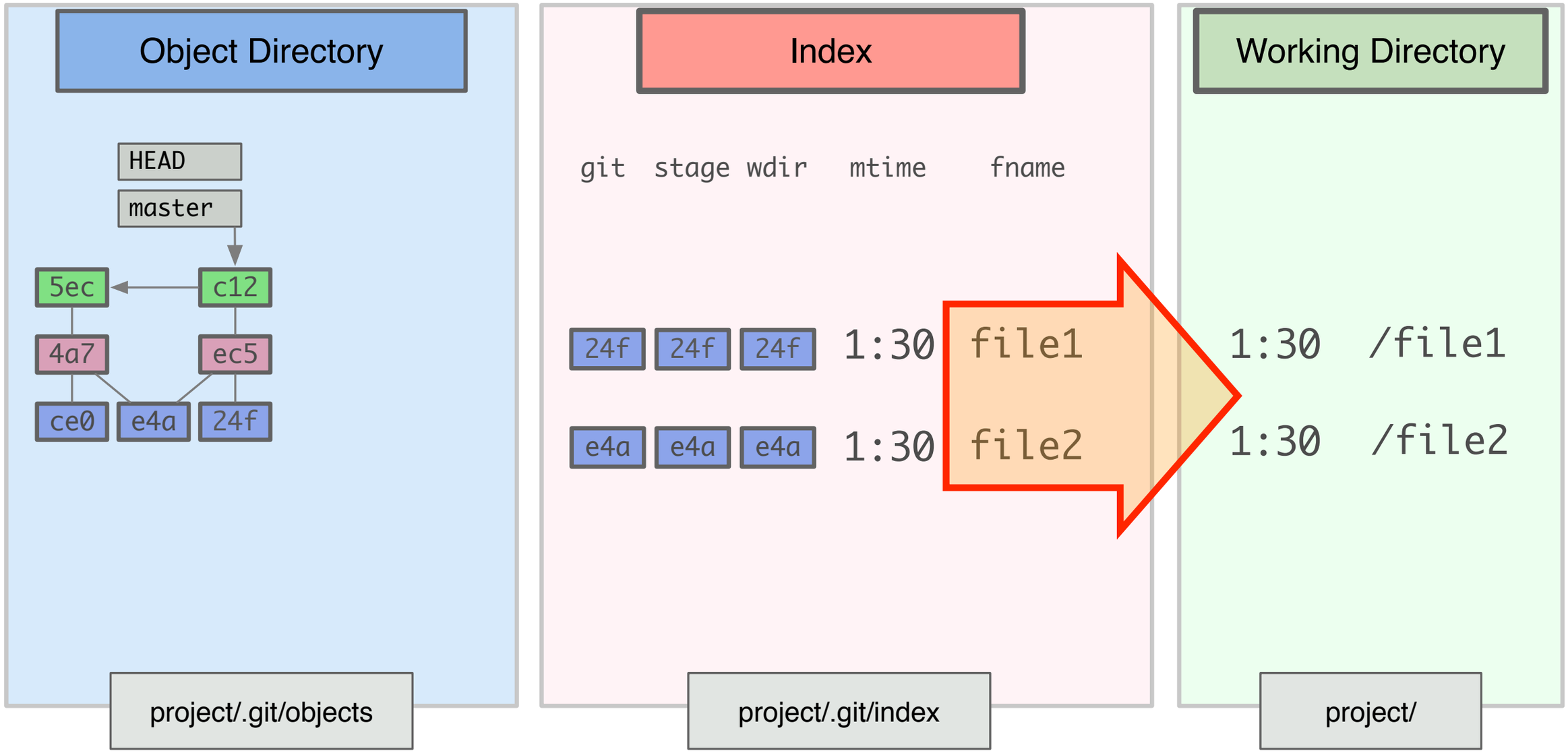
git checkout

git checkout

git checkout



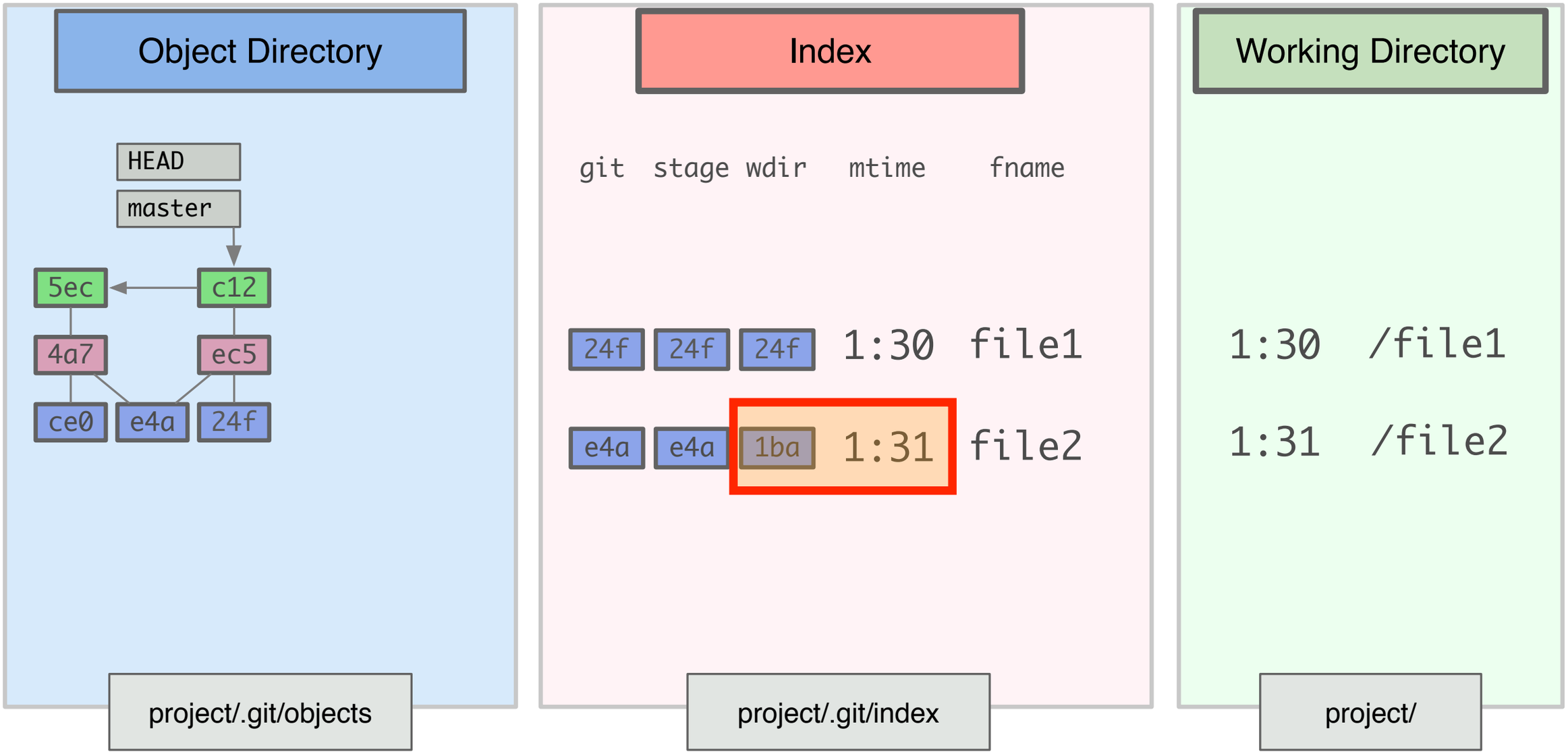
git checkout



git checkout

Object Directory
HEAD
master
5ec
c12
4a7
ec5
ce0
e4a
24f
project/.git/objects
Index
git stage wdir mtime fname
24f 24f 24f 1:30 file1
e4a e4a e4a 1:30 file2
project/.git/index
Working Directory
1:30 /file1
1:31 /file2
project/

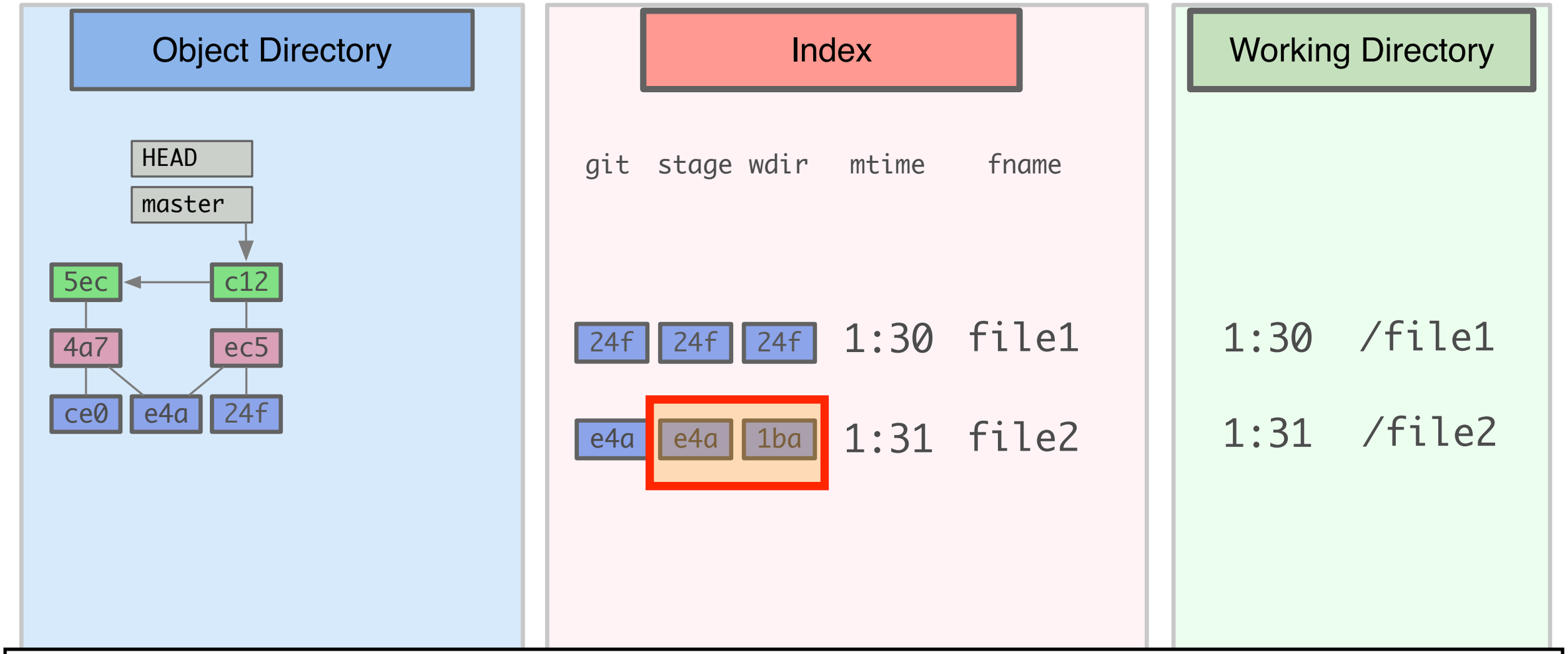
vim file2


Object Directory
HEAD
master
5ec
c12
4a7
ec5
ce0
e4a
24f
project/.git/objects
Index
git stage wdir mtime fname
24f 24f 24f 1:30 file1
e4a e4a 1ba 1:31 file2
project/.git/index
Working Directory
1:30 /file1
1:31 /file2
project/

git status

Object Directory
HEAD
master
5ec
c12
4a7
ec5
ce0
e4a
24f
project/.git/objects
Index
git stage wdir mtime fname
24f 24f 24f 1:30 file1
e4a e4a 1ba 1:31 file2
project/.git/index
Working Directory
1:30 /file1
1:31 /file2
project/

git status




```
$>git status
# On branch master
# Changed but not updated:
#   (use "git add <file>..." to update what will be committed)
#
#       modified:   file2
#
```

Object Directory
HEAD
master
5ec
c12
4a7
ec5
ce0
e4a
24f
project/.git/objects
Index
git stage wdir mtime fname
24f 24f 24f 1:30 file1
e4a e4a 1ba 1:31 file2
project/.git/index
Working Directory
1:30 /file1
1:31 /file2
project/

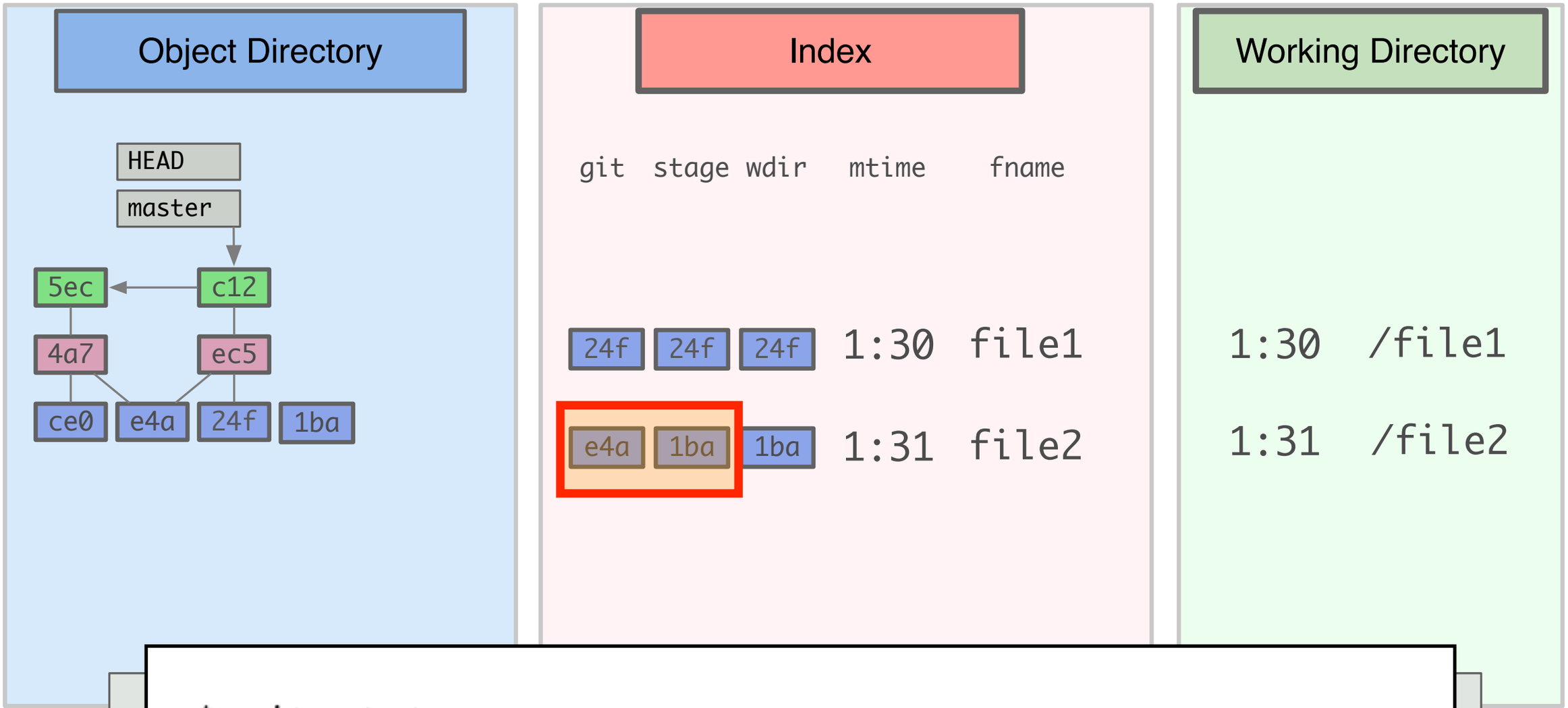
git add file2

git add file2

git add file2

Object Directory
HEAD
master
5ec
c12
4a7
ec5
ce0
e4a
24f
1ba
project/.git/objects
Index
git stage wdir mtime fname
24f 24f 24f 1:30 file1
e4a 1ba 1ba 1:31 file2
project/.git/index
Working Directory
1:30 /file1
1:31 /file2
project/

git status




```
$>git status
# On branch master
# Changes to be committed:
#   (use "git reset HEAD <file>..." to unstage)
#
#       modified:   file2
#
```

Object Directory
HEAD
master
5ec
c12
83d
4a7
ec5
a3e
ce0
e4a
24f
1ba
project/.git/objects
Index
git stage wdir mtime fname
24f 24f 24f 1:30 file1
1ba 1ba 1ba 1:31 file2
project/.git/index
Working Directory
1:30 /file1
1:31 /file2
project/

git commit

Object Directory
HEAD
master
5ec
c12
83d
4a7
ec5
a3e
ce0
e4a
24f
1ba
project/.git/objects
Index
git stage wdir mtime fname
24f 24f 24f 1:30 file1
1ba 1ba 1ba 1:31 file2
project/.git/index
Working Directory
1:30 /file1
1:31 /file2
project/

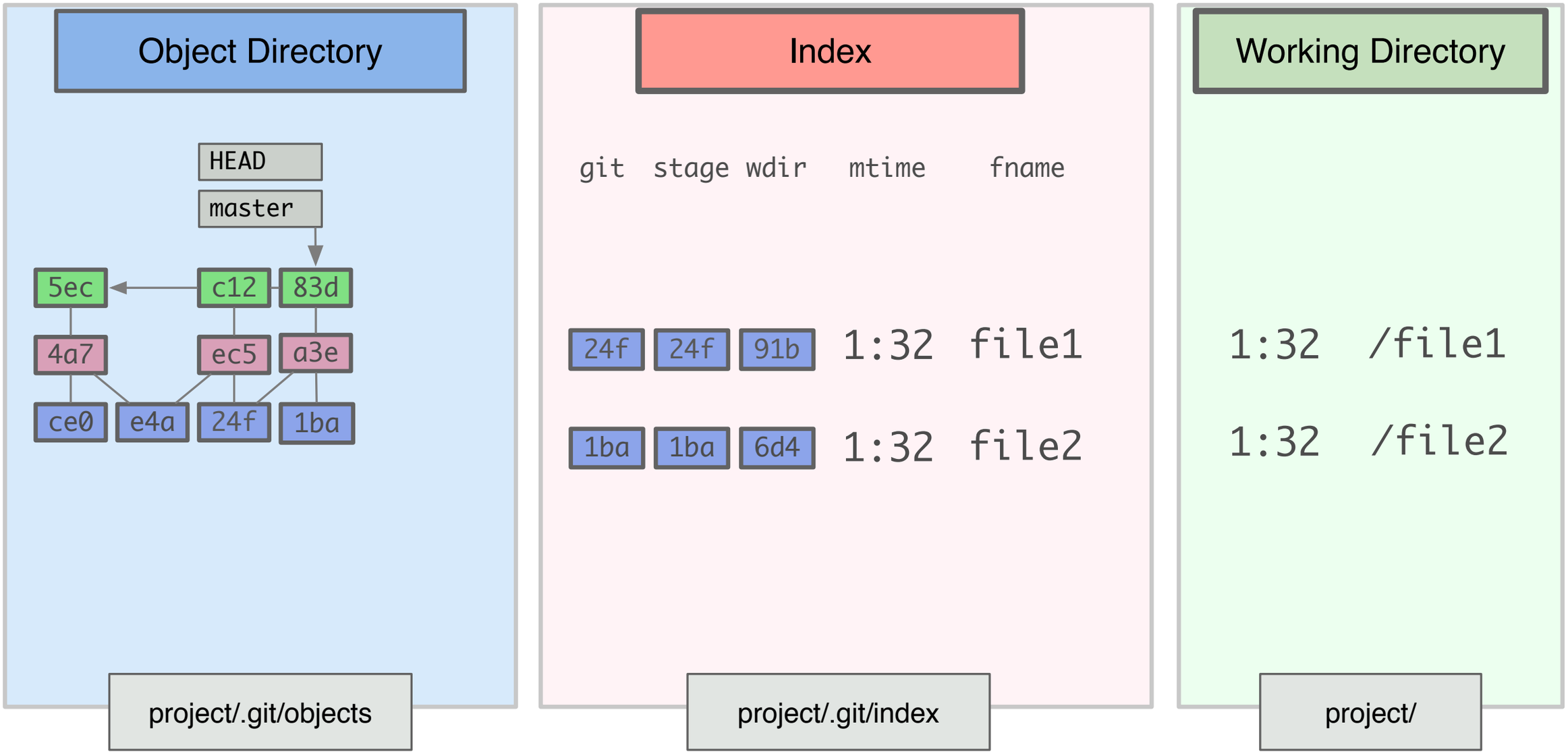
git commit

Object Directory
HEAD
master
5ec
c12
83d
4a7
ec5
a3e
ce0
e4a
24f
1ba
project/.git/objects
Index
git stage wdir mtime fname
24f 24f 24f 1:30 file1
1ba 1ba 1ba 1:31 file2
project/.git/index
Working Directory
1:30 /file1
1:31 /file2
project/

git commit

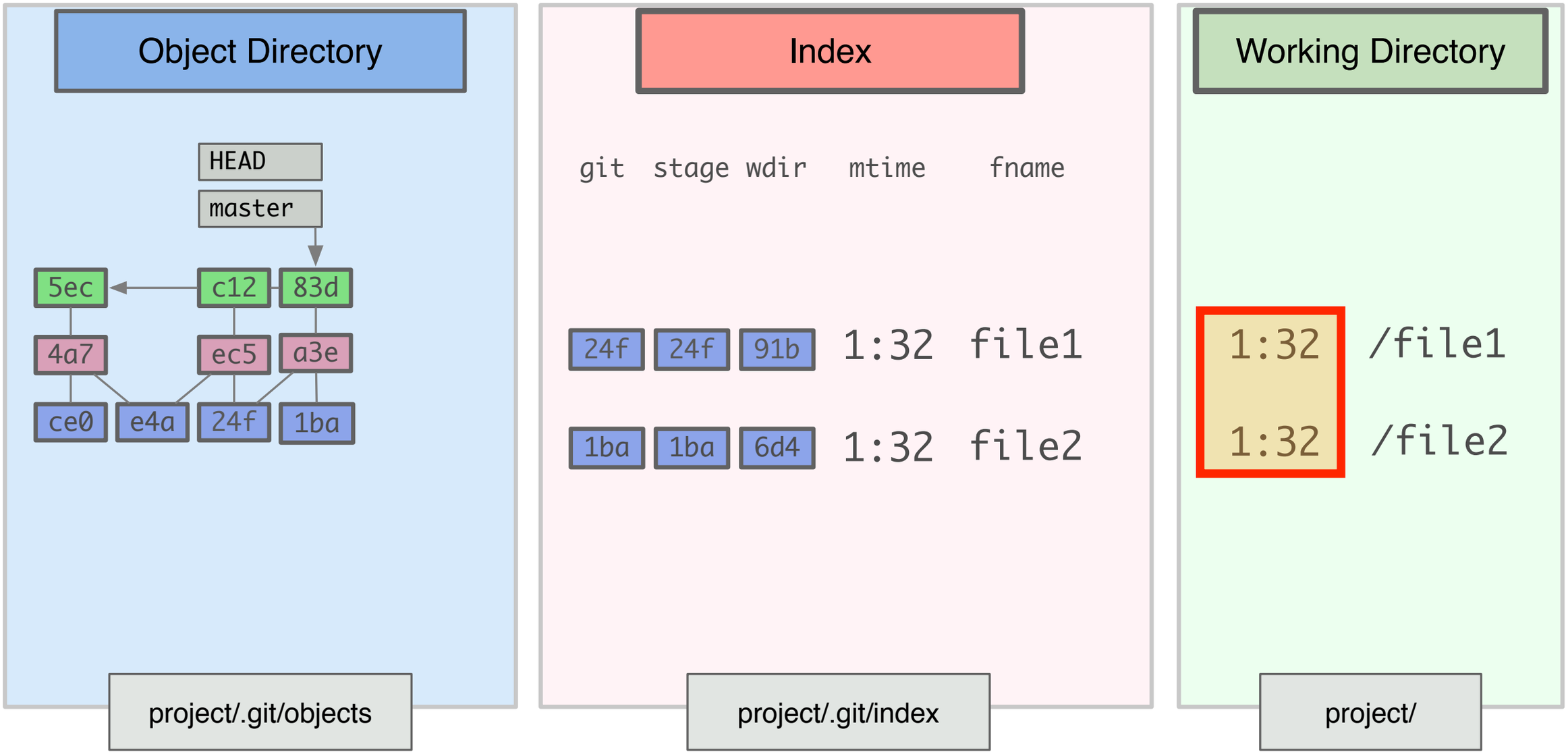
Object Directory
HEAD
master
5ec
c12
83d
4a7
ec5
a3e
ce0
e4a
24f
1ba
project/.git/objects
Index
git stage wdir mtime fname
24f 24f 24f 1:30 file1
1ba 1ba 1ba 1:31 file2
project/.git/index
Working Directory
1:30 /file1
1:31 /file2
project/

git commit



vim file1 file2

git status

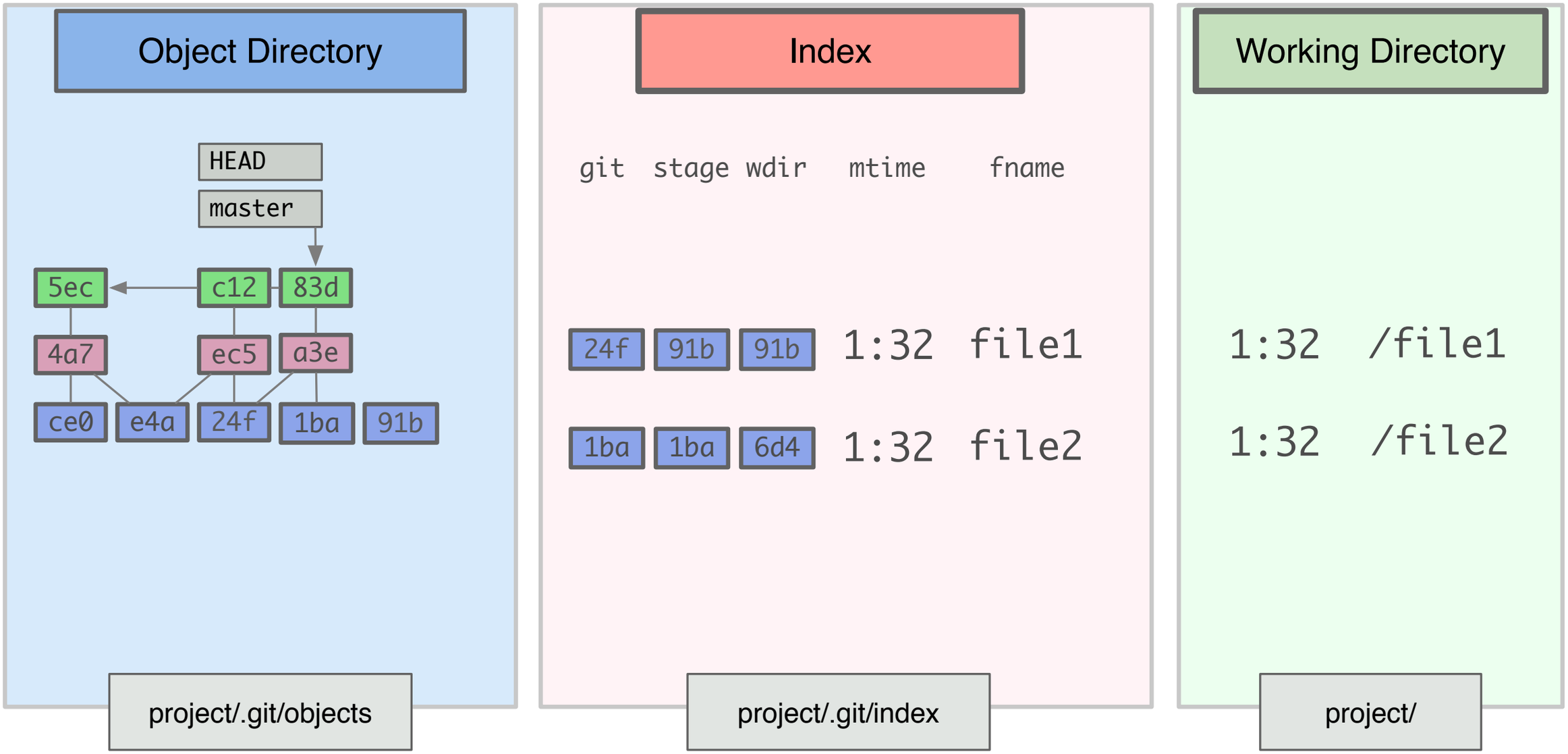


vim file1 file2

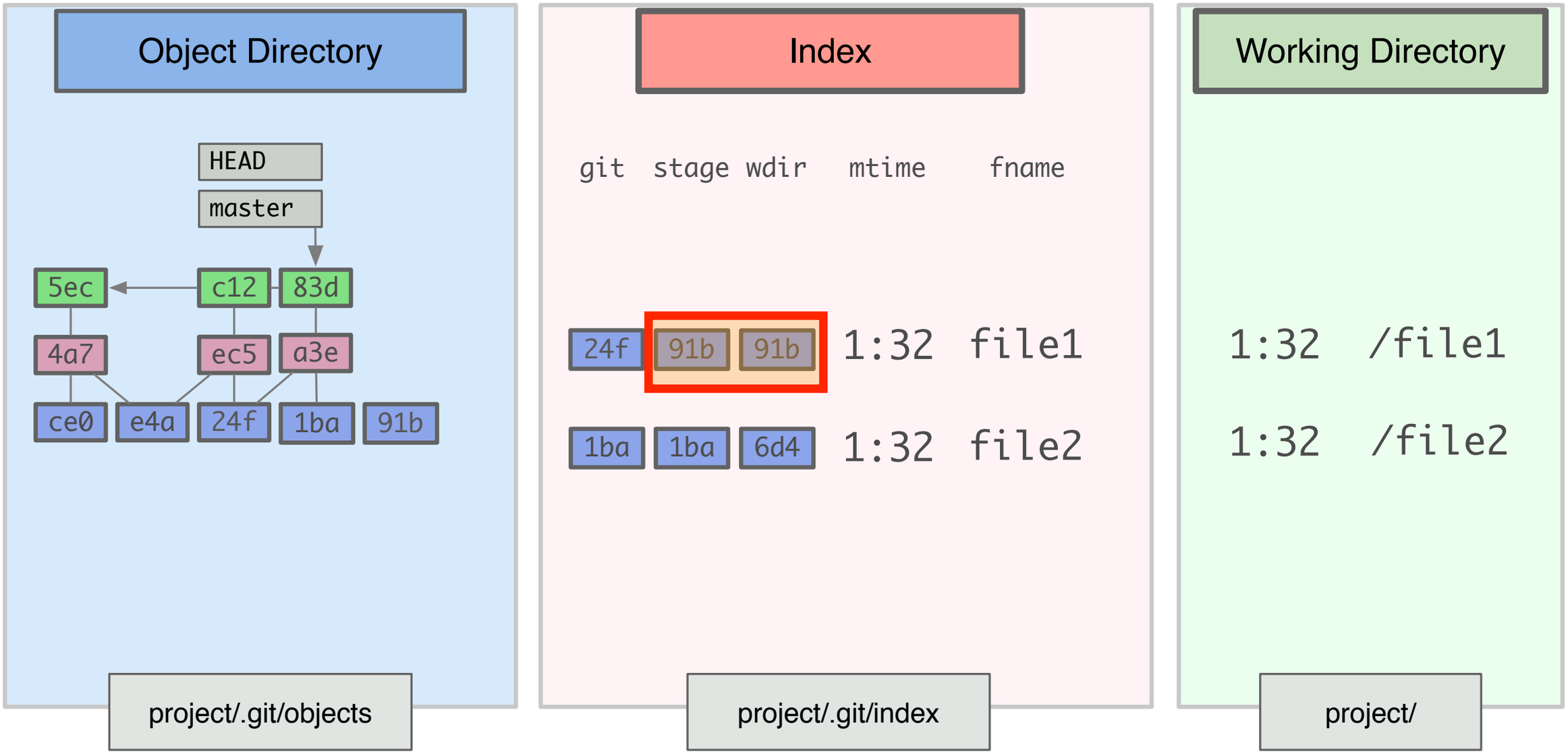
git status

vim file1 file2

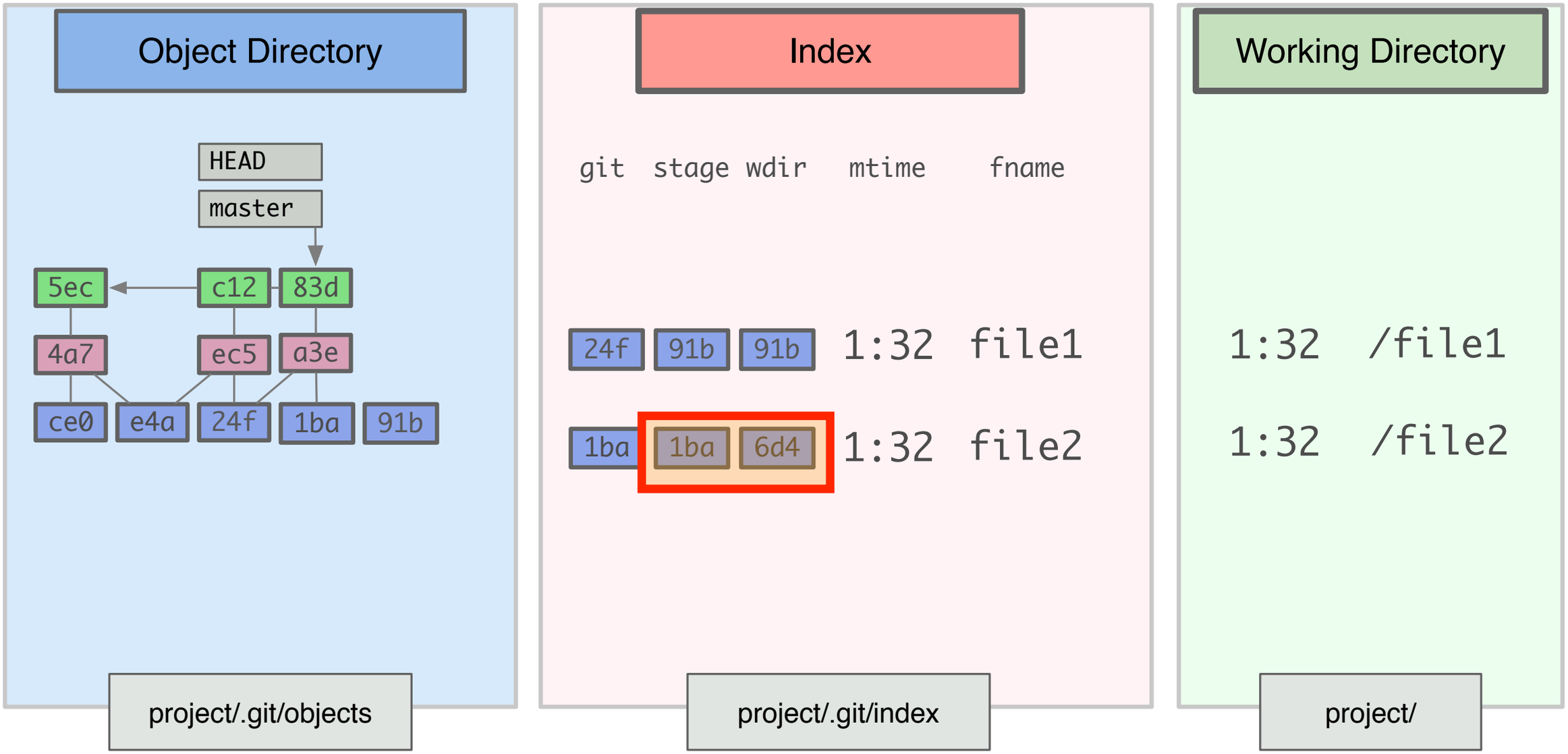
git status



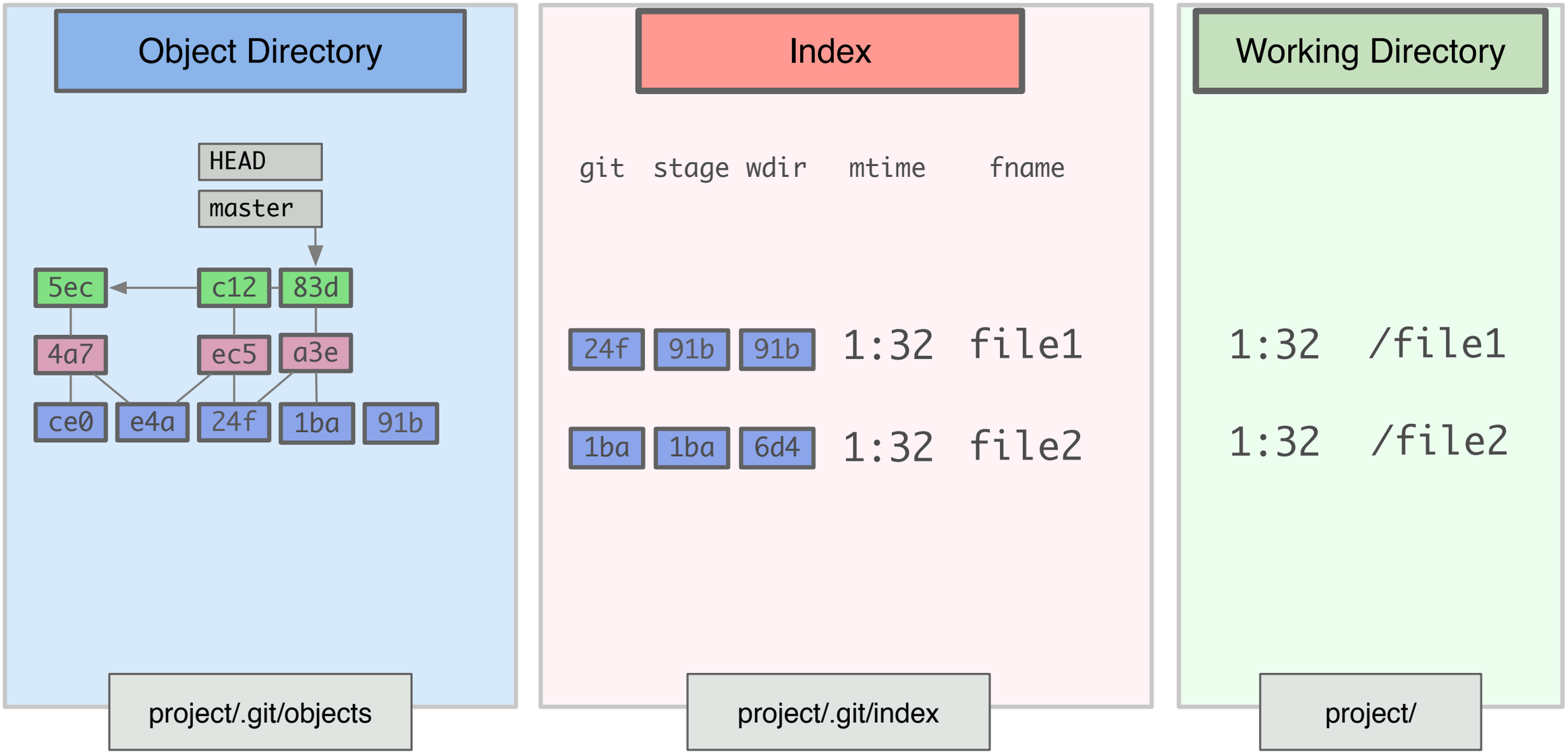
git add file1



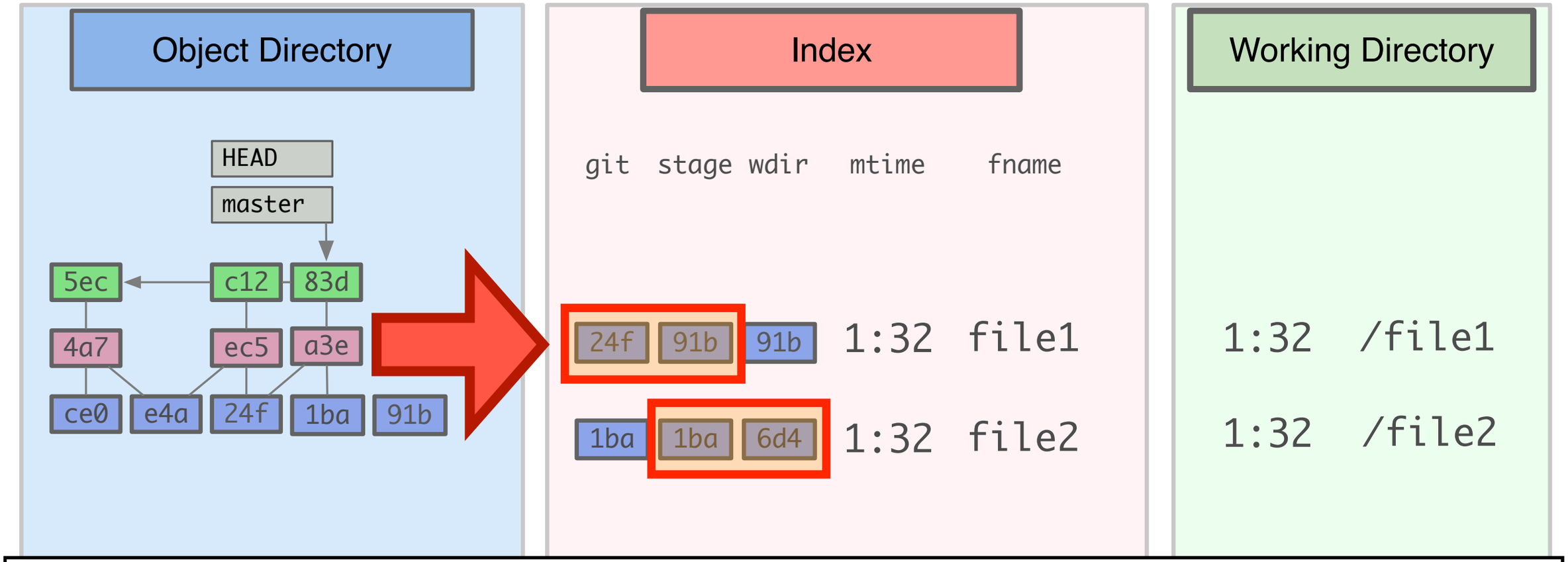
git add file1



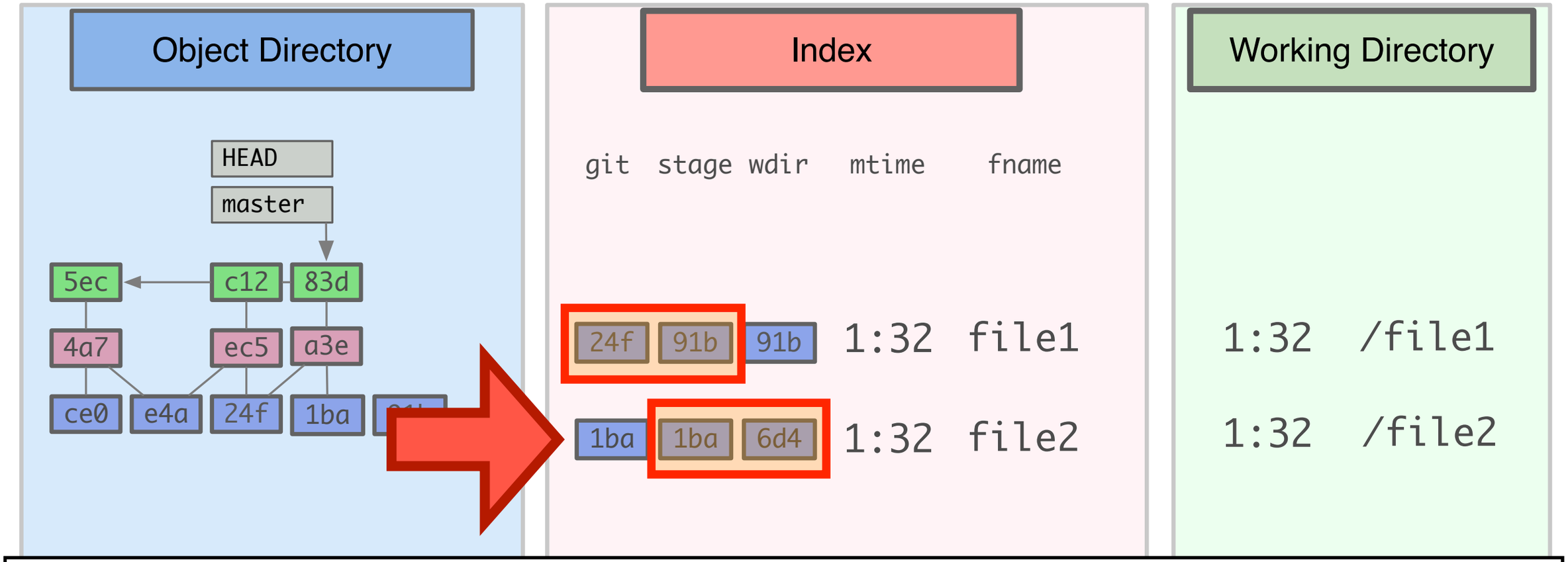
git add file1


Object Directory
HEAD
master
5ec
c12
83d
4a7
ec5
a3e
ce0
e4a
24f
1ba
91b
project/.git/objects
Index
git stage wdir mtime fname
24f 91b 91b 1:32 file1
1ba 1ba 6d4 1:32 file2
project/.git/index
Working Directory
1:32 /file1
1:32 /file2
project/

git status



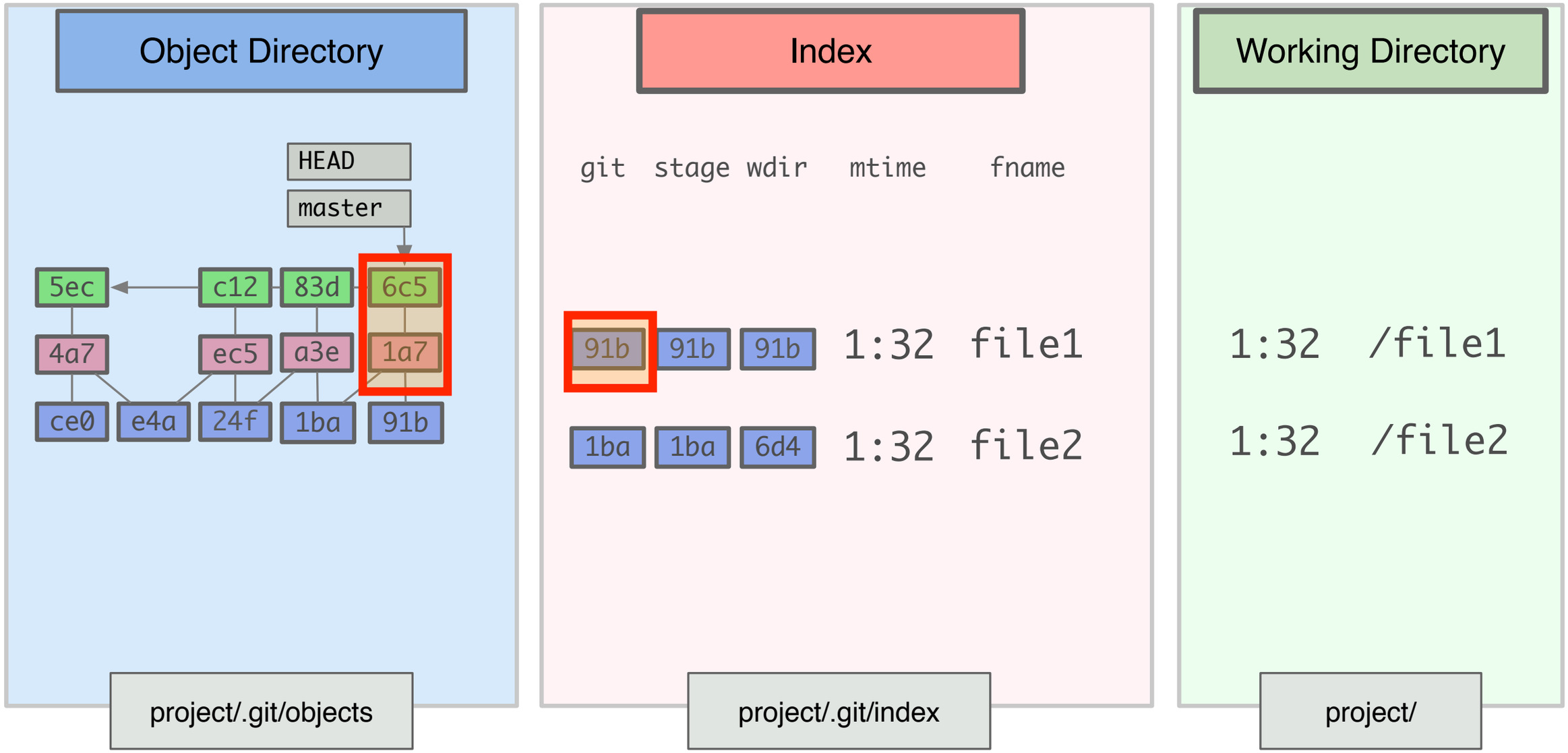

```
# On branch master
# Changes to be committed:
#   (use "git reset HEAD <file>..." to unstage)
#
#       modified:   file1
#
# Changed but not updated:
#   (use "git add <file>..." to update what will be committed)
#
#       modified:   file2
#
```




```
# On branch master
# Changes to be committed:
#   (use "git reset HEAD <file>..." to unstage)
#
#       modified:   file1
#
# Changed but not updated:
#   (use "git add <file>..." to update what will be committed)
#
#       modified:   file2
#
```

Object Directory
HEAD
master
5ec
c12
83d
6c5
4a7
ec5
a3e
1a7
ce0
e4a
24f
1ba
91b
project/.git/objects
Index
git stage wdir mtime fname
91b 91b 91b 1:32 file1
1ba 1ba 6d4 1:32 file2
project/.git/index
Working Directory
1:32 /file1
1:32 /file2
project/

git commit


Object Directory
HEAD
master
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c12
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6c5
4a7
ec5
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project/.git/objects
Index
git stage wdir mtime fname
91b 91b 91b 1:32 file1
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project/.git/index
Working Directory
1:32 /file1
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project/

git commit

Object Directory
HEAD
master
5ec
c12
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project/.git/objects
Index
git stage wdir mtime fname
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1ba 1ba 6d4 1:32 file2
project/.git/index
Working Directory
1:32 /file1
1:32 /file2
project/

How Do I Use Git?

```
git-add                    git-fast-export            git-merge-recur            git-revert
git-add--interactive       git-fast-import            git-merge-recursive        git-rm
git-am                     git-fetch                  git-merge-recursive-old    git-runstatus
git-annotate               git-fetch--tool            git-merge-resolve          git-send-email
git-apply                  git-fetch-pack             git-merge-stupid           git-send-pack
git-applymbox              git-filter-branch          git-merge-subtree          git-sh-setup
git-applypatch             git-fmt-merge-msg          git-merge-tree             git-shell
git-archimport             git-for-each-ref           git-mergetool              git-shortlog
git-archive                git-format-patch           git-mktag                  git-show
git-bisect                 git-fsck                   git-mktree                 git-show-branch
git-blame                  git-fsck-objects           git-mv                     git-show-index
git-branch                 git-gc                     git-name-rev               git-show-ref
git-bundle                 git-get-tar-commit-id      git-pack-objects           git-ssh-fetch
git-cat-file               git-grep                   git-pack-redundant         git-ssh-pull
git-check-attr             git-gui                    git-pack-refs              git-ssh-push
git-check-ref-format       git-hash-object            git-parse-remote           git-ssh-upload
git-checkout               git-http-fetch             git-patch-id               git-stash
git-checkout-index         git-http-push              git-peek-remote            git-status
git-cherry                 git-imap-send              git-prune                  git-stripspace
git-cherry-pick            git-index-pack             git-prune-packed           git-submodule
git-citool                 git-init                   git-pull                   git-svn
git-clean                  git-init-db                git-push                   git-svnimport
git-clone                  git-instaweb               git-quiltimport            git-symbolic-ref
git-commit                 git-local-fetch            git-read-tree              git-tag
git-commit-tree            git-log                    git-rebase                 git-tar-tree
git-config                 git-lost-found             git-rebase--interactive    git-unpack-file
git-convert-objects        git-ls-files               git-receive-pack           git-unpack-objects
git-count-objects          git-ls-remote              git-reflog                 git-update-index
git-cvsexportcommit        git-ls-tree                git-relink                 git-update-ref
git-cvsimport              git-mailinfo               git-remote                 git-update-server-inf
git-cvsserver              git-mailsplit              git-repack                 git-upload-archive
git-daemon                 git-merge                  git-repo-config            git-upload-pack
git-describe               git-merge-base             git-request-pull           git-var
git-diff                   git-merge-file             git-rerere                 git-verify-pack
git-diff-files             git-merge-index            git-reset                  git-verify-tag
git-diff-index             git-merge-octopus          git-resolve                git-web--browse
git-diff-stages            git-merge-one-file         git-rev-list               git-whatchanged
git-diff-tree              git-merge-ours             git-rev-parse              git-write-tree
```

152 Total Commands

```
git-add                                                          git-revert
git-add--interactive                                             git-rm
git-am                  git-fetch
git-annotate                                                     git-send-email
git-apply


                                                                 git-shortlog
git-archive             git-format-patch                         git-show
git-bisect                                                       git-show-branch
git-blame                                       git-mv
git-branch              git-gc

                        git-grep
                        git-gui

git-checkout                                                     git-stash
                                                                 git-status

git-cherry-pick                                                  git-submodule
git-citool              git-init                git-pull
git-clean                                       git-push
git-clone               git-instaweb
git-commit                                                       git-tag
                        git-log                 git-rebase
git-config                                      git-rebase--interactive



                                                git-remote

git-daemon              git-merge

git-diff
```

43 Porcelain Commands

git-add
git-add--interactive
git-am
git-annotate
git-apply

git-archive
git-bisect
git-blame
git-branch

git-checkout

git-cherry-pick
git-citool
git-clean
git-clone
git-commit

git-config

git-daemon

git-diff

git-fetch

git-format-patch

git-gc

git-grep
git-gui

git-init

git-instaweb

git-log

git-merge

git-mv

git-pull
git-push

git-rebase
git-rebase--interactive

git-remote

git-revert
git-rm

git-send-email

git-shortlog
git-show
git-show-branch

git-stash
git-status

git-submodule

git-tag

We'll Cover Half

setup

```
git config --global user.name
"Scott Chacon"
```

```
git config --global user.email
"schacon@gmail.com"
```

```
$>cat ~/.gitconfig
[user]
        name = Scott Chacon
        email = schacon@gmail.com
[color]
        status = auto
        branch = auto
        interactive = auto
        diff = auto
```

```
$>cat ~/.gitconfig
[user]
        name = Scott Chacon
        email = schacon@gmail.com
[color]
        status = auto
        branch = auto
        interactive = auto
        diff = auto
```

getting a repo

git clone

```
$>git clone git://github.com/schacon/ticgit.git
```

git clone

```
$>git clone git://github.com/schacon/ticgit.git
Initialized empty Git repository in /Users/schacon/examples
/ticgit/.git/
remote: Generating pack...
remote: Done counting 483 objects.
remote: Deltifying 483 objects...
remote:  100% (483/483) done
remote: Total 483 (delta 198), reused 483 (delta 198)
Receiving objects: 100% (483/483), 60.15 KiB, done.
Resolving deltas: 100% (198/198), done.
$>_
```

git clone

```
$>git clone git://github.com/schacon/ticgit.git
Initialized empty Git repository in /Users/schacon/examples
/ticgit/.git/
remote: Generating pack...
remote: Done counting 483 objects.
remote: Deltifying 483 objects...
remote:  100% (483/483) done
remote: Total 483 (delta 198), reused 483 (delta 198)
Receiving objects: 100% (483/483), 60.15 KiB, done.
Resolving deltas: 100% (198/198), done.
$>_
```

git clone

```
$>git clone git://github.com/schacon/ticgit.git
Initialized empty Git repository in /Users/schacon/examples
/ticgit/.git/
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remote: Done counting 483 objects.
remote: Deltifying 483 objects...
remote:  100% (483/483) done
remote: Total 483 (delta 198), reused 483 (delta 198)
Receiving objects: 100% (483/483), 60.15 KiB, done.
Resolving deltas: 100% (198/198), done.
$>_
```

initializing a repo

```
cd myproject

git init

git add .

git commit
```

```
$>git init
```

```
$>git init
Initialized empty Git repository in .git/
```

```
$>git init
Initialized empty Git repository in .git/
$>git add .
```

```
$>git init
Initialized empty Git repository in .git/
$>git add .
$>git commit -m 'my first commit'
```

```
$>git init
Initialized empty Git repository in .git/
$>git add .
$>git commit -m 'my first commit'
Created initial commit bfe09f9: my first commit
 3 files changed, 3 insertions(+), 0 deletions(-)
 create mode 100644 README
 create mode 100644 Rakefile
 create mode 100644 lib/mylib.rb
$>_
```

```
$>git init
Initialized empty Git repository in .git/
$>git add .
$>git commit -m 'my first commit'
Created initial commit bfe09f9: my first commit
 3 files changed, 3 insertions(+), 0 deletions(-)
 create mode 100644 README
 create mode 100644 Rakefile
 create mode 100644 lib/mylib.rb
$>_
```

normal workflow

.gitignore

```
$>cat .gitignore
tmp/**/*
log/*
config/database.yml
config/environments/production.rb
.DS_Store
```

```
$>cat .gitignore
tmp/**/*
log/*
config/database.yml
config/environments/production.rb
.DS_Store
```

adding and committing

```
$>git status
# On branch master
# Changed but not updated:
#   (use "git add <file>..." to update what will be committed)
#
#       modified:   README
#       modified:   TODO
#
no changes added to commit (use "git add" and/or "git commit -a")
$>_
```

```
$>git status
# On branch master
# Changed but not updated:
#   (use "git add <file>..." to update what will be committed)
#
#       modified:   README
#       modified:   TODO
#
no changes added to commit (use "git add" and/or "git commit -a")
$>_
```

```
$>git status
# On branch master
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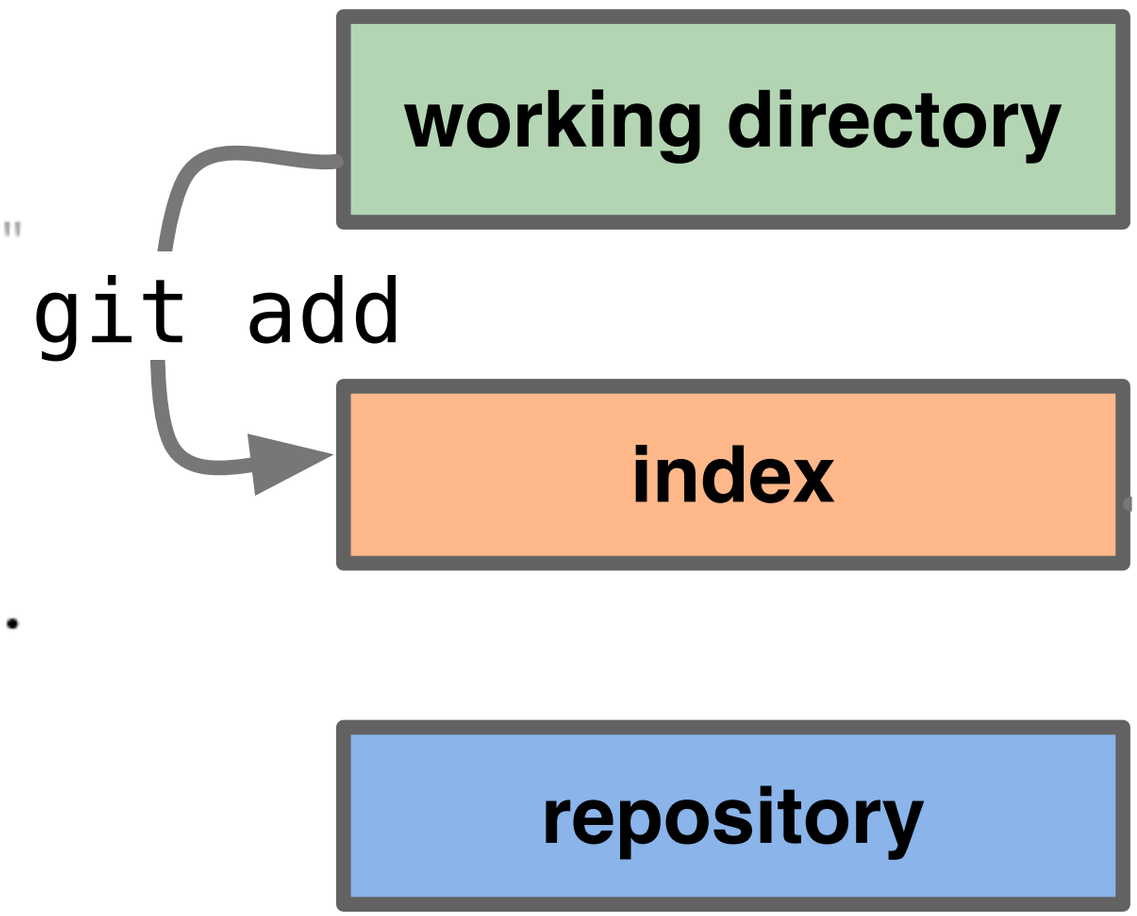
#   (use "git add <file>..." to update what will be committed)
#
#       modified:   README
#       modified:   TODO
#
no changes added to commit (use "git add" and/or "git commit -a")
$>git add README
```

```
$>git status
# On branch master
# Changed but not updated:
#   (use "git add <file>..." to update what will be committed)
#
#       modified:   README
#       modified:   TODO
#
no changes added to commit (use "git add" and/or "git commit -a")
$>git add README
$>git status
# On branch master
# Changes to be committed:
#   (use "git reset HEAD <file>..." to unstage)
#
#       modified:   README
#
# Changed but not updated:
#   (use "git add <file>..." to update what will be committed)
#
#       modified:   TODO
#
$>_
```

```
$>git status
# On branch master
# Changed but not updated:
#   (use "git add <file>..." to update what will be committed)
#
#       modified:   README
#       modified:   TODO
#
no changes added to commit (use "git add" and/or "git commit -a")
$>git add README
$>git status
# On branch master
# Changes to be committed:
#   (use "git reset HEAD <file>..." to unstage)
#
#       modified:   README
#
# Changed but not updated:
#   (use "git add <file>..." to update what will be committed)
#
#       modified:   TODO
#
$>_
```

```
$>git status
# On branch master
# Changed but not updated:
#   (use "git add <file>..." to update what will be committed)
#
#       modified:   README
#       modified:   TODO
#
no changes added to commit (use "
$>git add README
$>git status
# On branch master
# Changes to be committed:
#   (use "git reset HEAD <file>..
#
#       modified:   README
#
# Changed but not updated:
#   (use "git add <file>..." to update what will be committed)
#
#       modified:   TODO
#
$>_
```



```
$>git status
# On branch master
# Changes to be committed:
#   (use "git reset HEAD <file>..." to unstage)
#
#       modified:   README
#
# Changed but not updated:
#   (use "git add <file>..." to update what will be committed)
#
#       modified:   TODO
#
$>git commit -m 'updated README'
Created commit c4f8fd6: updated README
 1 files changed, 1 insertions(+), 0 deletions(-)
$>_
```

```
$>git status
# On branch master
# Changes to be committed:
#   (use "git reset HEAD <file>..." to unstage)
#
#       modified:   README
#
# Changed but not updated:
#   (use "git add <file>..." to update what will be committed)
#
#       modified:   TODO
#
$>git commit -m 'updated README'
Created commit c4f8fd6: updated README
 1 files changed, 1 insertions(+), 0 deletions(-)
$>git status
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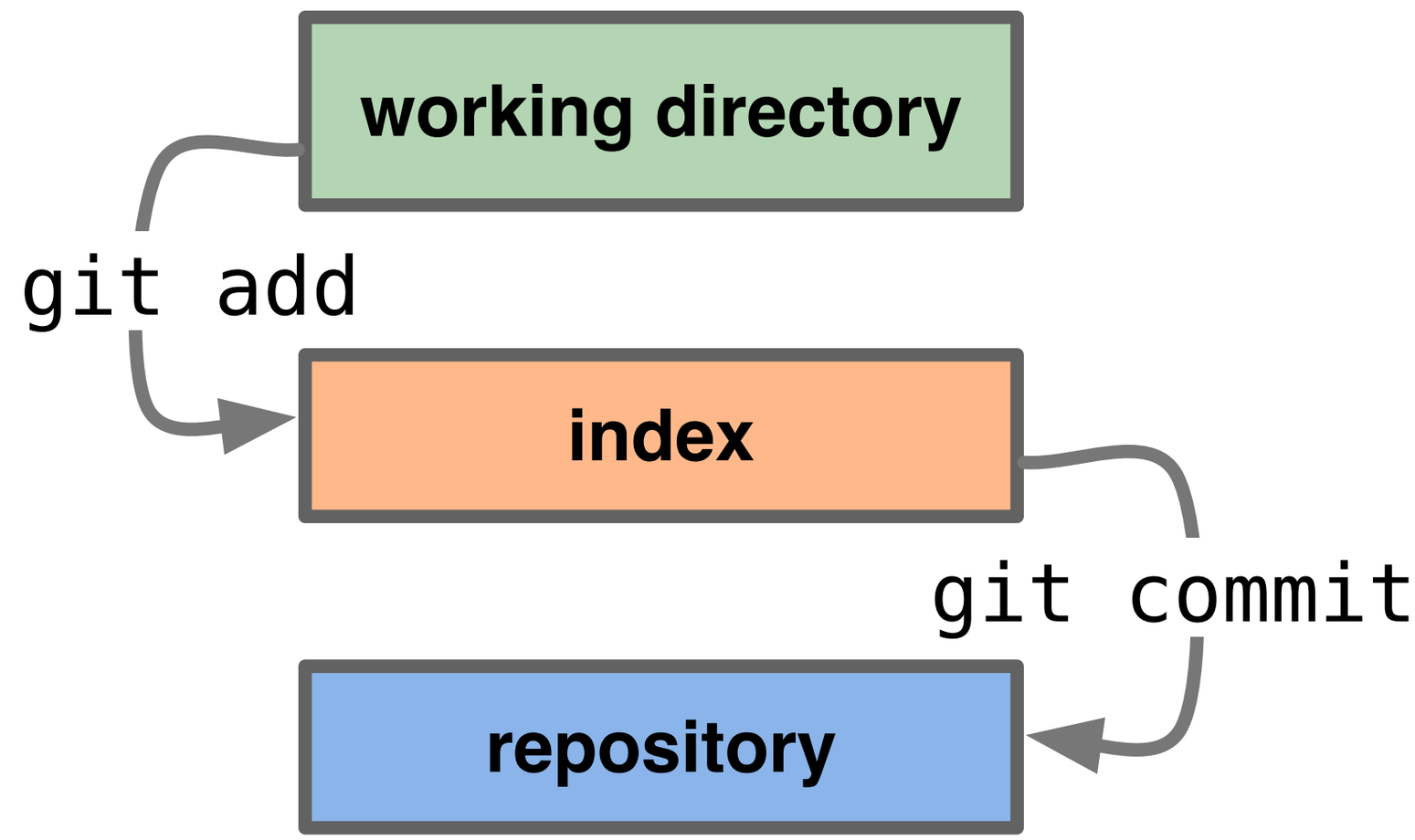
#
#       modified:   TODO
#
no changes added to commit (use "git add" and/or "git commit -a")
$>_
```

```
$>git status
# On branch master
# Changes to be committed:
#   (use "git reset HEAD
#
#       modified:   READM
#
# Changed but not updated
#   (use "git add <file>.
#
#       modified:   TODO
#
$>git commit -m 'updated
Created commit c4f8fd6: u
 1 files changed, 1 inser
$>git status
# On branch master
# Changed but not updated:
#   (use "git add <file>..." to update what will be committed)
#
#       modified:   TODO
#
no changes added to commit (use "git add" and/or "git commit -a")
$>_
```



git log

```
$>git log_
```

```
$>git log
commit 310154e3c7db47d8bac935c2c43aee6afac11aae
Author: Scott Chacon <schacon@gmail.com>
Date:   Sun Apr 13 10:49:15 2008 -0700

    updated README formatting and added blame

commit f7f3f6dd8fd3fa40f052427c32785a0fa01aaa5f
Author: Magnus Chacon <mchacon@gmail.com>
Date:   Sun Apr 13 10:45:01 2008 -0700

    changed my name a bit

commit 710f0f8d2cdf5af87033b9ec08859a505f9a6af5
Author: Magnus Chacon <mchacon@gmail.com>
Date:   Sun Apr 13 10:34:16 2008 -0700

    added ls-files

commit c110d7ff8cfb86fd5cce9a8aee462678dbb4ef9b
Author: Scott Chacon <schacon@gmail.com>
Date:   Sun Apr 6 12:13:36 2008 -0700

    made the ls-tree function recursive and list trees
```

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Date:   Sun Apr 6 12:13:36 2008 -0700

    made the ls-tree function recursive and list trees
```

git log --pretty

```
$>git log --pretty=oneline
```

```
$>git log --pretty=oneline
3e625e2139a71bfbaa85b055c139bceafab7e2c0 updated rakefile
4fefbaafd51ff3e79b84e9ee1a0dac2848e21a98 commit the todo
c4f8fd68ae3897d1d10456ed2b93d87cdc53d6e8 updated README
a5f4a0daa9b13bb85283461ddaba6e589e34ccb5 added cat-file
310154e3c7db47d8bac935c2c43aee6afac11aae updated README formatting
f7f3f6dd8fd3fa40f052427c32785a0fa01aaa5f changed my name a bit
710f0f8d2cdf5af87033b9ec08859a505f9a6af5 added ls-files
c110d7ff8cfb86fd5cce9a8aee462678dbb4ef9b made the ls-tree function
ce9b0d5551762048735dd67917046b44176317e0 limiting log to 30
e22e01e39c39521edc8ccd3aa5df228209e7ad2d -added todo options
2c0d4d7e3d36a8cd5da1eab3e0c1e83faa3bfd9f added limit to log functio
47c668a9e8f93f65ff9019c587f3b2204bd6c98d fixed conflict
ca28a28e64192af4527ea63665dceaa9bdba6a4b new version 0.1.2
f30ba8480d9aba88580696651e80d9aabe8e15a2 new version 0.2.0
1edee6b1d61823a2de3b09c160d7080b8d1b3a40 added a new function
4b0780c5b7a4ae1217f4da742a172e7d787ca3eb rakefile and todo file add
0d57a4eb03d35e1e1041857d1cb01199eeb23cc4 Revert "rakefile and todo
f65a297eb0ace63e5b302e849064f37ded909c0b rakefile and todo file add
c035c611b559537d725d875cfa10c05c17d48e4f Merge branch 'newfunc'
d6fad7dd6f98481cab874b192aaa79d03490d4a0 added more description
1a8c32ea9725886aaadc35dbf4d68468d3af0abe added lstree function
40e5c10f67fa01c01da5687d08bd3bc21bb6a44b added email to readme
cf25cc3bfb0ece7dc3609b8dc0cc4a1e19ffbcd4 committing all changes
0c8a9ec46029a4e92a428cb98c9693f09f69a3ff changed the verison number
```

```
$>git log --pretty=format:"%h %an %ar - %s"_
```

```
$>git log --pretty=format:"%h %an %ar - %s"_
3e625e2 Magnus Chacon 47 minutes ago - updated rakefile
4fefbaa Magnus Chacon 56 minutes ago - commit the todo
c4f8fd6 Magnus Chacon 60 minutes ago - updated README
a5f4a0d Magnus Chacon 2 weeks ago - added cat-file
310154e Scott Chacon 2 weeks ago - updated README formatting and a
f7f3f6d Magnus Chacon 2 weeks ago - changed my name a bit
710f0f8 Magnus Chacon 2 weeks ago - added ls-files
c110d7f Scott Chacon 3 weeks ago - made the ls-tree function recur
ce9b0d5 Scott Chacon 3 weeks ago - limiting log to 30
e22e01e Scott Chacon 3 weeks ago - -added todo options
2c0d4d7 Scott Chacon 3 weeks ago - added limit to log function
47c668a Scott Chacon 3 weeks ago - fixed conflict
ca28a28 Scott Chacon 3 weeks ago - new version 0.1.2
f30ba84 Scott Chacon 3 weeks ago - new version 0.2.0
1edee6b Scott Chacon 3 weeks ago - added a new function
4b0780c Scott Chacon 3 weeks ago - rakefile and todo file added
0d57a4e Scott Chacon 3 weeks ago - Revert "rakefile and todo file
f65a297 Scott Chacon 3 weeks ago - rakefile and todo file added
c035c61 Scott Chacon 3 weeks ago - Merge branch 'newfunc'
d6fad7d Scott Chacon 3 weeks ago - added more description
1a8c32e Scott Chacon 3 weeks ago - added lstree function
40e5c10 Scott Chacon 3 weeks ago - added email to readme
cf25cc3 Scott Chacon 6 weeks ago - committing all changes
0c8a9ec Scott Chacon 6 weeks ago - changed the verison number
0576fac Scott Chacon 6 weeks ago - my second commit, which is bett
```

```
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f7f3f6d Magnus Chacon 2 weeks ago - changed my name a bit
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cf25cc3 Scott Chacon 6 weeks ago - committing all changes
0c8a9ec Scott Chacon 6 weeks ago - changed the verison number
0576fac Scott Chacon 6 weeks ago - my second commit, which is bett
```

git diff

git diff (treeish1) (treeish2)

```
diff --git a/.gitignore b/.gitignore
index 224f138..7e56ec7 100644
--- a/.gitignore
+++ b/.gitignore
@@ -1,4 +1,3 @@
 bin/*.log
 pkg
 coverage
-ticgit*gem
diff --git a/Rakefile b/Rakefile
index b30e89c..bd7b91a 100644
--- a/Rakefile
+++ b/Rakefile
@@ -31,7 +31,6 @@ desc "Clean out the coverage and pkg directories"
 task :clean do
   rm_rf 'coverage'
   rm_rf 'pkg'
-  rm Dir.glob('ticgit*gem')
 end

 task :default => "pkg/#{spec.name}-#{spec.version}.gem" do
diff --git a/ticgit.gemspec b/ticgit.gemspec
index c0e96b7..775eaf1 100644
--- a/ticgit.gemspec
+++ b/ticgit.gemspec
@@ -6,7 +6,7 @@ Gem::Specification.new do |s|
     s.author    =   "Scott Chacon"
     s.email     =   "schacon@gmail.com"
     s.summary   =   "A distributed ticketing system for Git projects."
-    s.files     =   ["lib/ticgit/base.rb", "lib/ticgit/cli.rb", "lib/ticgit/comment.rb"
+    s.files     =   ["lib/ticgit", "lib/ticgit/base.rb", "lib/ticgit/cli.rb", "lib/ticg

     s.bindir = 'bin'
     s.executables << "ti"
```

```
git diff master^ > change.diff
```

```
git diff master^ > change.diff
```

```
git apply change.diff
```

Single Commit

```
git format-patch origin/master --stdout >
story.patch

git am < story.patch
```

Multiple Commits

```
$ git format-patch -o patches origin
$ git send-email --to list@email.com patches

$ git am mbox
```

Multiple Commits

1 patch file per commit
in this directory

```
$ git format-patch -o patches origin
$ git send-email --to list@email.com patches

$ git am mbox
```

example: patching rails

Patching Rails

```
git clone git://github.com/rails/rails.git
```

```
cd rails; (vim/emacs etc)
```

```
git format-patch origin/master --stdout > story.patch
```

upload `story.patch` to rails.lighthouseapp.com

Applying a Rails Patch

download `story.patch` from
rails.lighthouseapp.com

```
git am < story.patch
```

~~git-add~~
git-add--interactive
~~git-am~~
~~git-annotate~~
~~git-apply~~

git-archive
git-bisect
~~git-blame~~
git-branch

git-checkout

git-cherry-pick
git-citool
~~git-clean~~
~~git-clone~~
~~git-commit~~

~~git-config~~

git-daemon

~~git-diff~~

git-fetch

~~git-format-patch~~

git-gc

git-grep
git-gui

~~git-init~~

git-instaweb

~~git-log~~

git-merge

git-mv

git-pull
git-push

git-rebase
git-rebase--interactive

git-remote

git-revert
git-rm

git-send-email

git-shortlog
~~git-show~~
git-show-branch

~~git-stash~~
~~git-status~~

git-submodule

git-tag

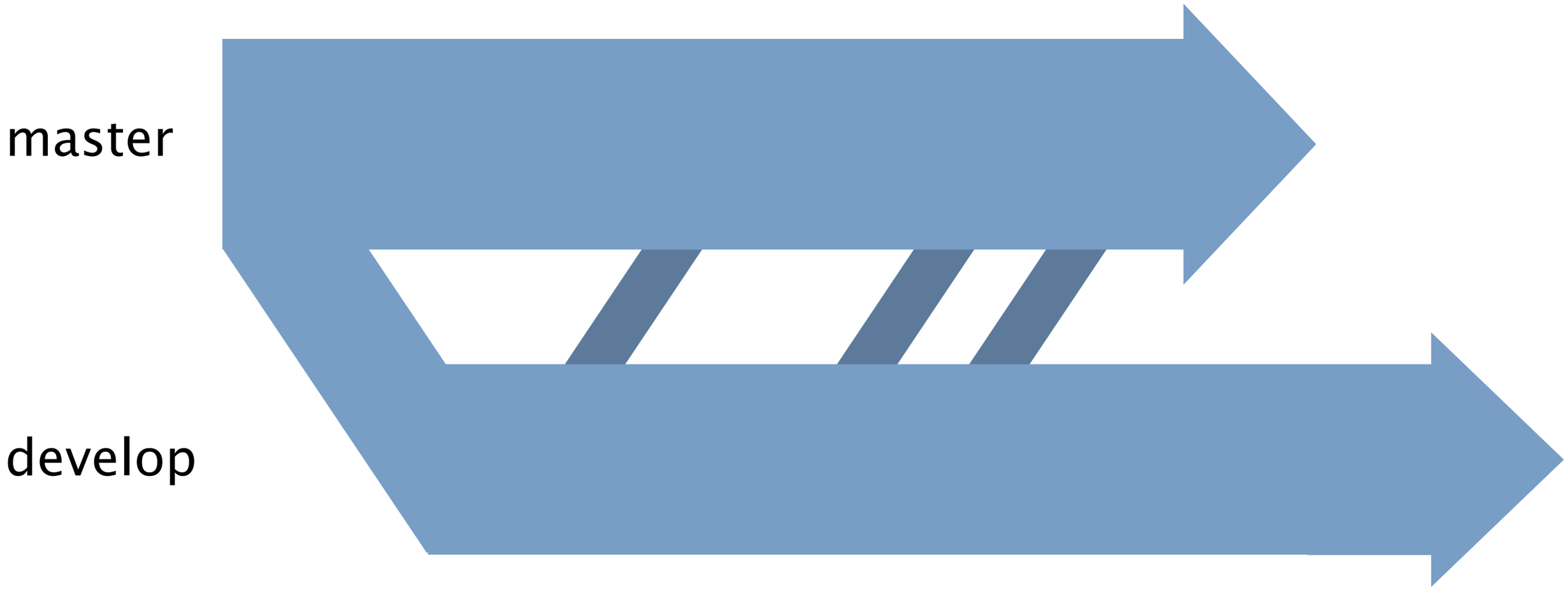
11 Down

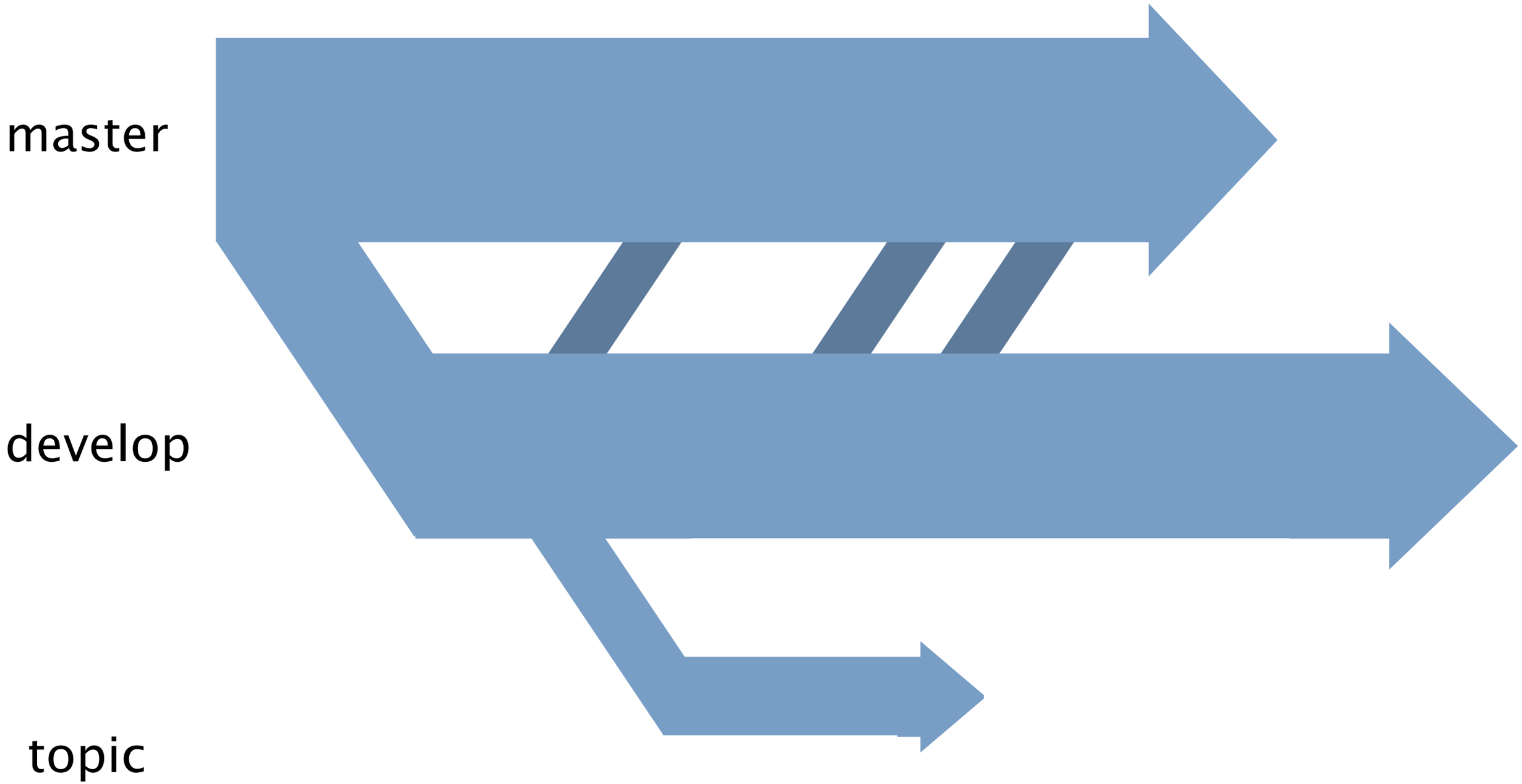
branch, merge, rebase

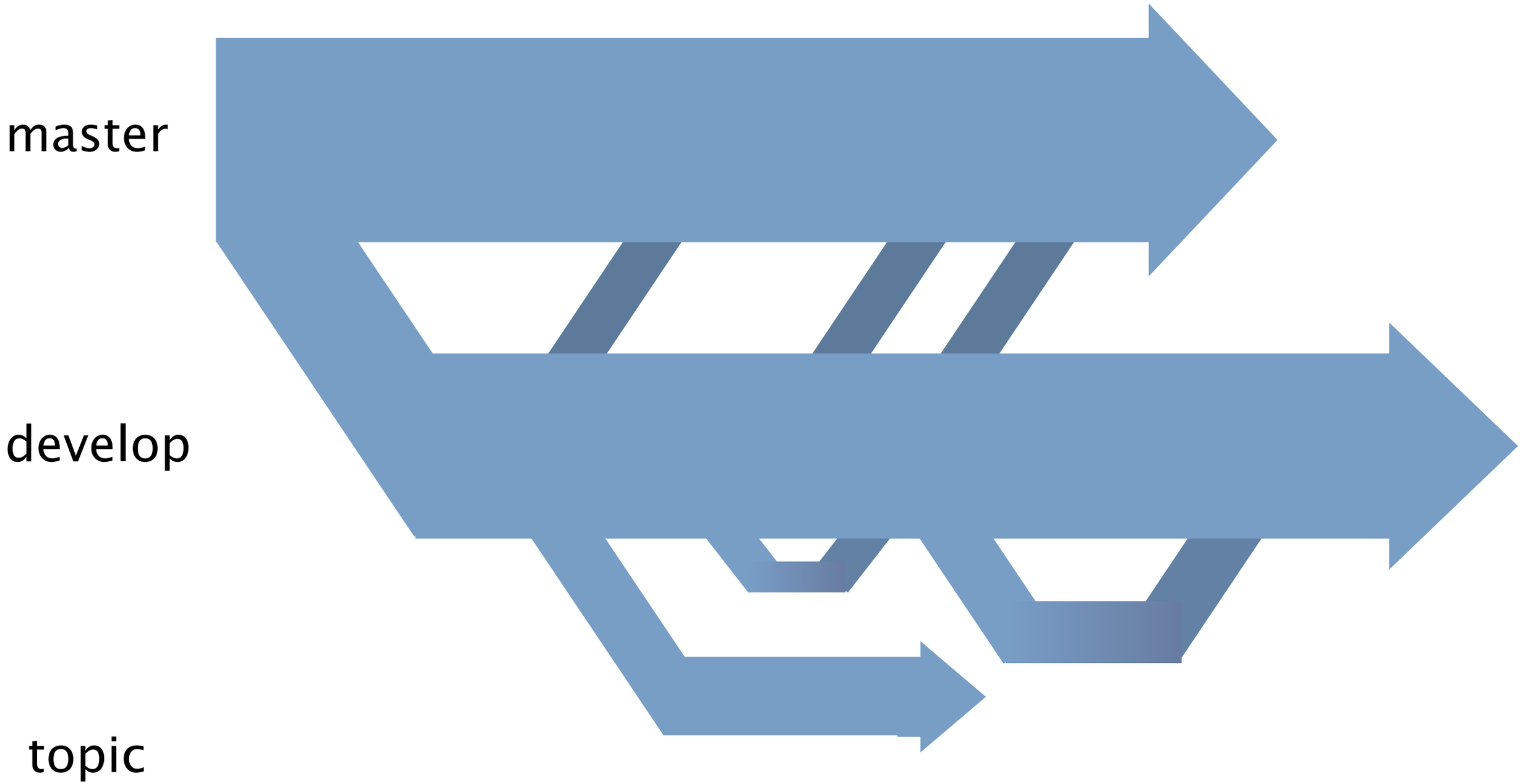
master

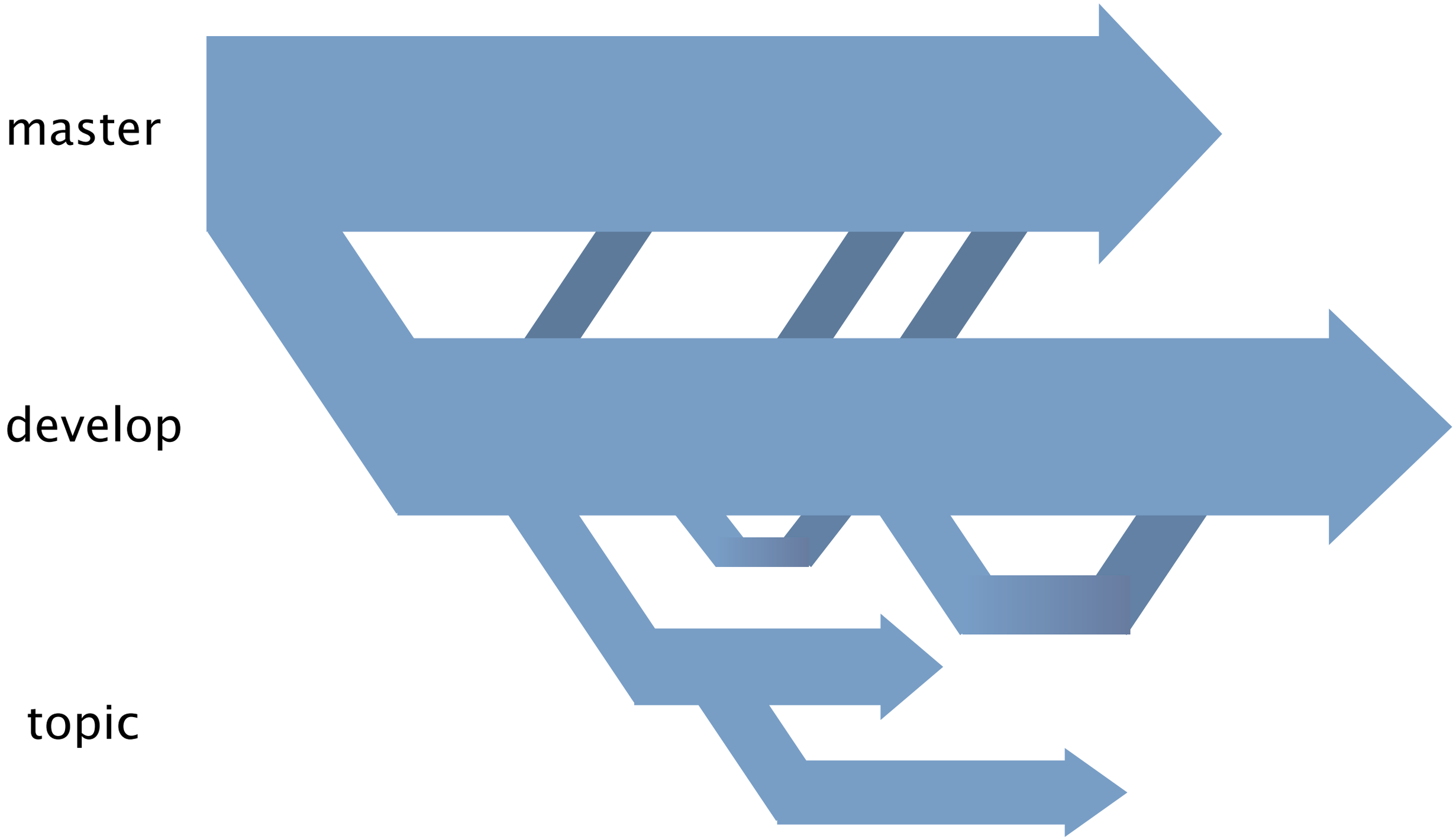
master
develop

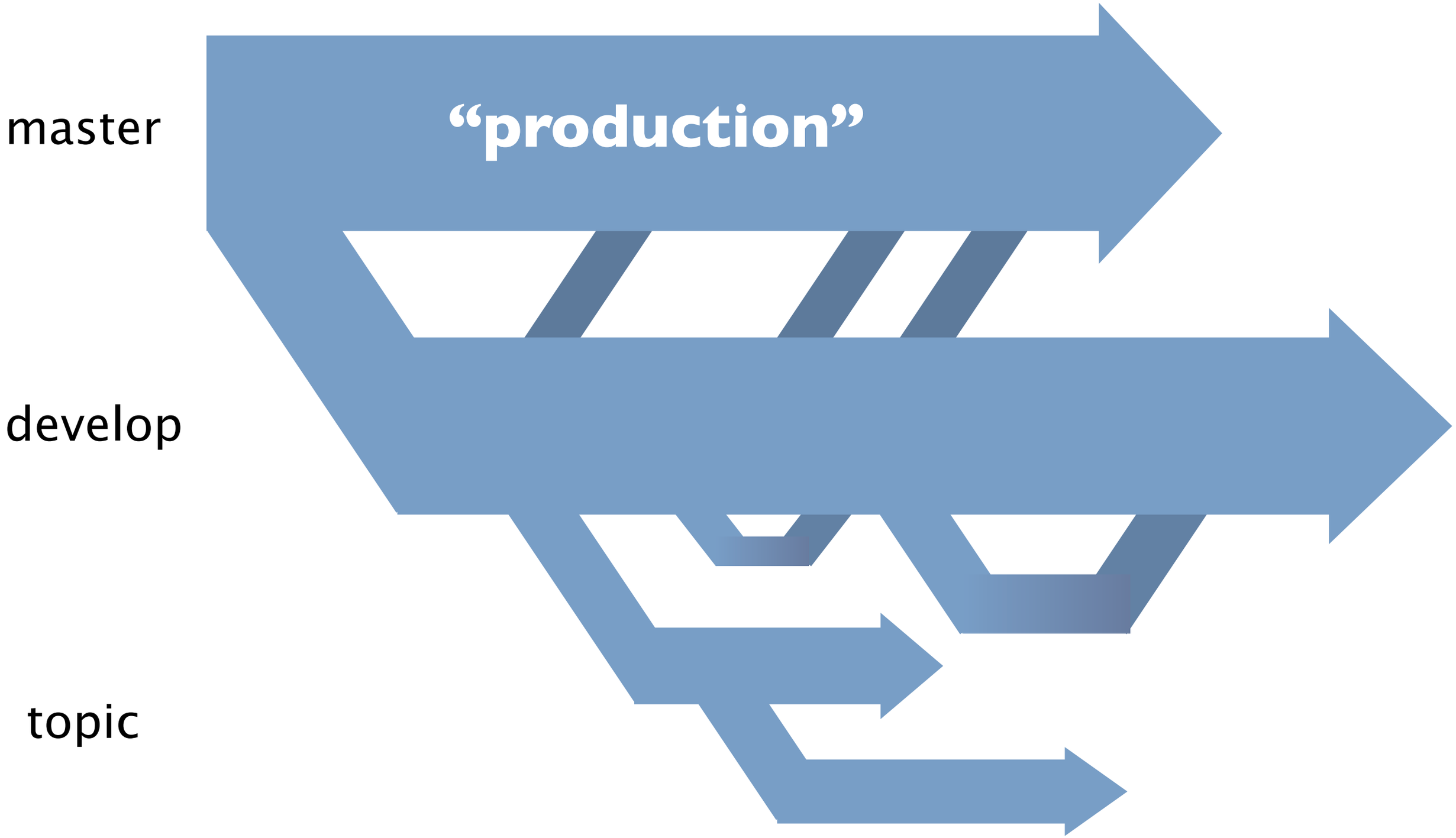
master
develop

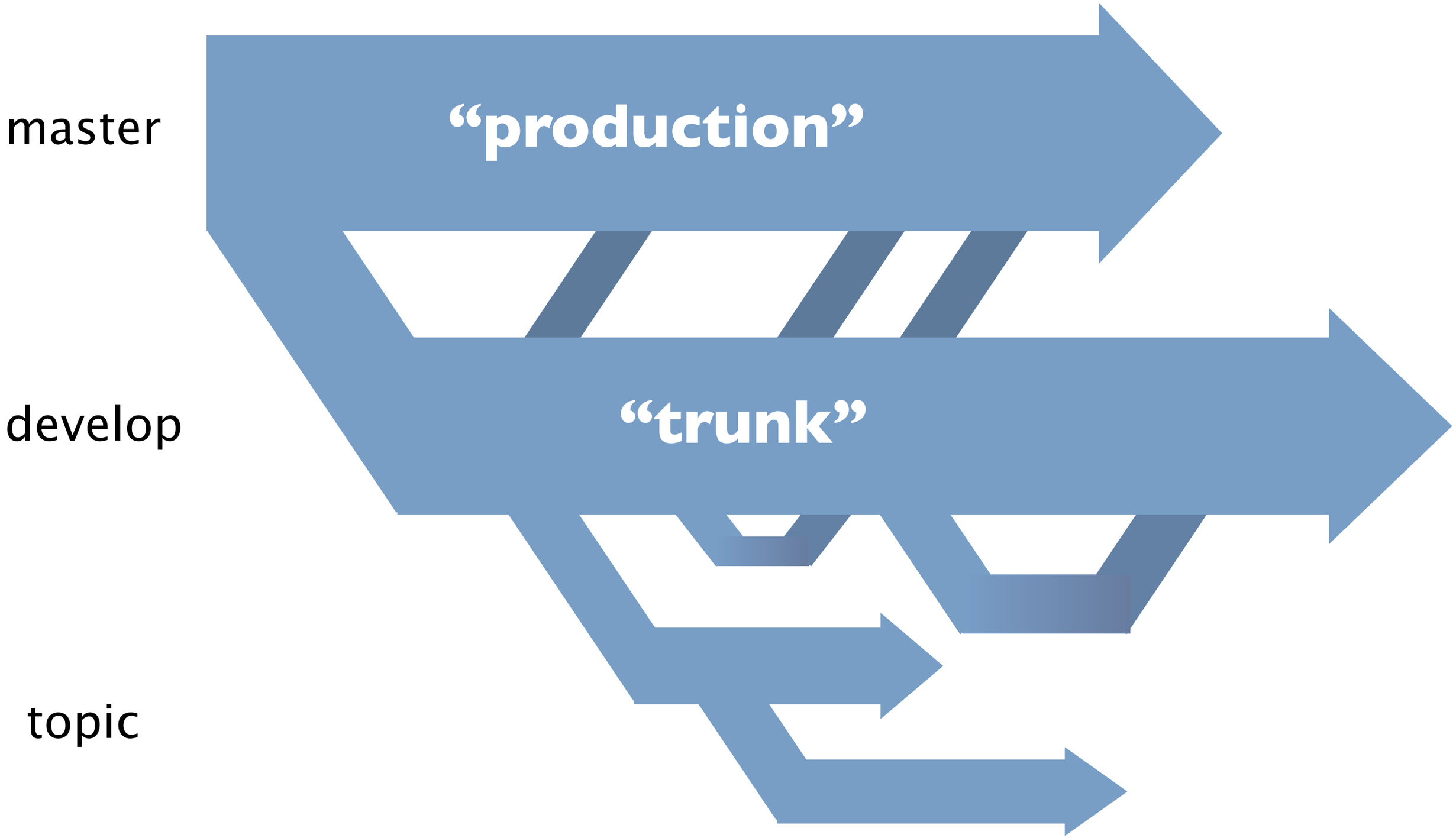

master
develop

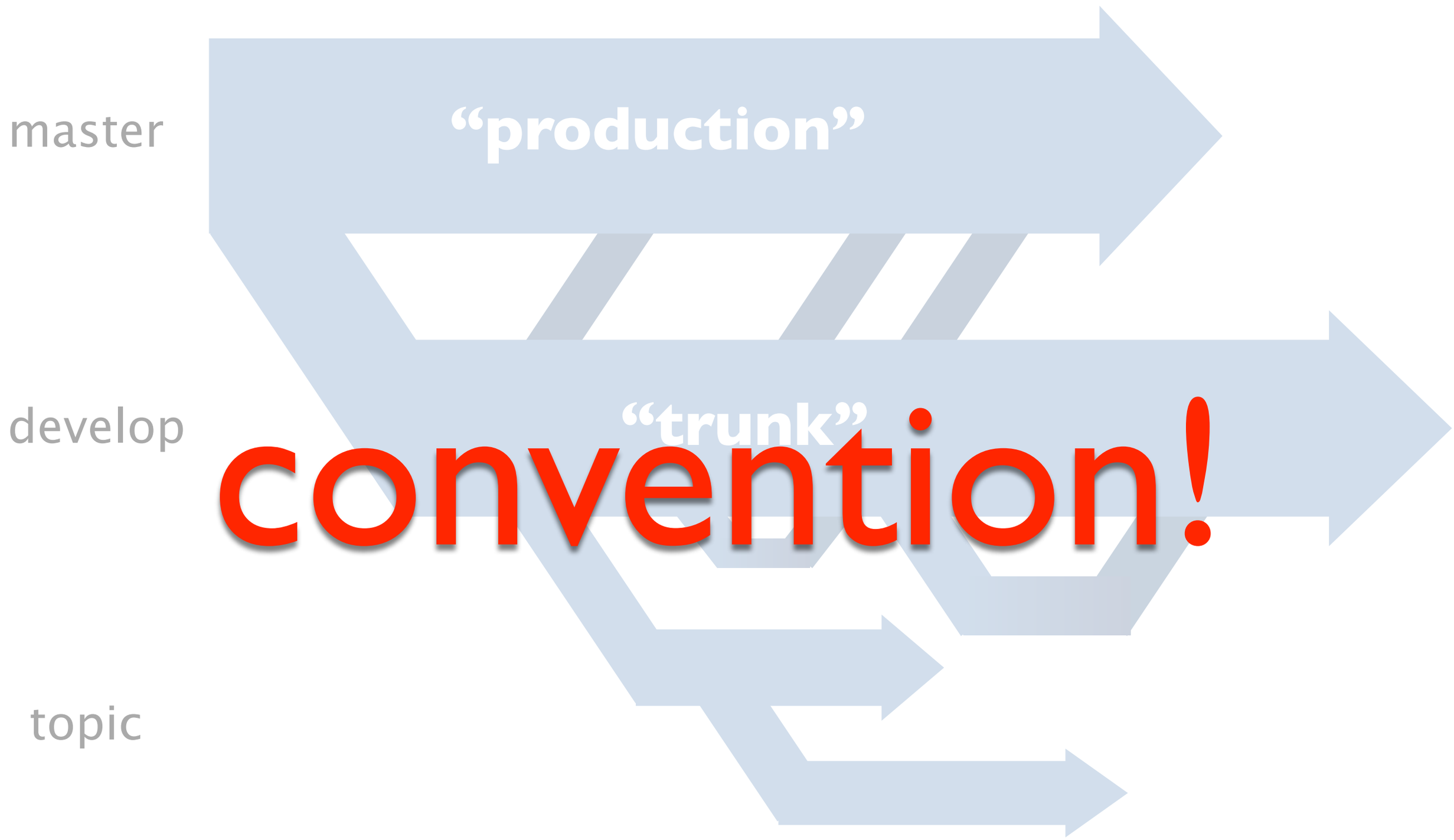

master
develop
topic


master
develop
topic


master
develop
topic


master
“production”
develop
topic


master
"production"
develop
"trunk"
topic



convention!

branching workflow

normal development

want to try an idea

have to do a hotfix

merge idea into development

push to production

branching workflow

normal development

want to try an idea

have to do a hotfix

merge idea into development

push to production

```
$>git branch
```

```
$>git branch
* develop
  master
  story95
$>_
```

```
$>git branch
* develop
  master
  story95
$>git show-branch
```

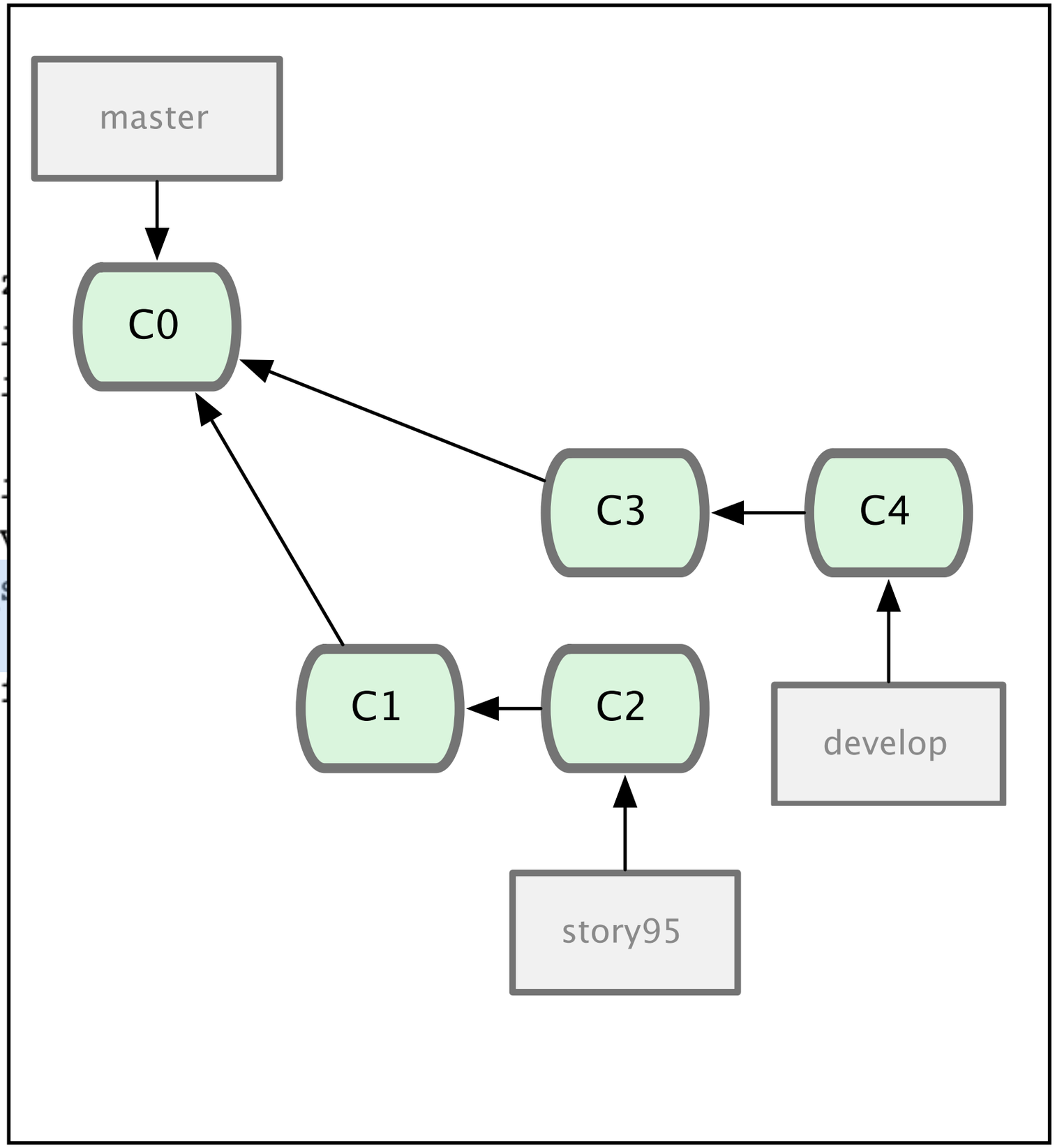
```
$>git branch
* develop
  master
  story95
$>git show-branch
* [develop] new file_size function
 ! [master] added cat-file
  ! [story95] show-commit-tree added
---
  + [story95] show-commit-tree added
  + [story95^] added revparse
*   [develop] new file_size function
*   [develop^] modified show to raw
*++ [master] added cat-file
$>_
```

```
$>git branch
* develop
  master
  story95
$>git show-branch
* [develop] new file_size function
 ! [master] added cat-file
  ! [story95] show-commit-tree added
---
  + [story95] show-commit-tree added
  + [story95^] added revparse
*   [develop] new file_size function
*   [develop^] modified show to raw
*++ [master] added cat-file
$>_
```

```
$>git branch
* develop
  master
  story95
$>git show-branch
* [develop] new file_size function
 ! [master] added cat-file
  ! [story95] show-commit-tree added
---
  + [story95] show-commit-tree added
  + [story95^] added revparse
*   [develop] new file_size function
*   [develop^] modified show to raw
*++ [master] added cat-file
$>_
```

```
$>git branch
* develop
  master
  story95
$>git show-branch
* [develop] new file_size function
 ! [master] added cat-file
  ! [story95] show-commit-tree added
---
  + [story95] show-commit-tree added
  + [story95^] added revparse
*   [develop] new file_size function
*   [develop^] modified show to raw
*++ [master] added cat-file
$>_
```

```
$>git branch
* develop
  master
  story95
$>git show-branch
* [develop] new file_si
 ! [master] added cat-f
  ! [story95] show-comm
---
  + [story95] show-comm
  + [story95^] added rev
*   [develop] new file_
*   [develop^] modified
*++ [master] added cat-
$>_
```



branching workflow

normal development

want to try an idea

have to do a hotfix

merge idea into development

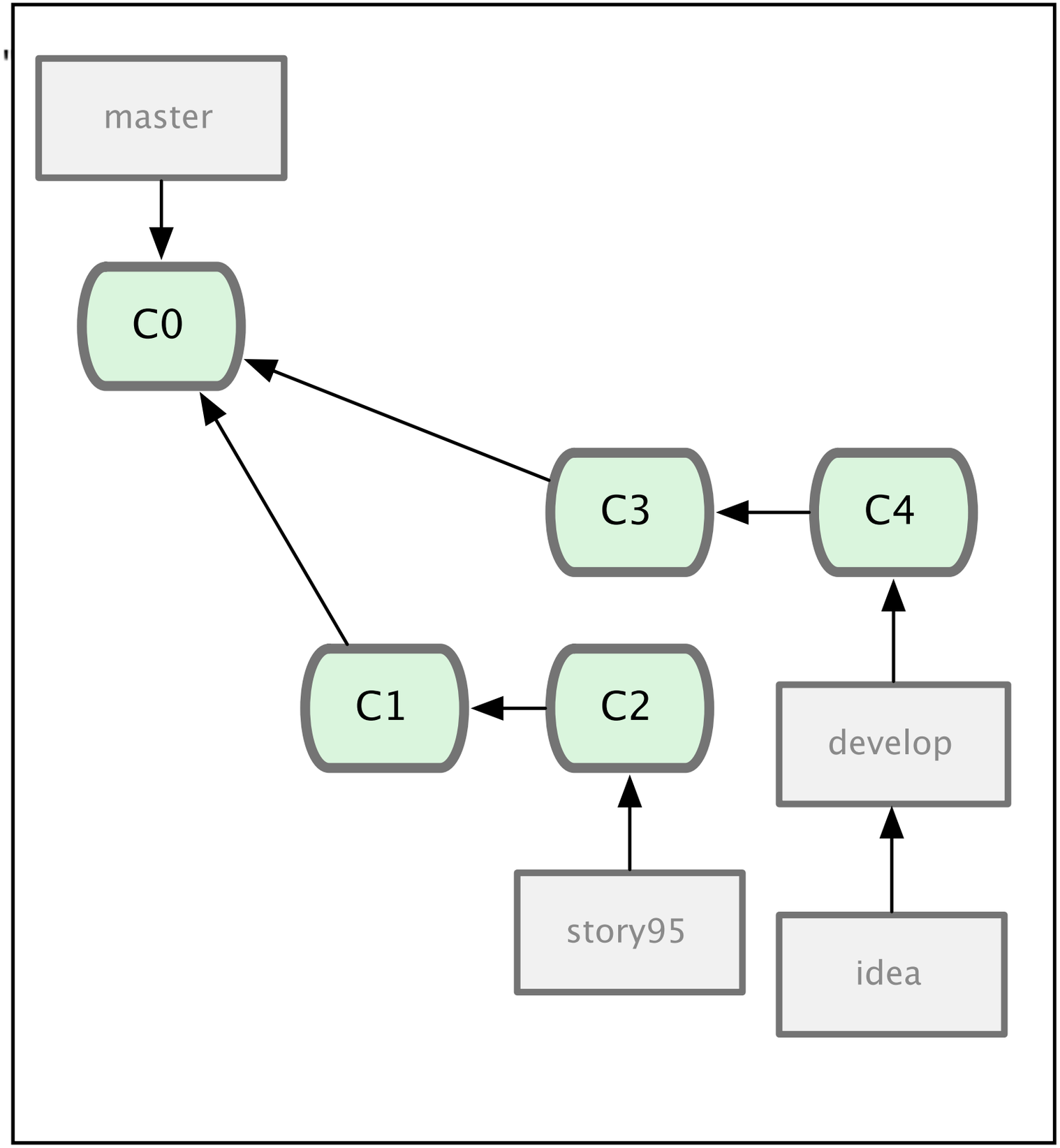
push to production

```
$>git checkout -b idea
```

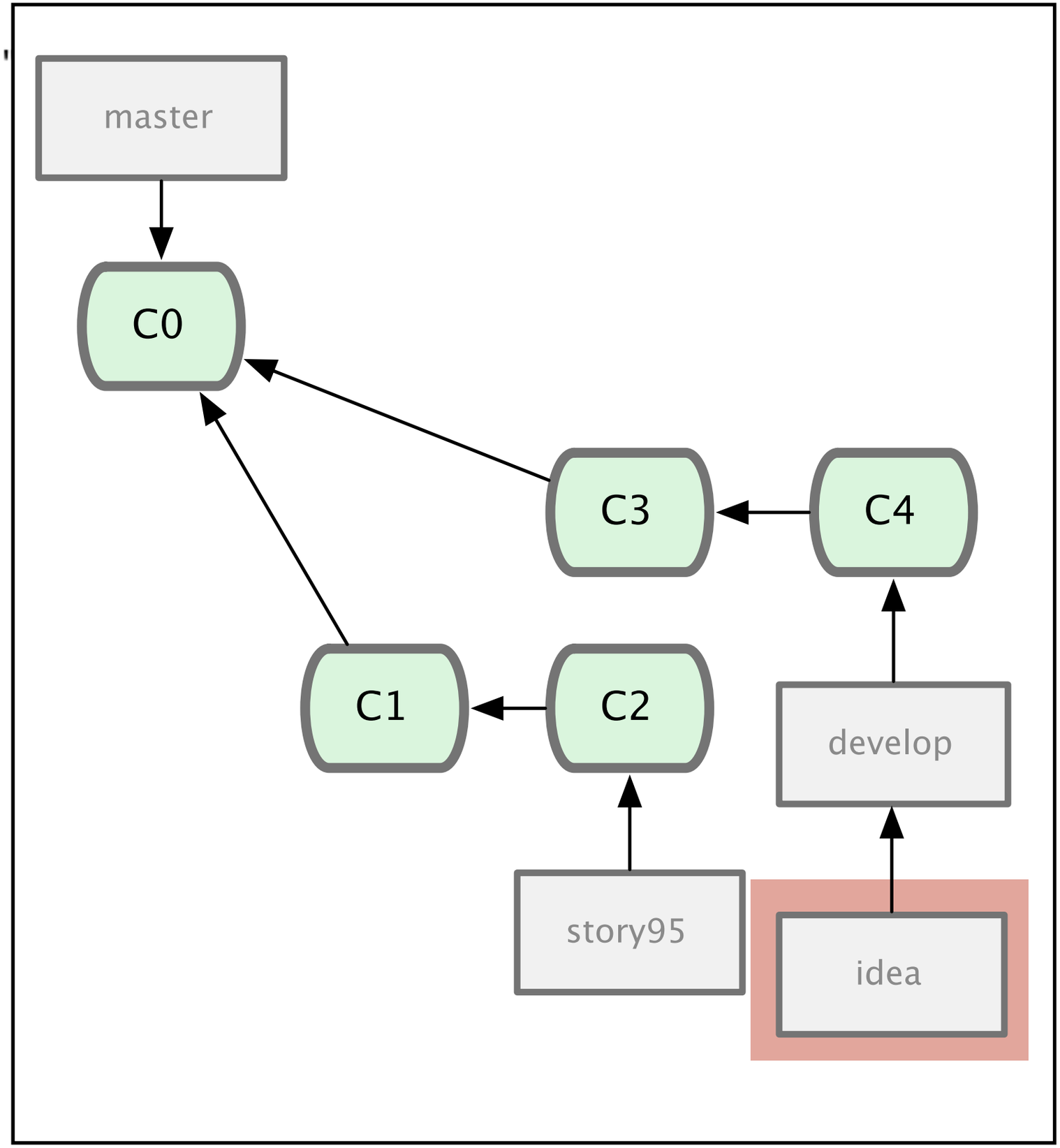
```
$>git checkout -b idea
Switched to a new branch "idea"
$>
```

```
$>git checkout -b idea
Switched to a new branch "idea"
$>git branch
  develop
* idea
  master
  story95
$>
```

```
$>git checkout -b idea
Switched to a new branch '
$>git branch
  develop
* idea
  master
  story95
$>
```



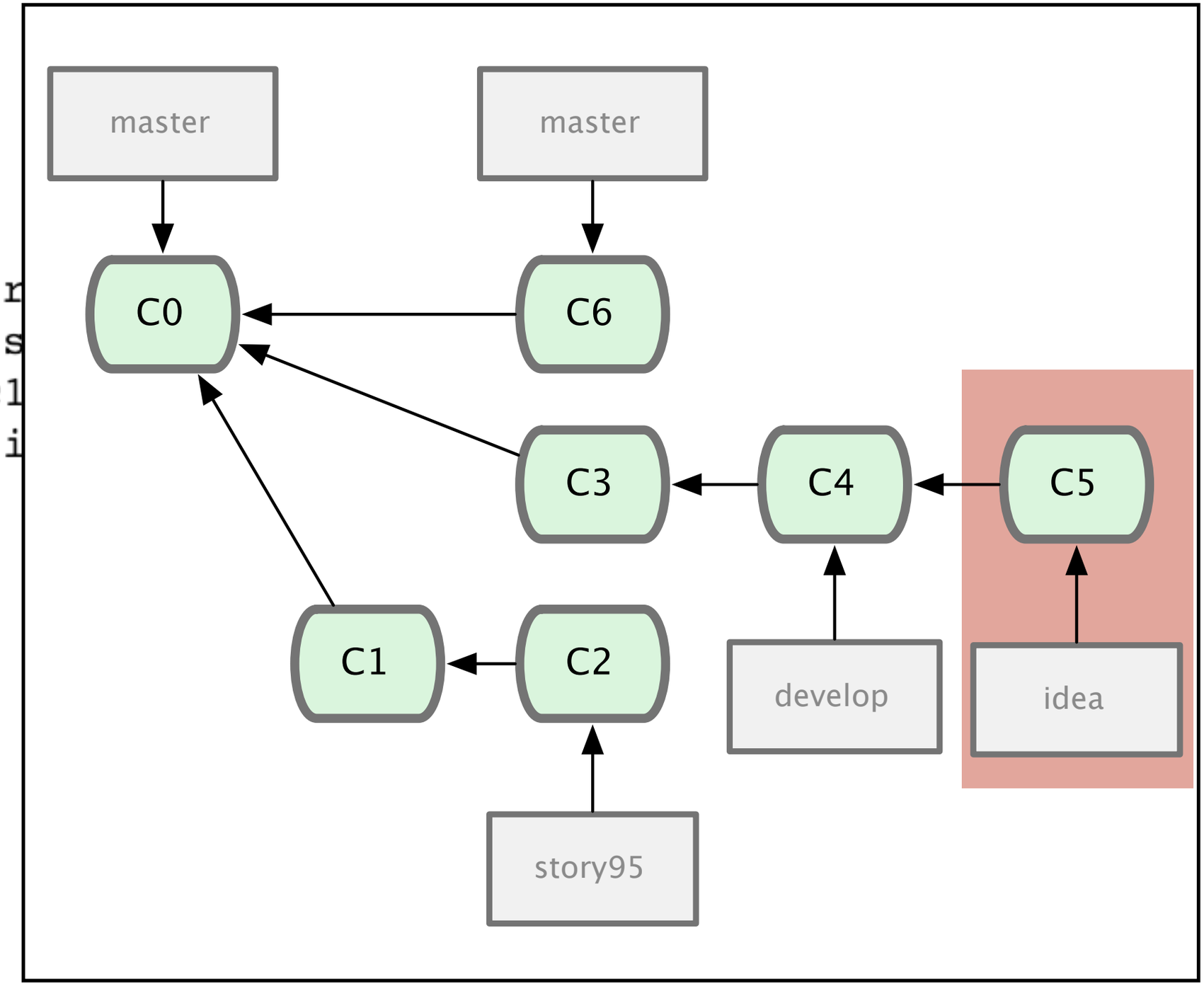
```
$>git checkout -b idea
Switched to a new branch '
$>git branch
  develop
* idea
  master
  story95
$>
```



```
$>git checkout -b idea
Switched to a new branch "idea"
$>git branch
  develop
* idea
  master
  story95
$>vim lib/simplegit.rb
$>
```

```
$>git checkout -b idea
Switched to a new branch "idea"
$>git branch
  develop
* idea
  master
  story95
$>vim lib/simplegit.rb
$>git commit -a -m 'split show command into raw and normal'
Created commit 8268c1a: split show command into raw and normal
 1 files changed, 4 insertions(+), 0 deletions(-)
$>
```

```
$>git checkout -b idea
Switched to a new branch "idea"
$>git branch
  develop
* idea
  master
  story95
$>vim lib/simplegit.r
$>git commit -a -m 's
Created commit 8268c1
 1 files changed, 4 i
```



branching workflow

normal development

want to try an idea

have to do a hotfix

merge idea into development

push to production

```
$>git checkout master
Switched to branch "master"
$>
```

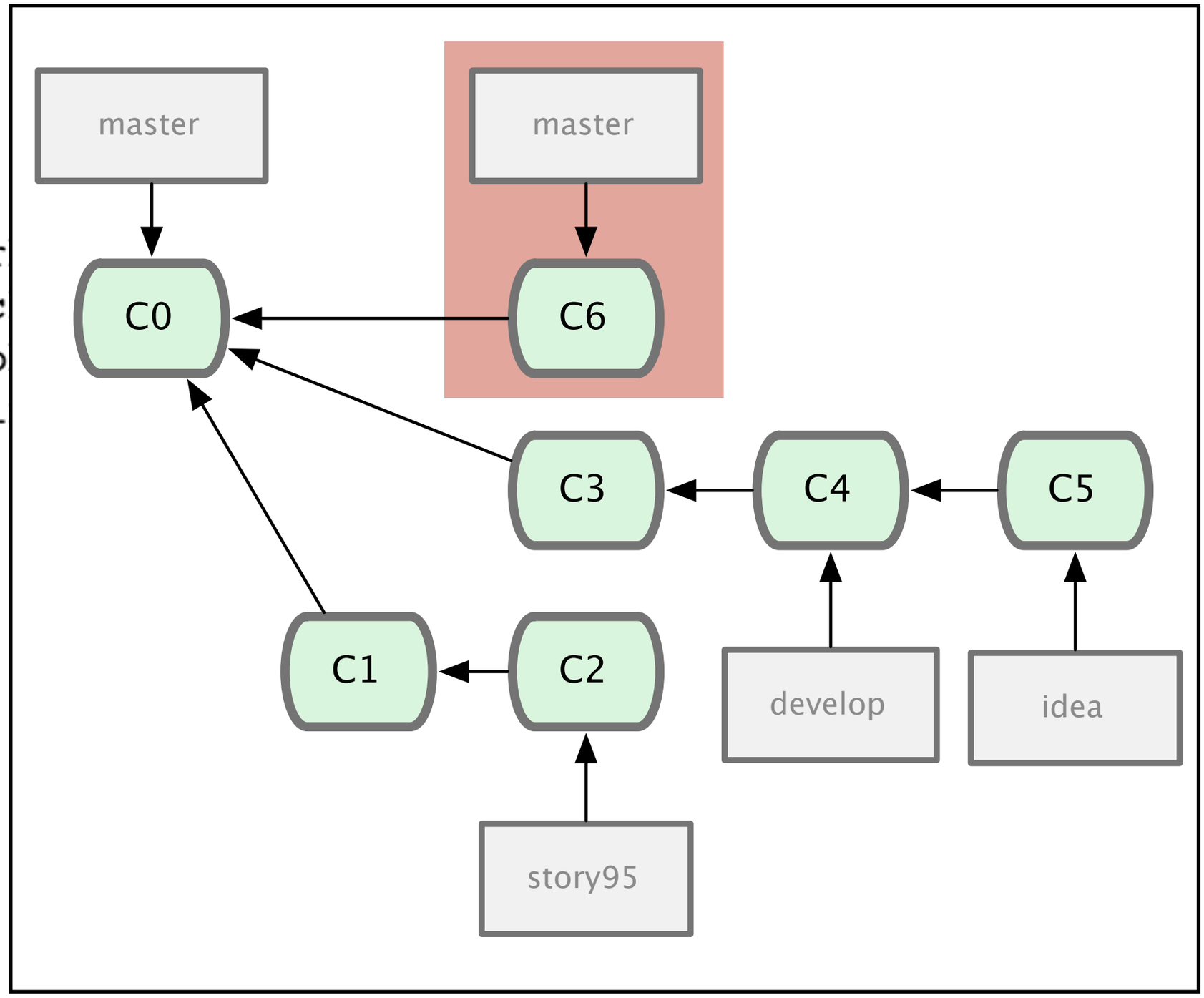
```
$>git checkout master
Switched to branch "master"
$>git branch
  develop
  idea
* master
  story95
$>
```

```
$>git checkout master
Switched to branch "master"
$>git branch
  develop
  idea
* master
  story95
$>vim lib/simplegit.rb
$>
```

```
$>git checkout master
Switched to branch "master"
$>git branch
  develop
  idea
* master
  story95
$>vim lib/simplegit.rb
$>git commit -a -m 'changed log output to 30 from 25'
Created commit 749bcbb: changed log output to 30 from 25
 1 files changed, 1 insertions(+), 1 deletions(-)
$>
```

```
$>git checkout master
Switched to branch "master"
$>git branch
  develop
  idea
* master
  story95
$>vim lib/simplegit.rb
$>git commit -a -m 'changed log output to 30 from 25'
Created commit 749bcbb: changed log output to 30 from 25
 1 files changed, 1 insertions(+), 1 deletions(-)
$>git tag -a 'v1.3'
$>
```

```
$>git checkout master
Switched to branch "master"
$>git branch
  develop
  idea
* master
  story95
$>vim lib/simplegit.r
$>git commit -a -m 'c
Created commit 749bcb
 1 files changed, 1 i
$>git tag -a 'v1.3'
```



branching workflow

normal development

want to try an idea

have to do a hotfix

merge idea into development

push to production

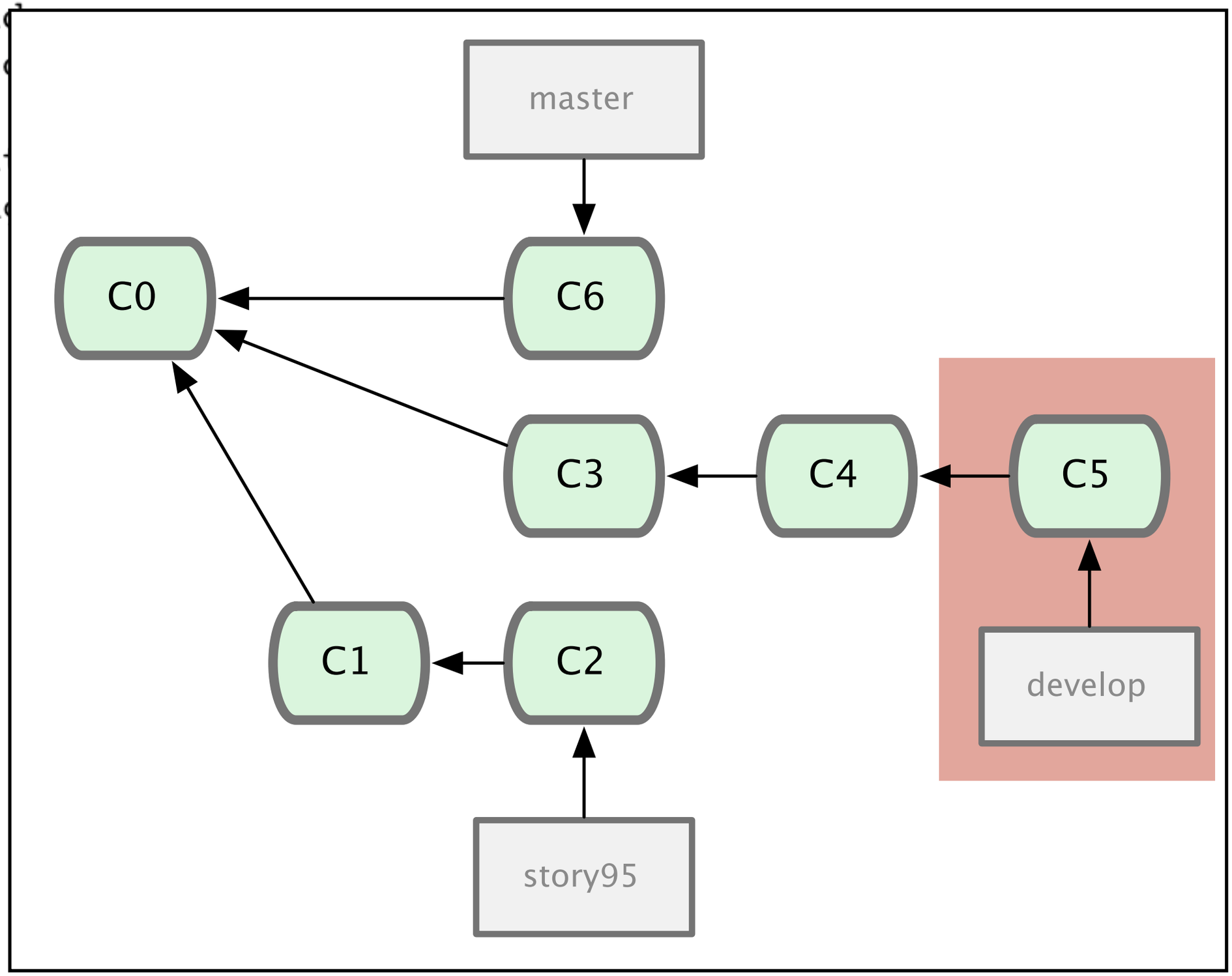
```
$>git checkout develop
```

```
$>git checkout develop
Switched to branch "develop"
$>
```

```
$>git checkout develop
Switched to branch "develop"
$>git merge idea
Updating 8f35c23..8268c1a
Fast forward
 lib/simplegit.rb |    4 ++++
 1 files changed, 4 insertions(+), 0 deletions(-)
$>
```

```
$>git checkout develop
Switched to branch "develop"
$>git merge idea
Updating 8f35c23..8268c1a
Fast forward
 lib/simplegit.rb |    4 ++++
 1 files changed, 4 insertions(+), 0 deletions(-)
$>
```

```
$>git checkout develop
Switched to branch "develop"
$>git merge id
Updating 8f35
Fast forward
 lib/simplegit
 1 files chan
```



branching workflow

normal development

want to try an idea

have to do a hotfix

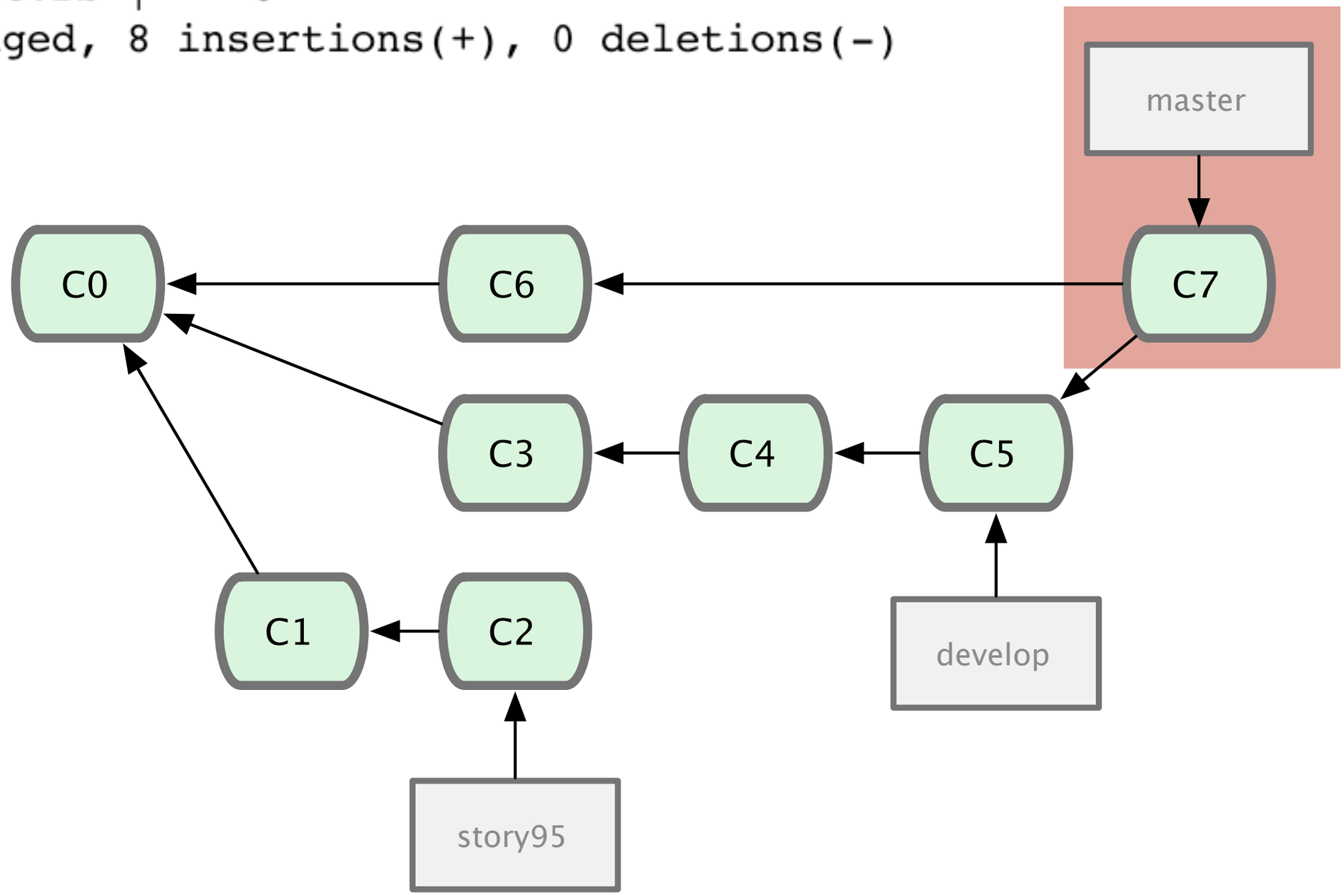
merge idea into development

push to production

```
$>git checkout master
Switched to branch "master"
$>
```

```
$>git checkout master
Switched to branch "master"
$>git merge develop
Auto-merged lib/simplegit.rb
Merge made by recursive.
 lib/simplegit.rb |    8 ++++++++
 1 files changed, 8 insertions(+), 0 deletions(-)
$>
```

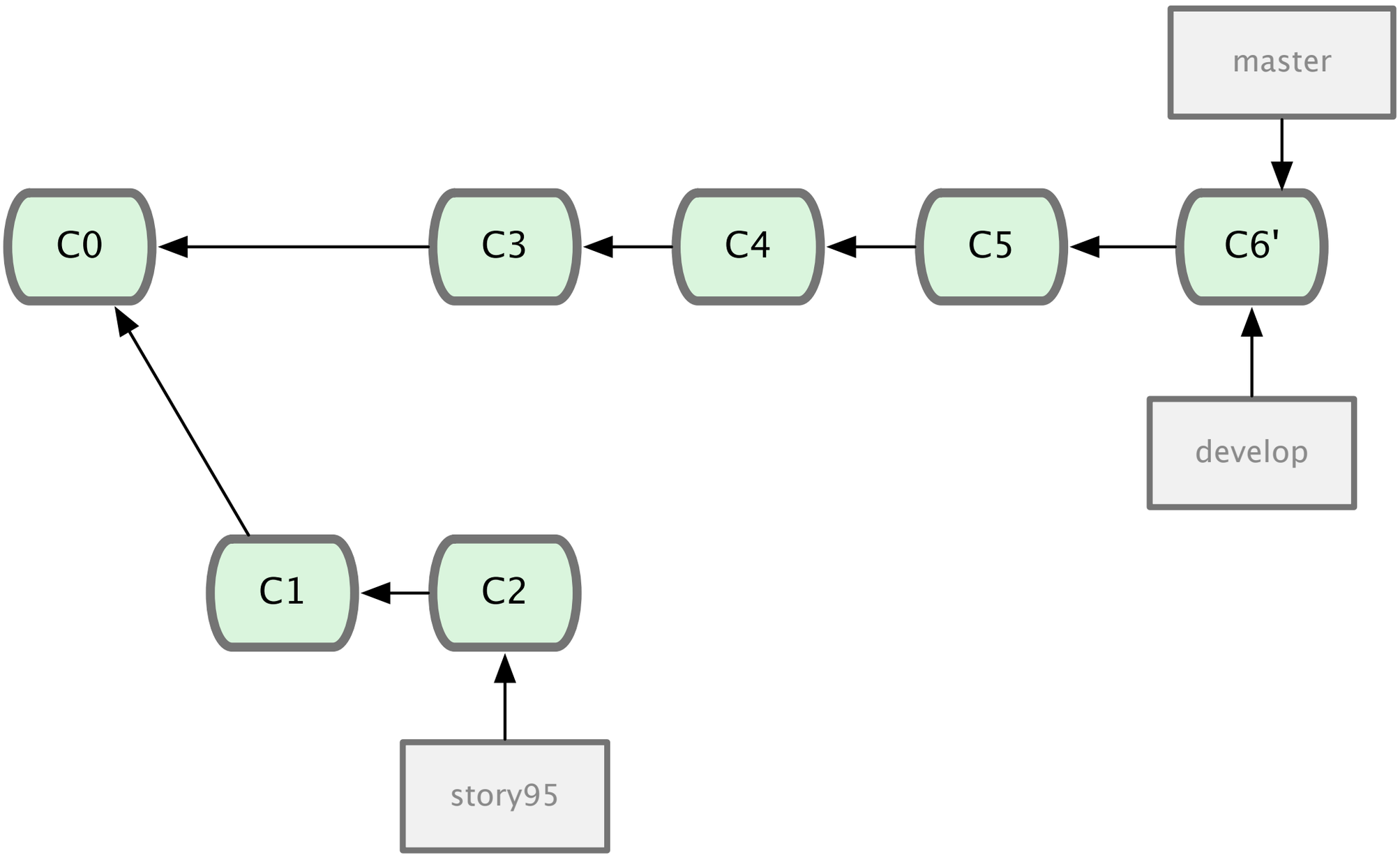
```
$>git checkout master
Switched to branch "master"
$>git merge develop
Auto-merged lib/simplegit.rb
Merge made by recursive.
 lib/simplegit.rb |    8 ++++++++
 1 files changed, 8 insertions(+), 0 deletions(-)
$>
```



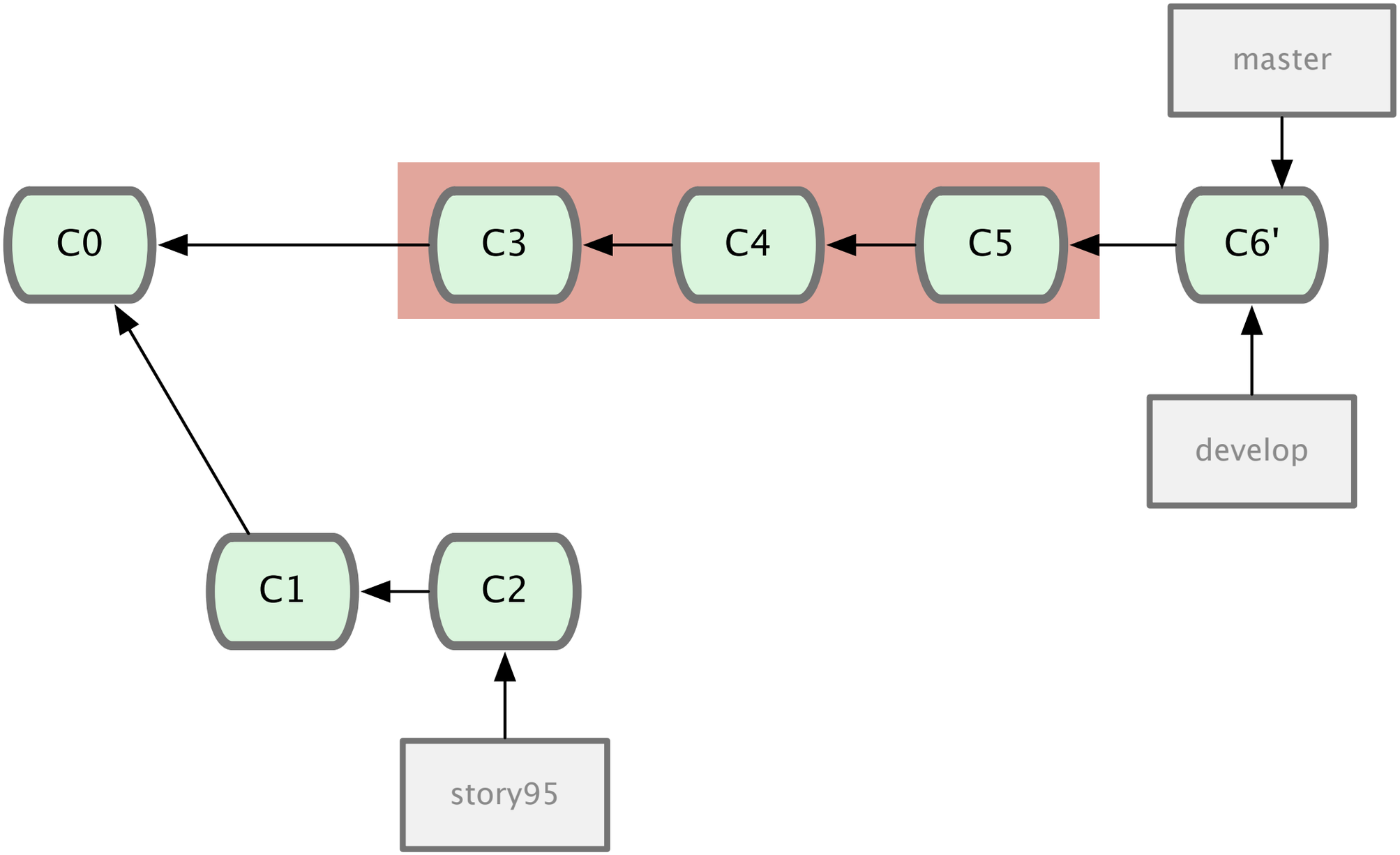
```
$>git checkout master
Switched to branch "master"
$>
```

```
$>git checkout master
Switched to branch "master"
$>git rebase develop
First, rewinding head to replay your work on top of it...
HEAD is now at 8268c1a split show command into raw and normal
Applying changed log output to 30 from 25
$>
```

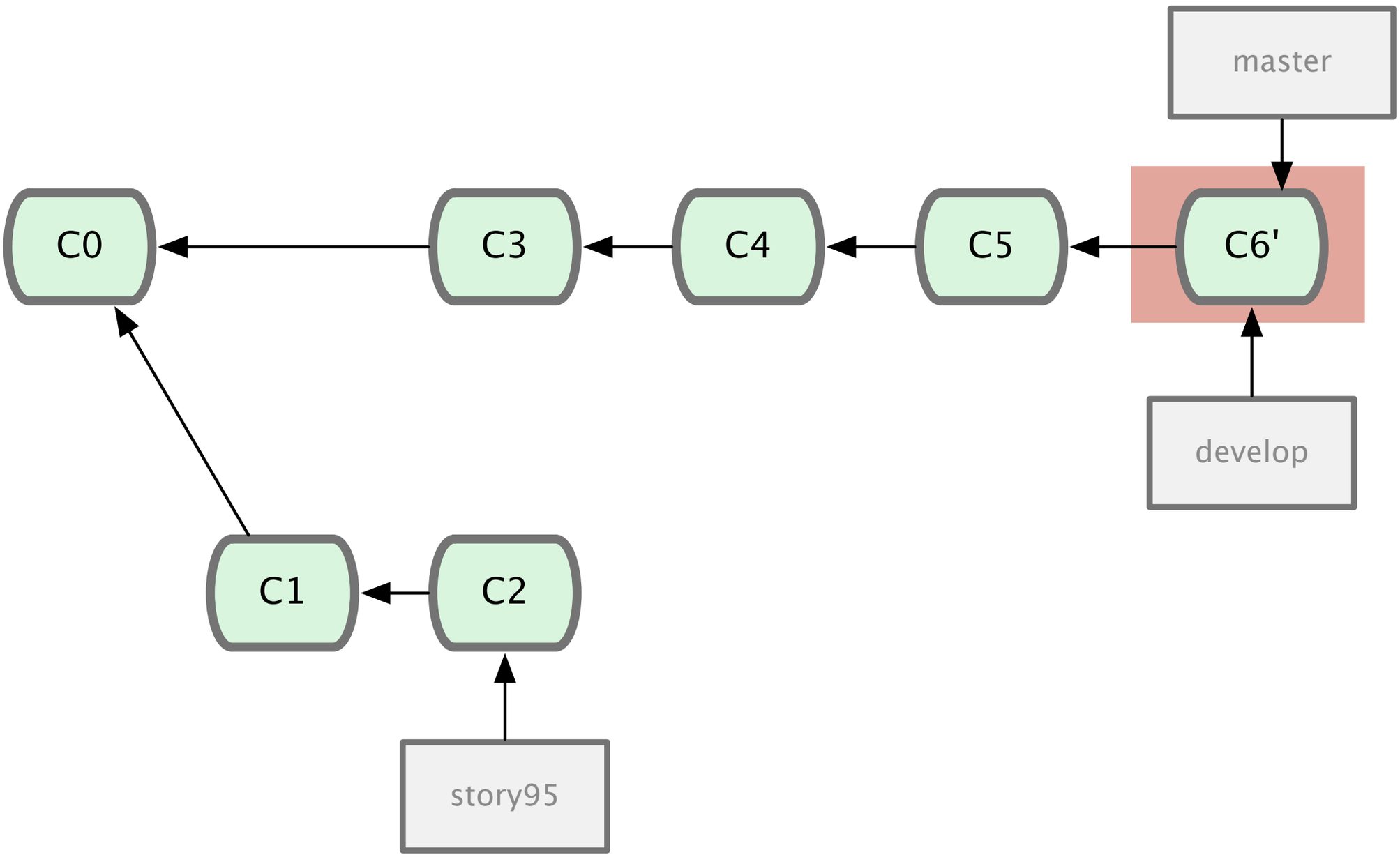
```
$>git checkout master
Switched to branch "master"
$>git rebase develop
First, rewinding head to replay your work on top of it...
HEAD is now at 8268c1a split show command into raw and normal
Applying changed log output to 30 from 25
$>
```



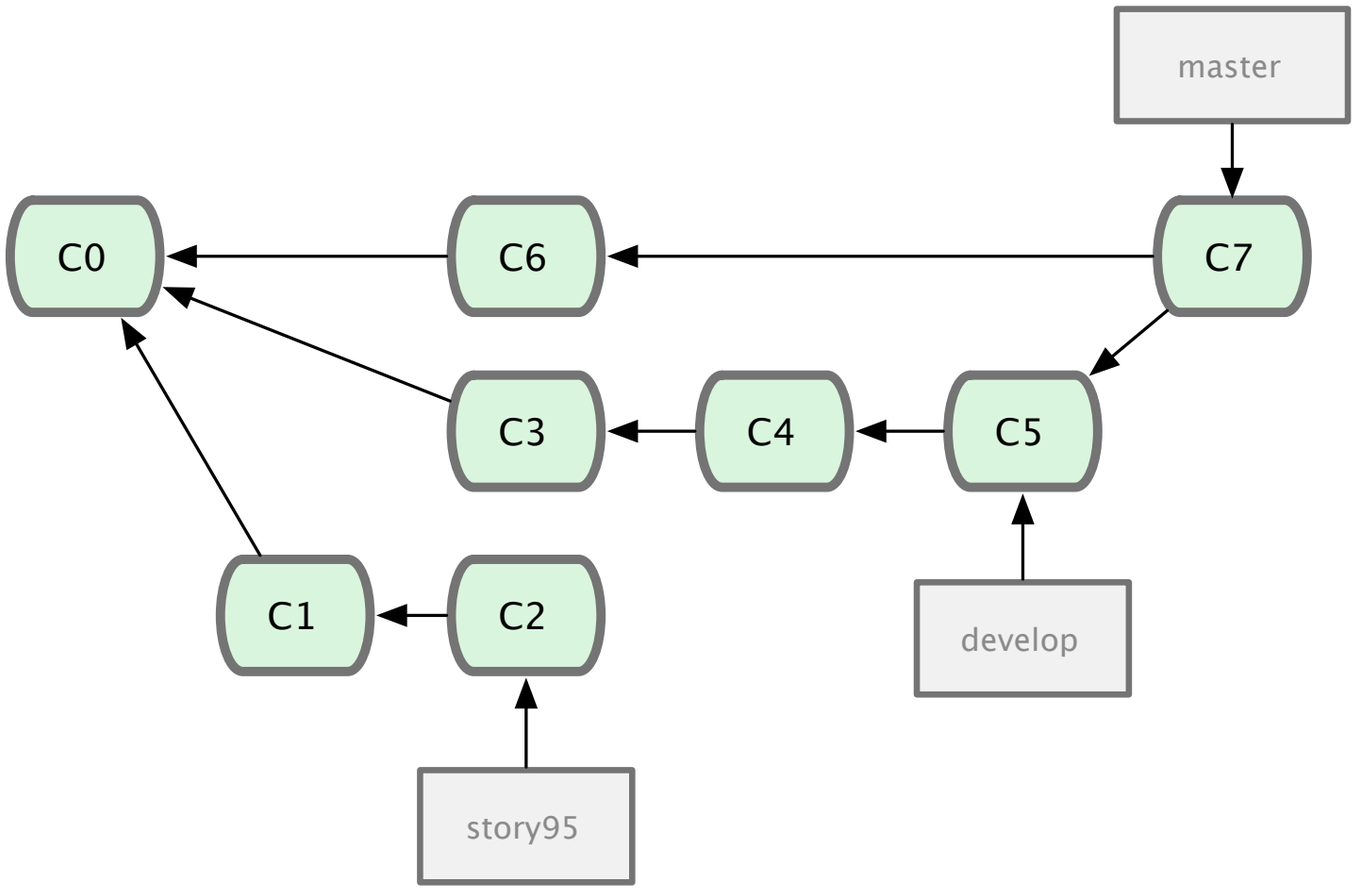
```
$>git checkout master
Switched to branch "master"
$>git rebase develop
First, rewinding head to replay your work on top of it...
HEAD is now at 8268c1a split show command into raw and normal
Applying changed log output to 30 from 25
$>
```



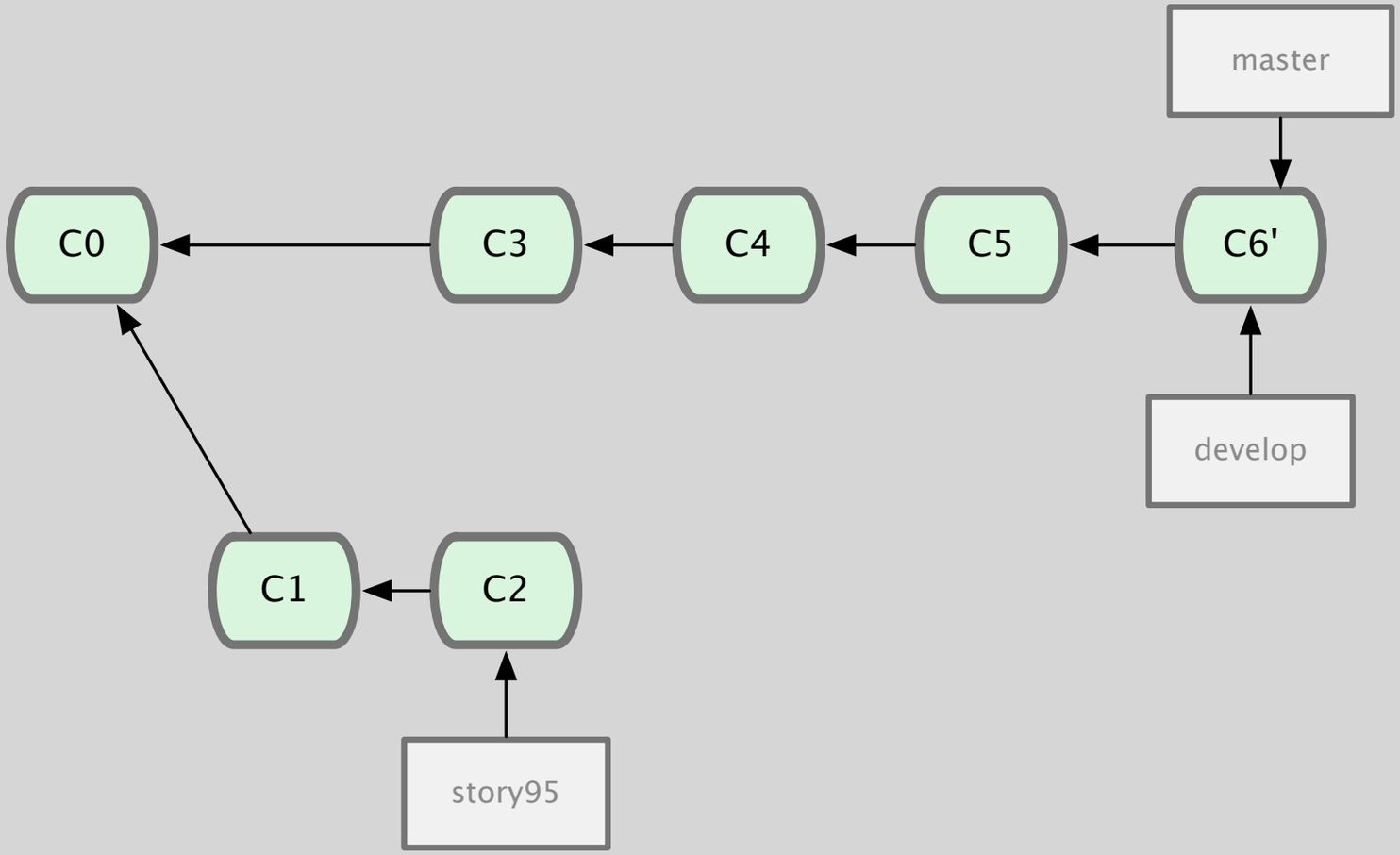
```
$>git checkout master
Switched to branch "master"
$>git rebase develop
First, rewinding head to replay your work on top of it...
HEAD is now at 8268c1a split show command into raw and normal
Applying changed log output to 30 from 25
$>
```



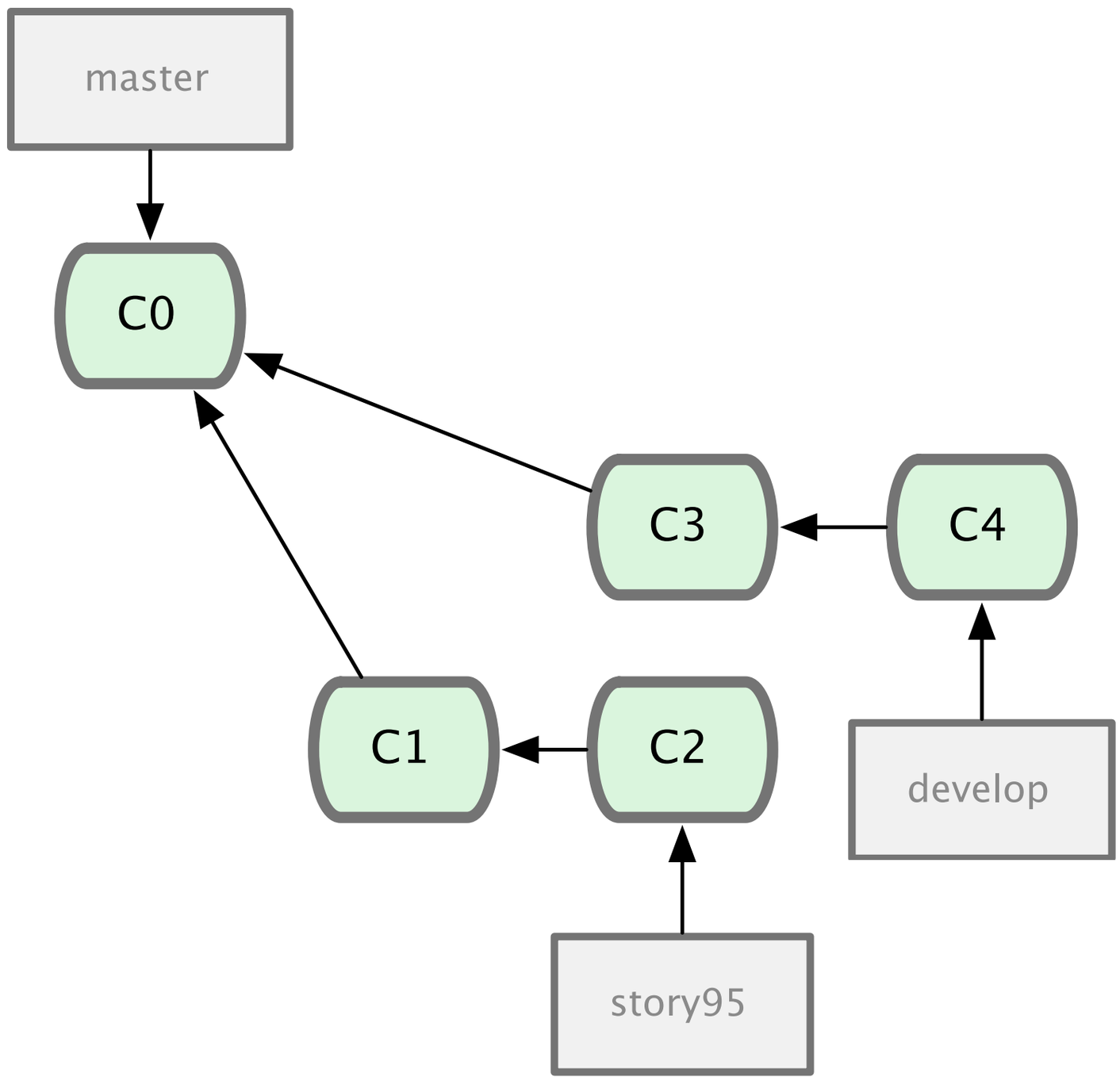
merge

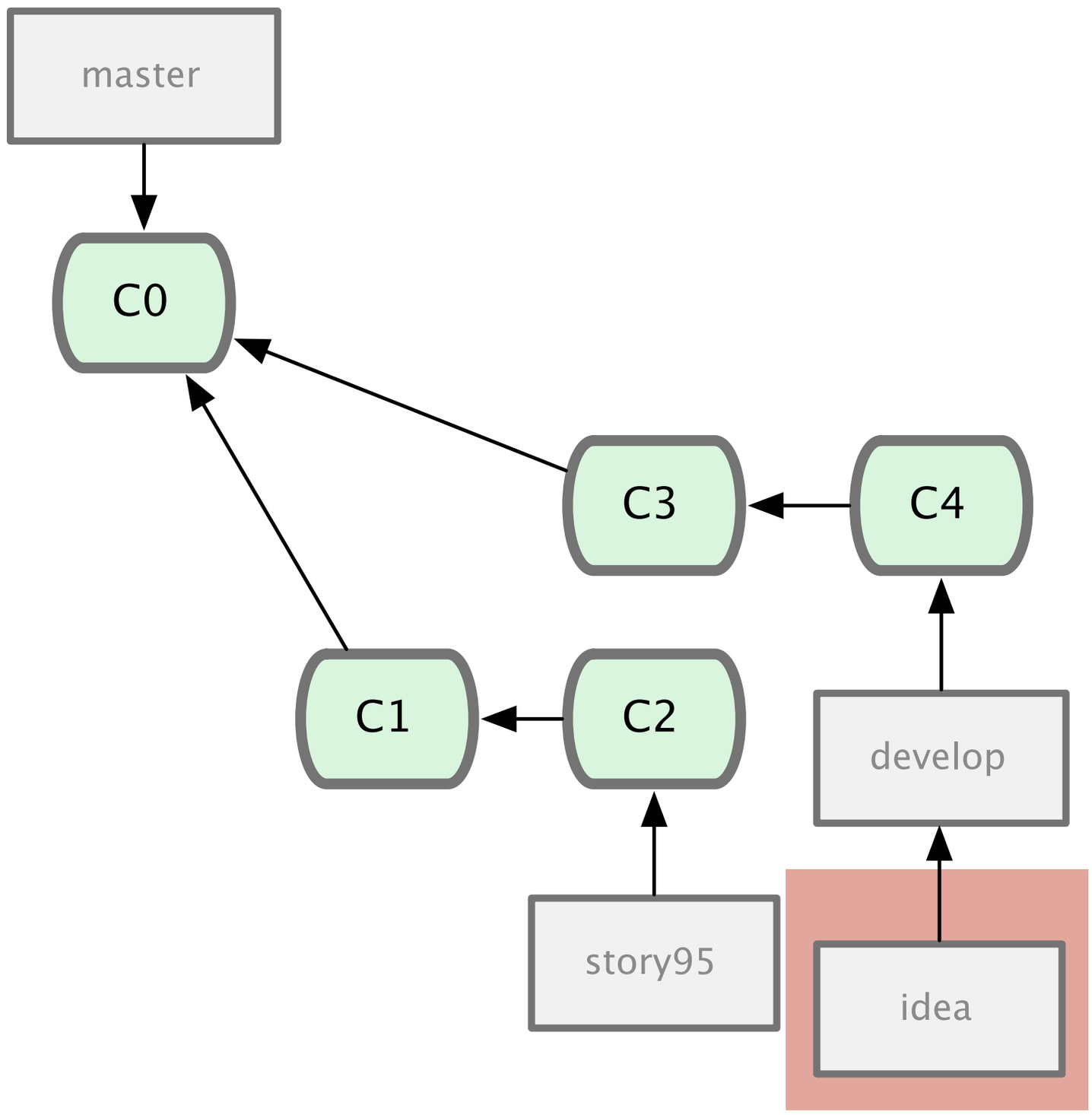


rebase

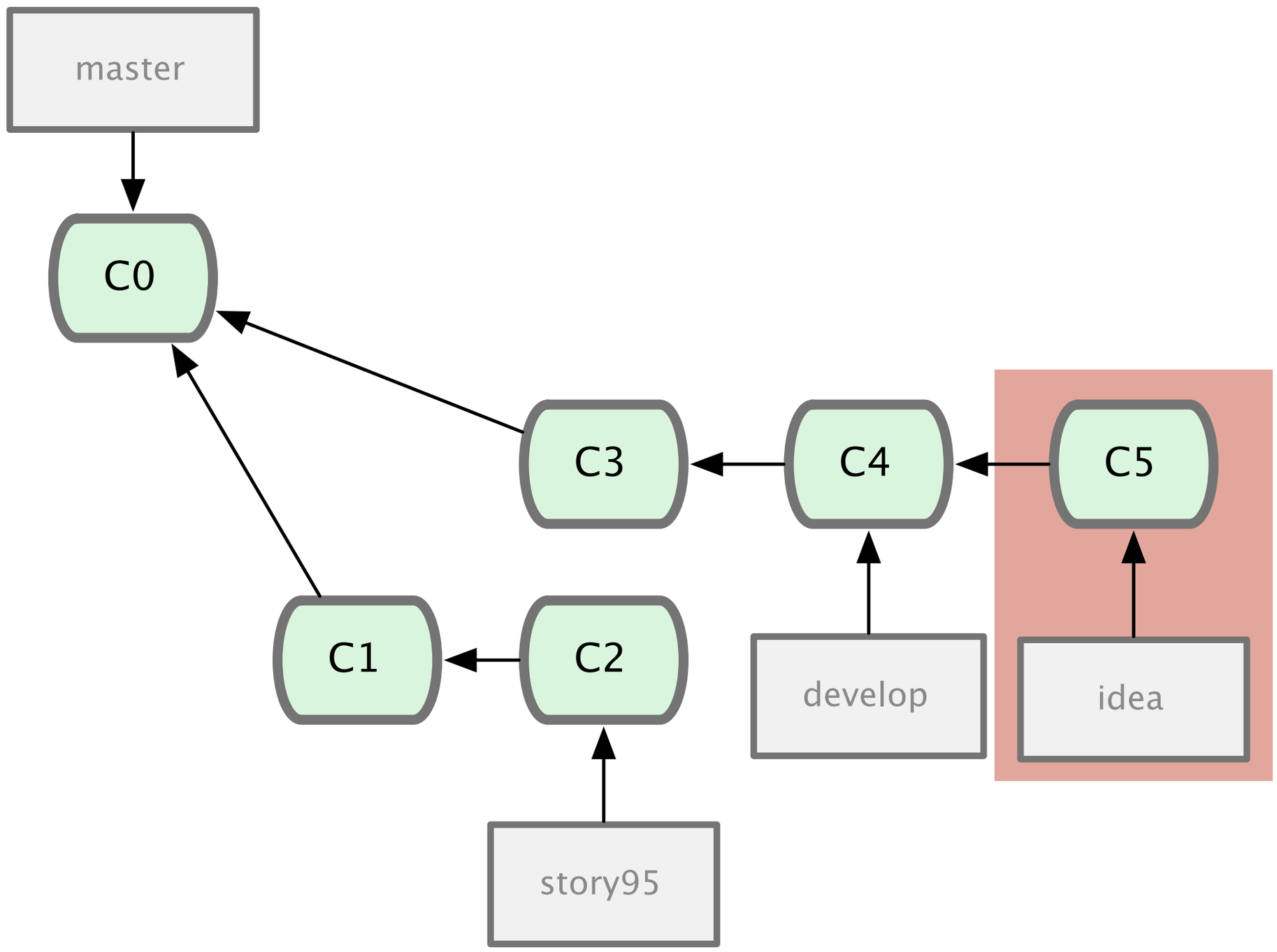


one more time now!

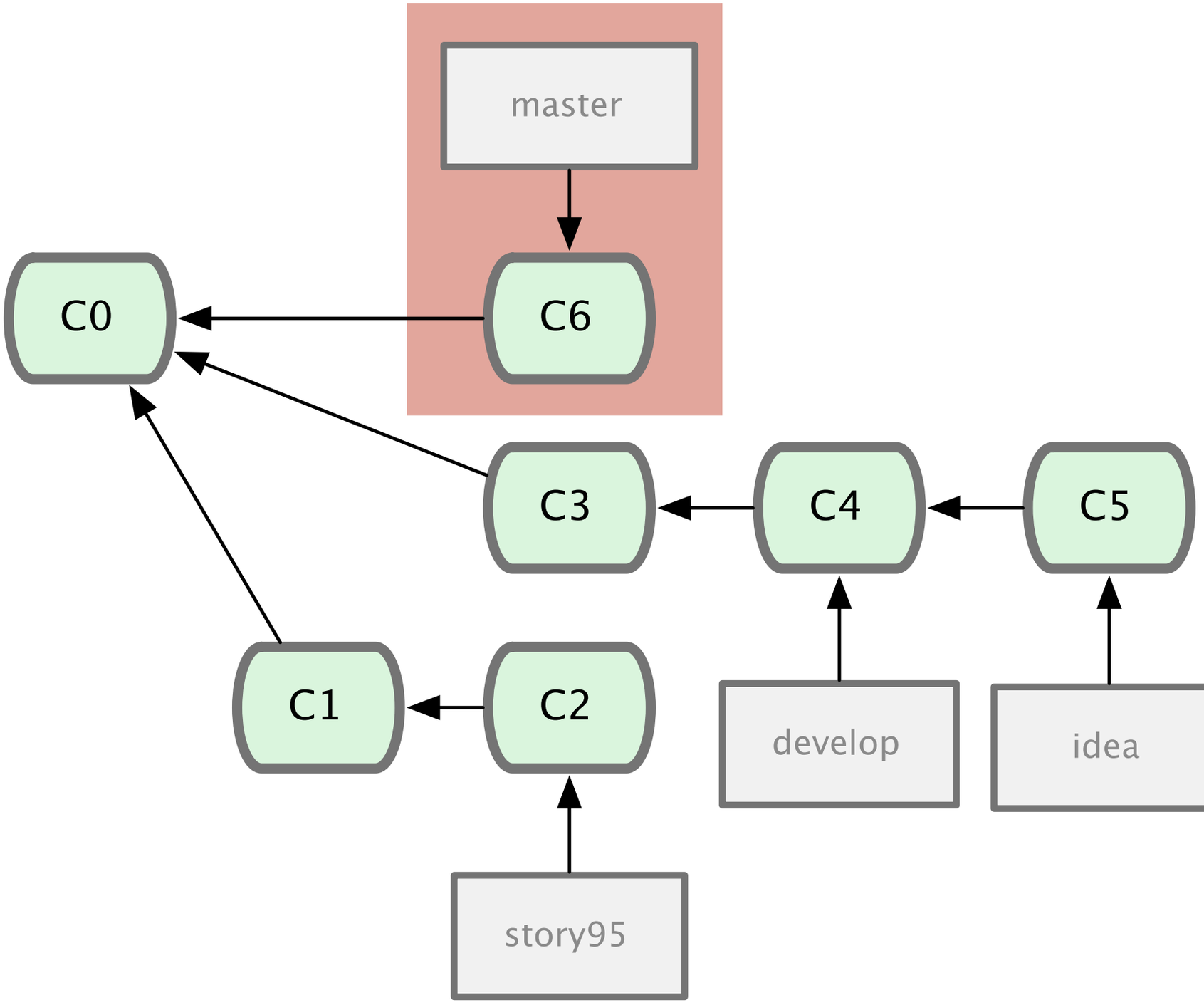

master
C0
C3
C4
C1
C2
develop
story95



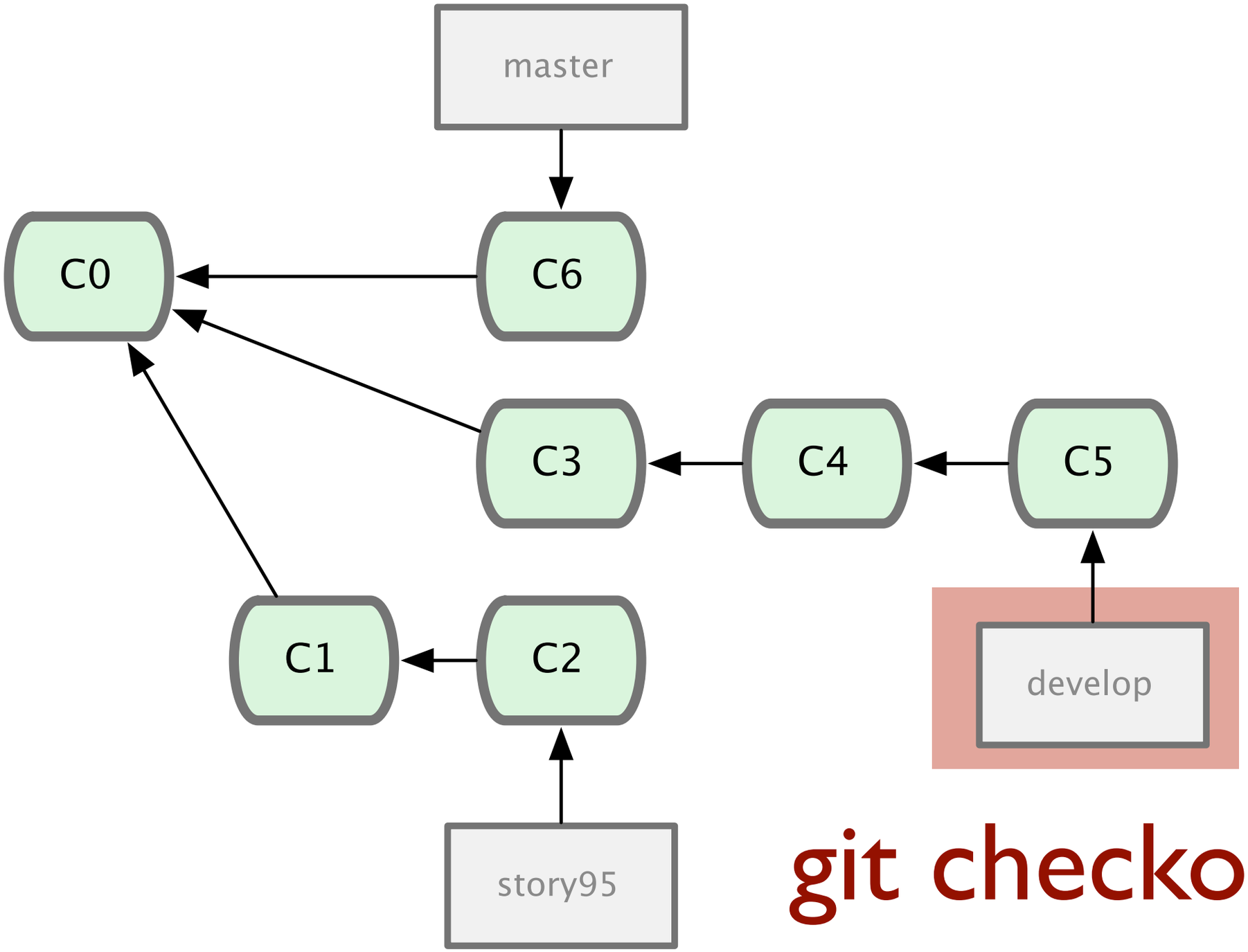
git checkout -b idea



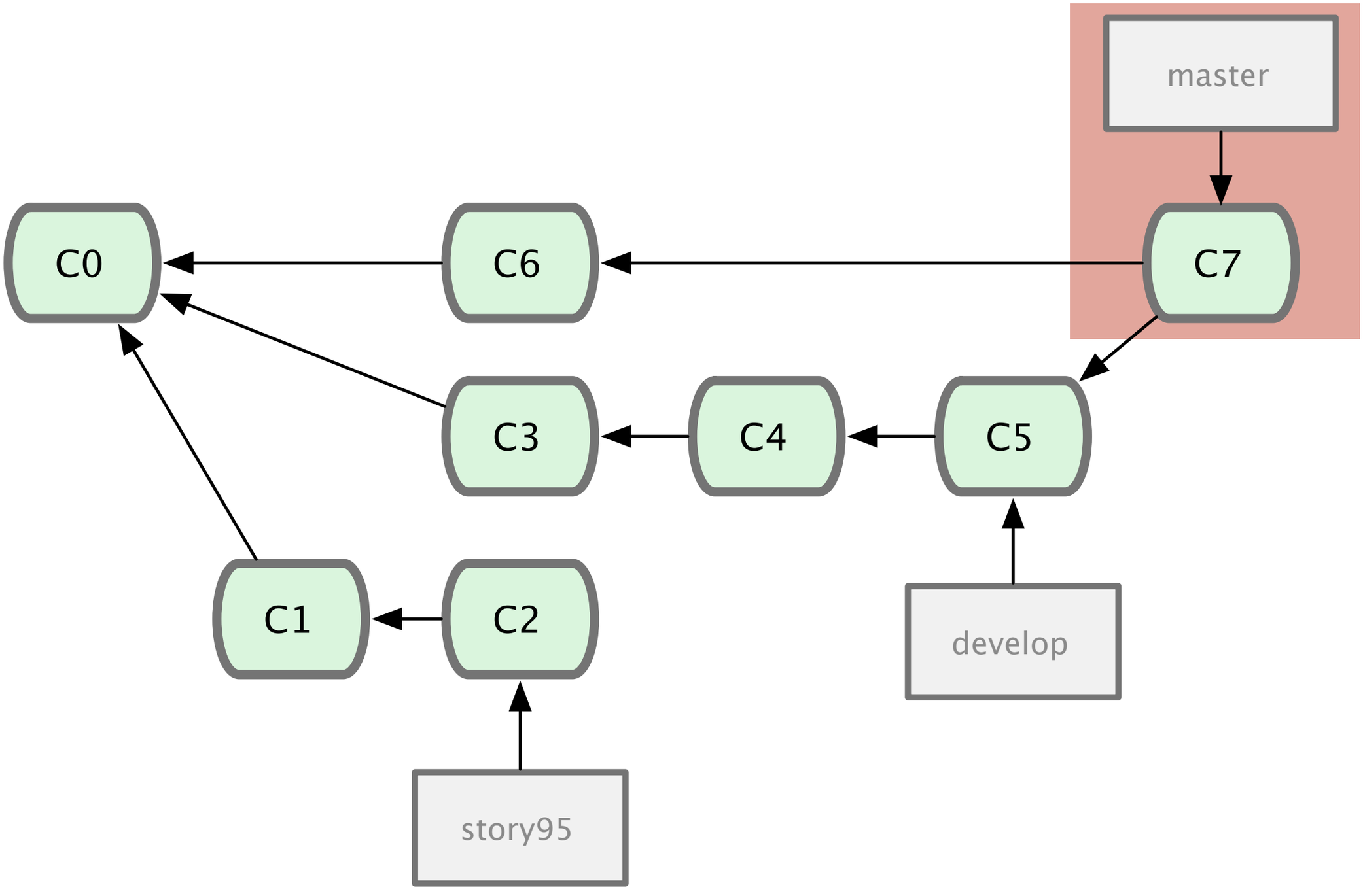
git commit



git checkout master
git commit




```
git checkout idea
git merge develop
git branch -d idea
```



git checkout master
git merge develop

sharing git

```
$>git remote
$>
```

Search GitHub

Pull requests Issues Marketplace Explore

New repository
Import repository
New gist
New organization

Mohammad-Reza

mrdaliri

Add a bio

Organizations

Overview Repositories 15 Stars 11 Followers 13 Followin

Popular repositories

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Simple 2D Strategy War Game
Java 1

Telegram
Forked from DrKLO/Telegram
Telegram for Android source
C

ap_spring2016
Advanced Programming Course - Spring 2016
Java 1

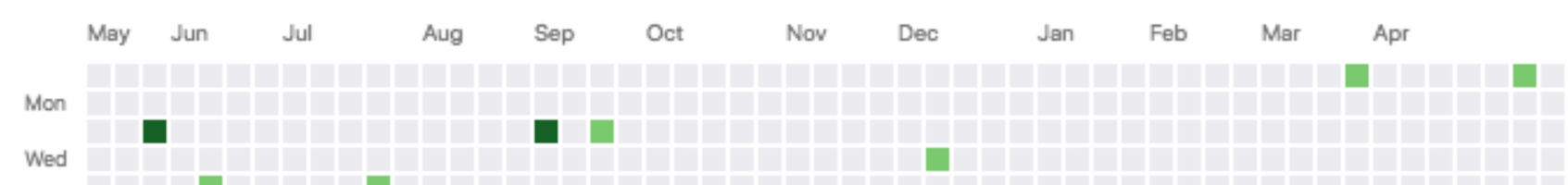
shabnam-font
Forked from rastikerdar/shabnam-font
A Persian (Farsi) Font - فونت (قلم) فارسی شبنم

vazir-font
Forked from rastikerdar/vazir-font
A Persian (Farsi) Font - قلم (فونت) فارسی وزیر

api-documentation
Forked from creativeprogramming/api-documentation
This is the 500px API documentation.

20 contributions in the last year

Contribution settings



Create a new repository

A repository contains all the files for your project, including the revision history.

Owner **Repository name**

mrdaliri /

Great repository names are short and memorable. Need inspiration? How about **fantastic-system**.

Description (optional)

Public
Anyone can see this repository. You choose who can commit.

Private
You choose who can see and commit to this repository.

Initialize this repository with a README
This will let you immediately clone the repository to your computer. Skip this step if you're importing an existing repository.

Add .gitignore: **None** | Add a license: **None**

Create repository

mrdaliri / fumlug2

Unwatch 1 Star 0 Fork 0

Code Issues 0 Pull requests 0 Projects 0 Wiki Insights Settings

Quick setup — if you've done this kind of thing before

or HTTPS SSH git@github.com:mrdaliri/fumlug2.git

We recommend every repository include a README, LICENSE, and .gitignore.

...or create a new repository on the command line

```
echo "# fumlug2" >> README.md
git init
git add README.md
git commit -m "first commit"
git remote add origin git@github.com:mrdaliri/fumlug2.git
git push -u origin master
```

...or push an existing repository from the command line

```
git remote add origin git@github.com:mrdaliri/fumlug2.git
git push -u origin master
```

...or import code from another repository

You can initialize this repository with code from a Subversion, Mercurial, or TFS project.

```
$>git remote
$>git remote add public git@github.com:schacon/simplegit2.git
$>
```

```
$>git remote
$>git remote add public git@github.com:schacon/simplegit2.git
$>
```

```
$>git remote
$>git remote add public git@github.com:schacon/simplegit2.git
$>
```

```
$>git remote
$>git remote add public git@github.com:schacon/simplegit2.git
$>git push public master
Counting objects: 115, done.
Compressing objects: 100% (73/73), done.
Writing objects: 100% (115/115), 11.20 KiB, done.
Total 115 (delta 42), reused 65 (delta 24)
refs/heads/master: 0000000000000000000000000000000000000000 -> fc6
5543b195f18391886b9f663d5a7eca38e84
To git@github.com:schacon/simplegit2.git
 * [new branch]      master -> master
$>
```

```
$>git remote
$>git remote add public git@github.com:schacon/simplegit2.git
$>git push public master
Counting objects: 115, done.
Compressing objects: 100% (73/73), done.
Writing objects: 100% (115/115), 11.20 KiB, done.
Total 115 (delta 42), reused 65 (delta 24)
refs/heads/master: 0000000000000000000000000000000000000000 -> fc6
5543b195f18391886b9f663d5a7eca38e84
To git@github.com:schacon/simplegit2.git
 * [new branch]      master -> master
$>
```

```
$>git remote
$>git remote add public git@github.com:schacon/simplegit2.git
$>git push public master
Counting objects: 115, done.
Compressing objects: 100% (73/73), done.
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Total 115 (delta 42), reused 65 (delta 24)
refs/heads/master: 0000000000000000000000000000000000000000 -> fc6
5543b195f18391886b9f663d5a7eca38e84
To git@github.com:schacon/simplegit2.git
 * [new branch]      master -> master
$>
```

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$>git remote
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$>git push public master
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refs/heads/master: 0000000000000000000000000000000000000000 -> fc6
5543b195f18391886b9f663d5a7eca38e84
To git@github.com:schacon/simplegit2.git
 * [new branch]      master -> master
$>
```

```
$>git remote
$>git remote add public git@github.com:schacon/simplegit2.git
$>git push public master
Counting objects: 115, done.
Compressing objects: 100% (73/73), done.
Writing objects: 100% (115/115), 11.20 KiB, done.
Total 115 (delta 42), reused 65 (delta 24)
refs/heads/master: 0000000000000000000000000000000000000000 -> fc6
5543b195f18391886b9f663d5a7eca38e84
To git@github.com:schacon/simplegit2.git
 * [new branch]      master -> master
$>git remote
public
$>
```

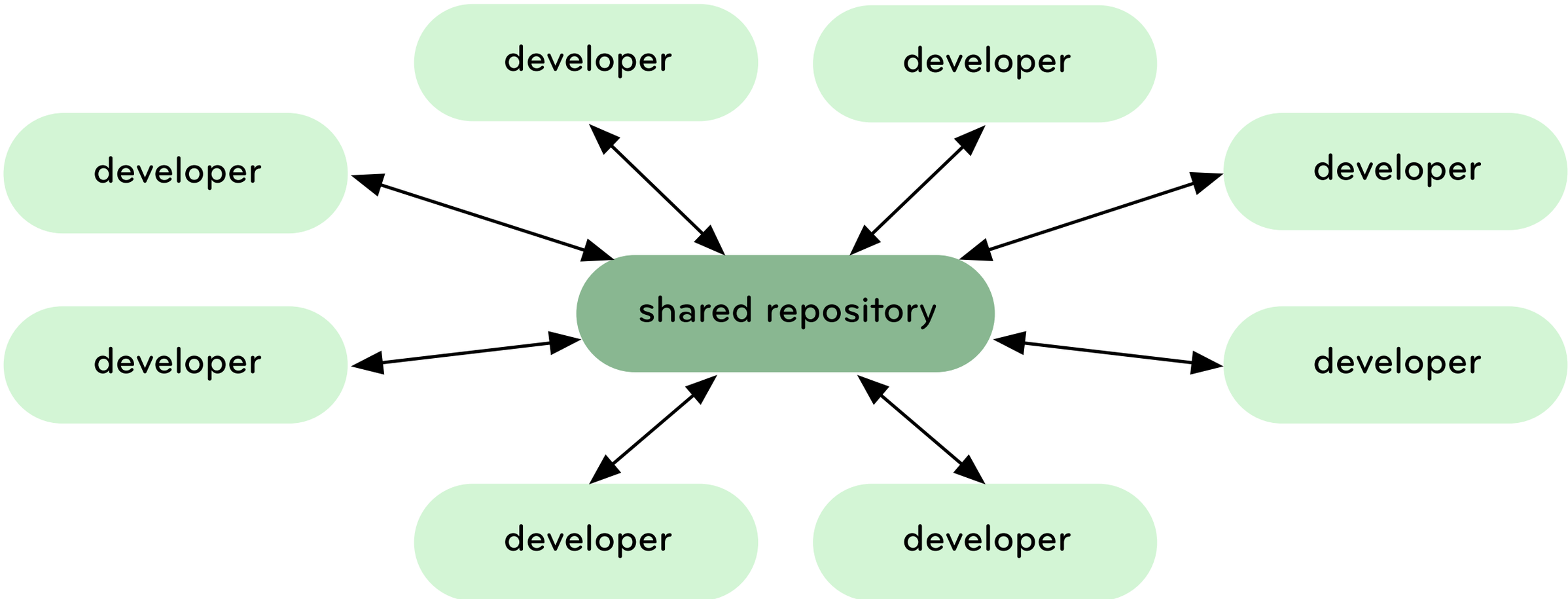
```
$>git remote
$>git remote add public git@github.com:schacon/simplegit2.git
$>git push public master
Counting objects: 115, done.
Compressing objects: 100% (73/73), done.
Writing objects: 100% (115/115), 11.20 KiB, done.
Total 115 (delta 42), reused 65 (delta 24)
refs/heads/master: 0000000000000000000000000000000000000000 -> fc6
5543b195f18391886b9f663d5a7eca38e84
To git@github.com:schacon/simplegit2.git
 * [new branch]      master -> master
$>git remote
public
$>git remote show public
* remote public
  URL: git@github.com:schacon/simplegit2.git
  Tracked remote branches
    master
$>_
```

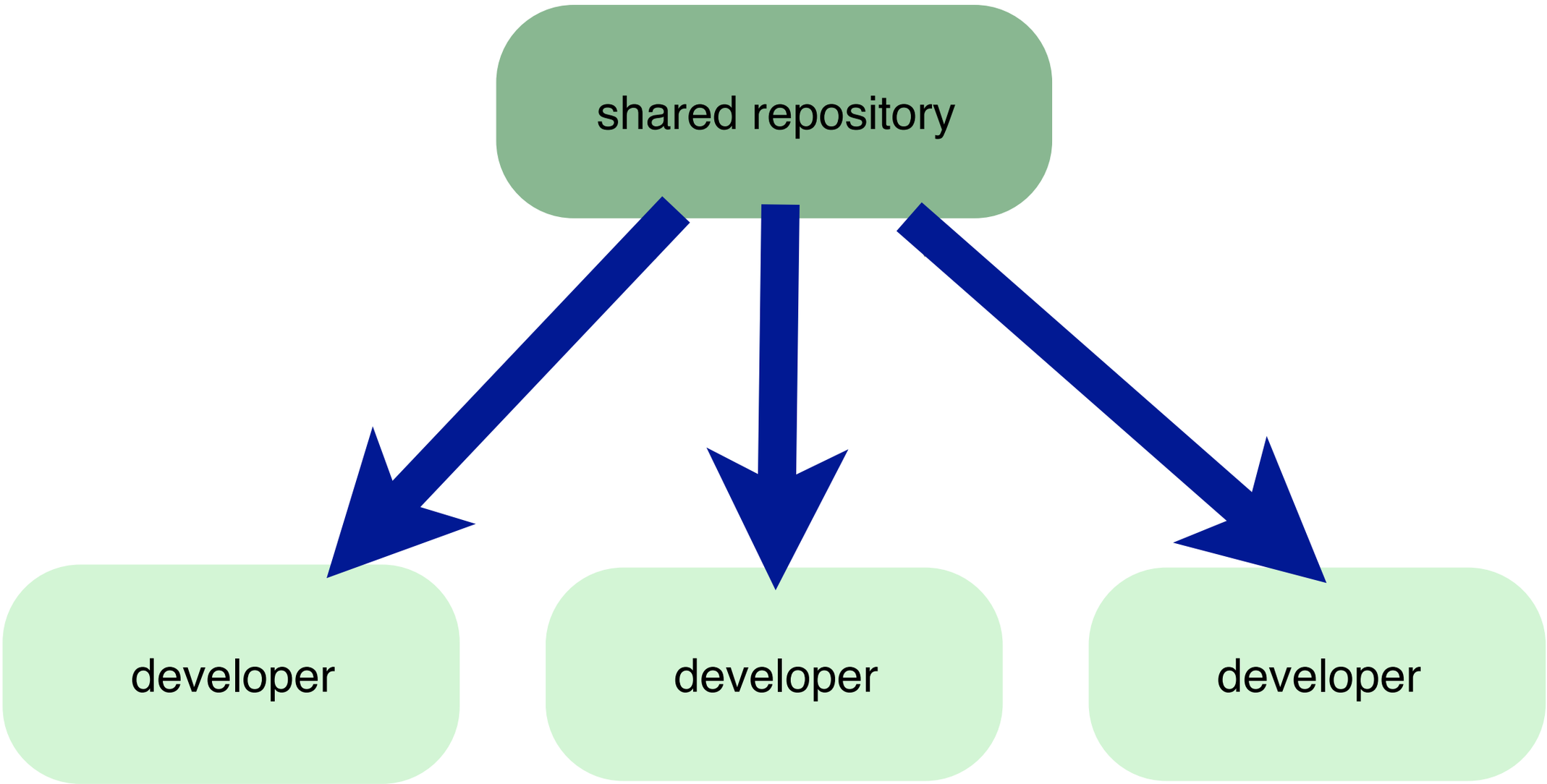
distributed workflow

review

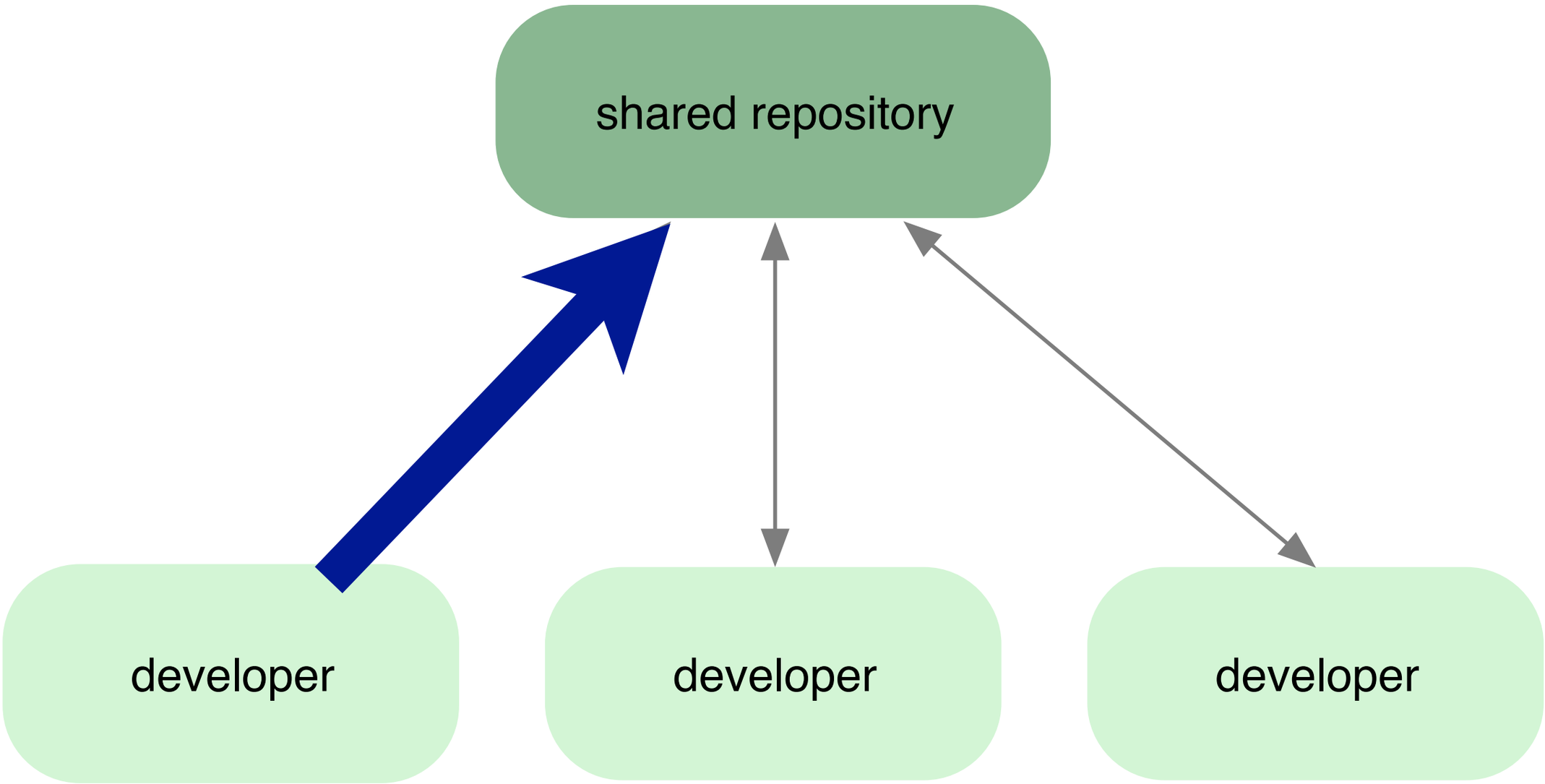
popular workflows

central repository model

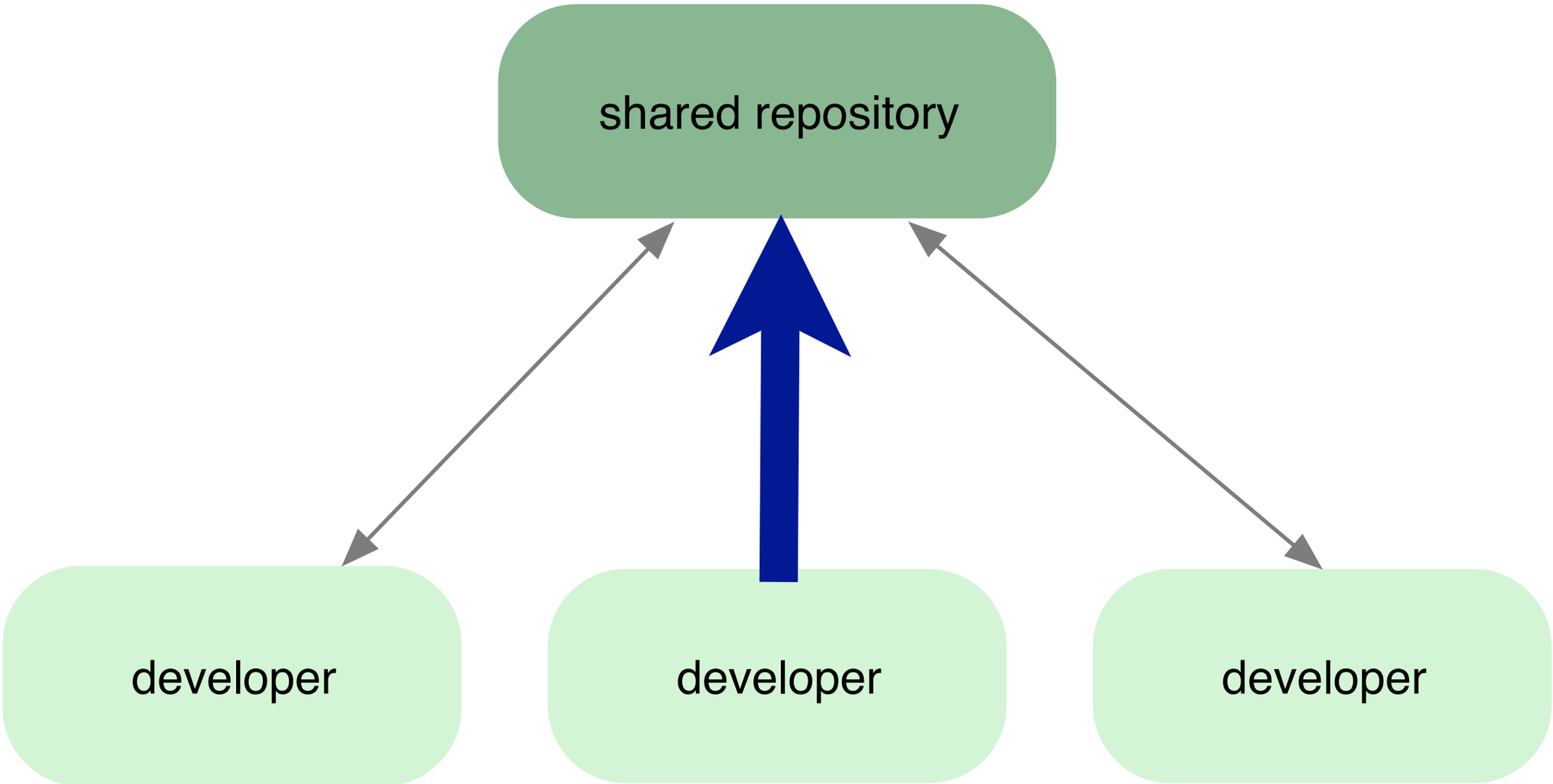

developer
developer
developer
developer
shared repository
developer
developer
developer
developer



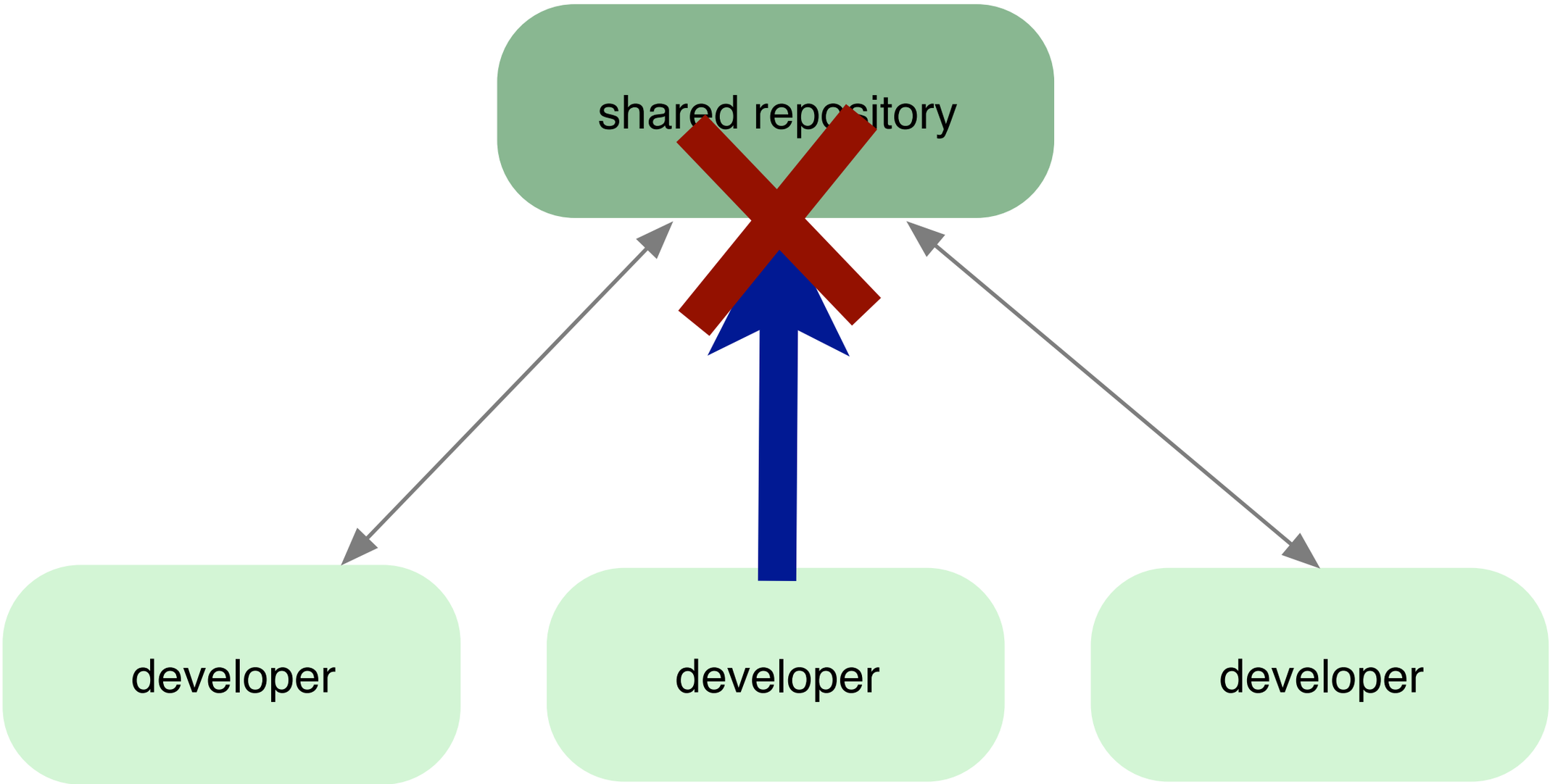
git clone

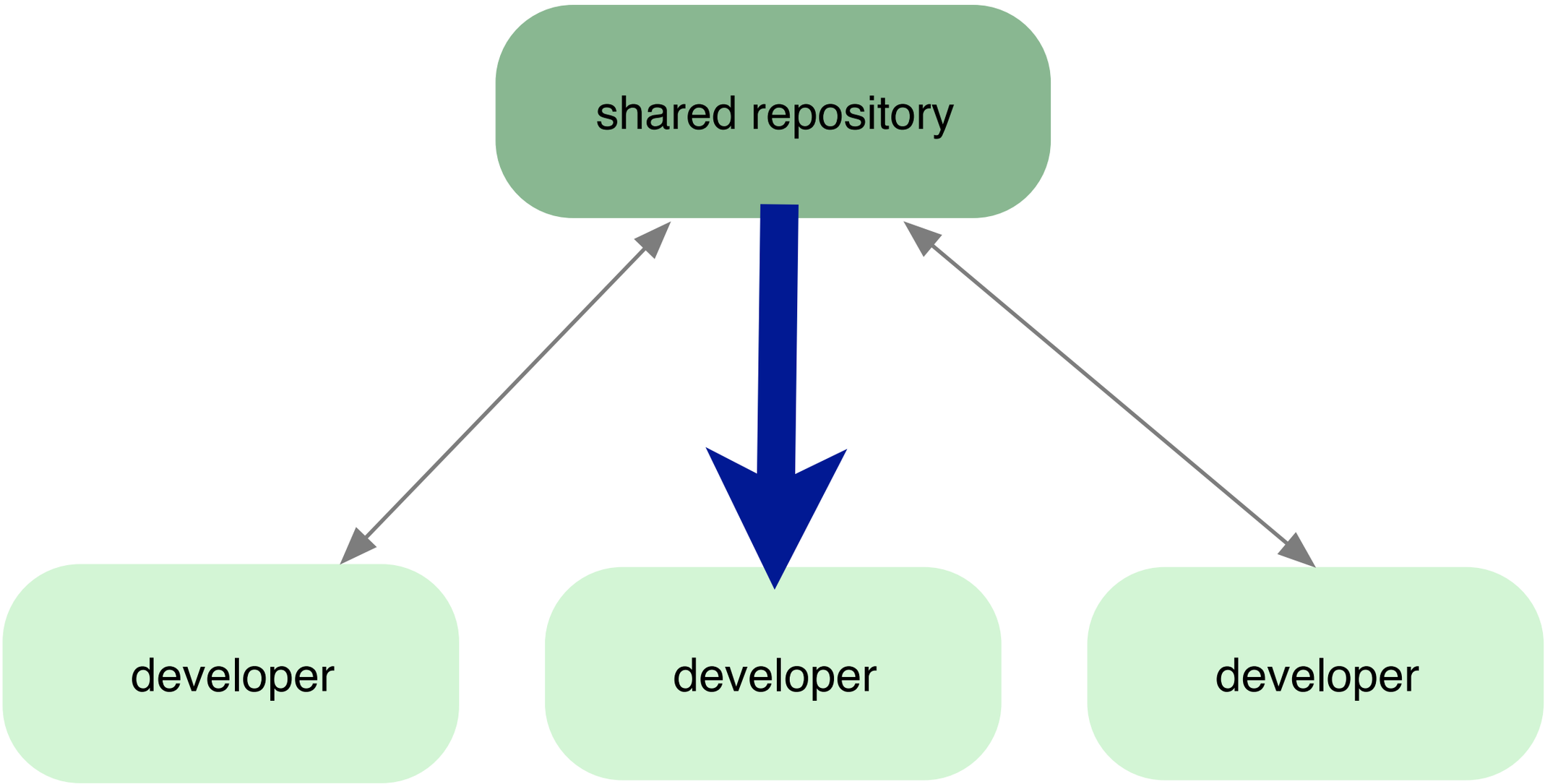


git push

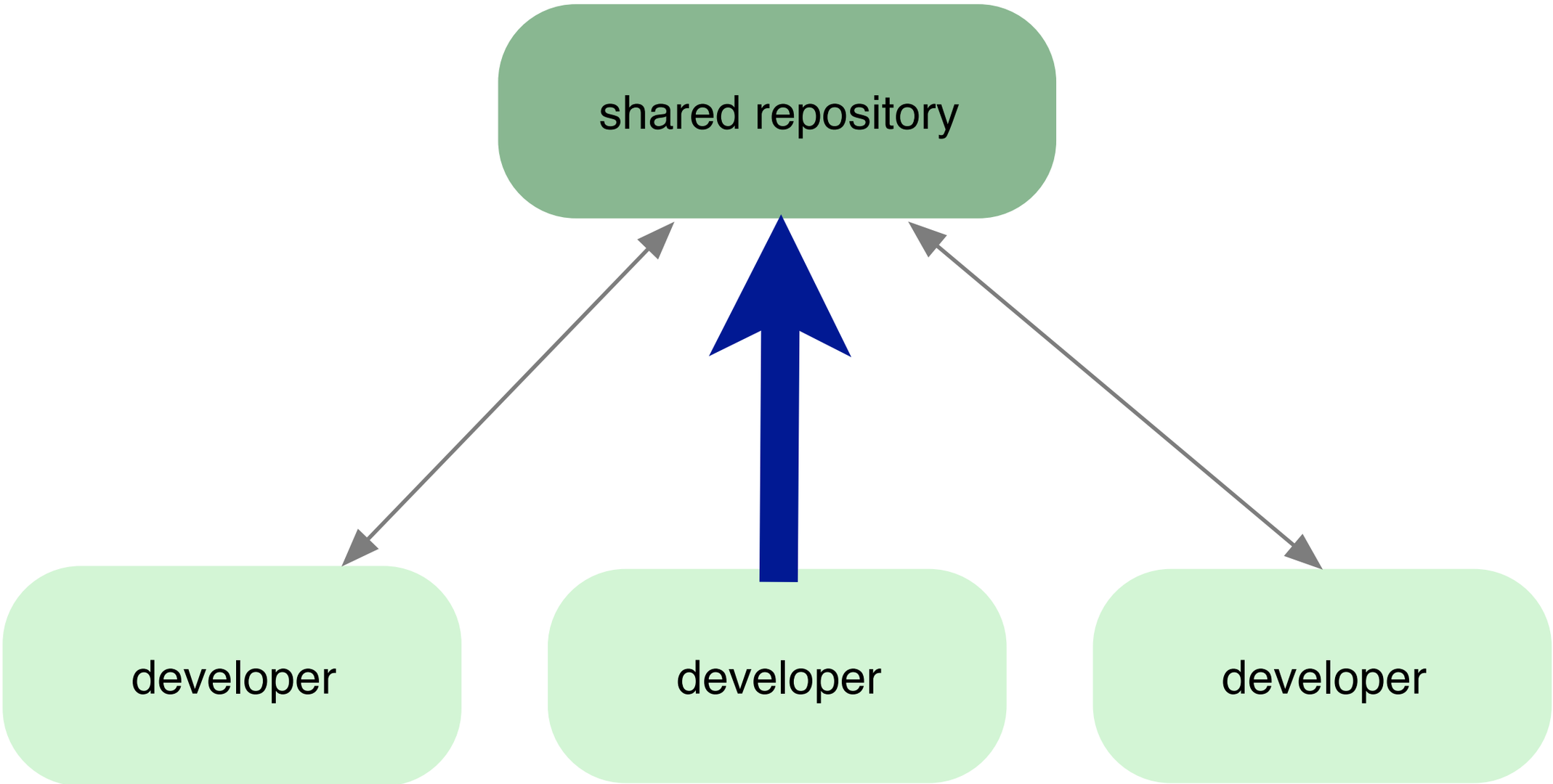


git push


shared repository
developer
developer
developer

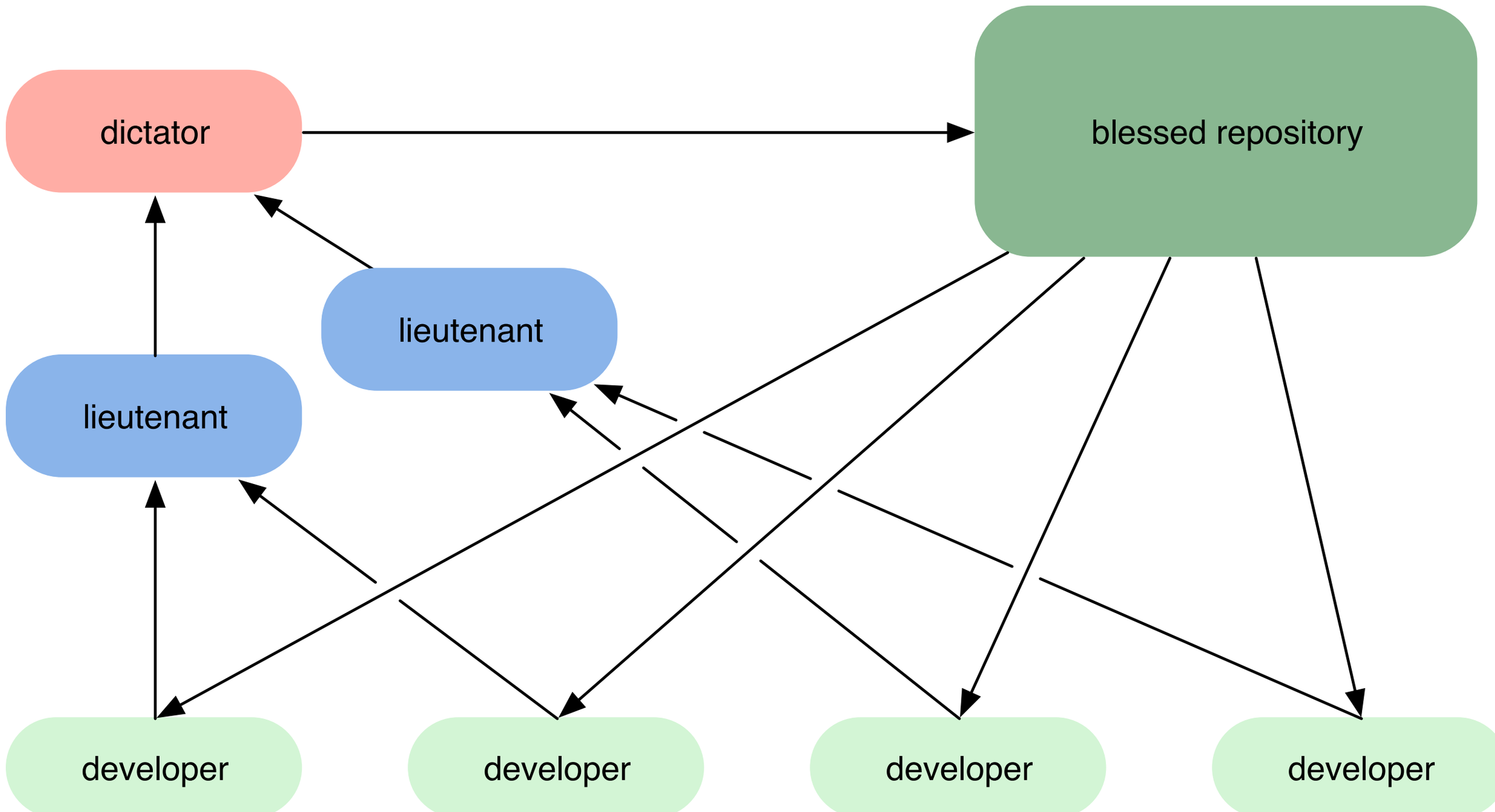


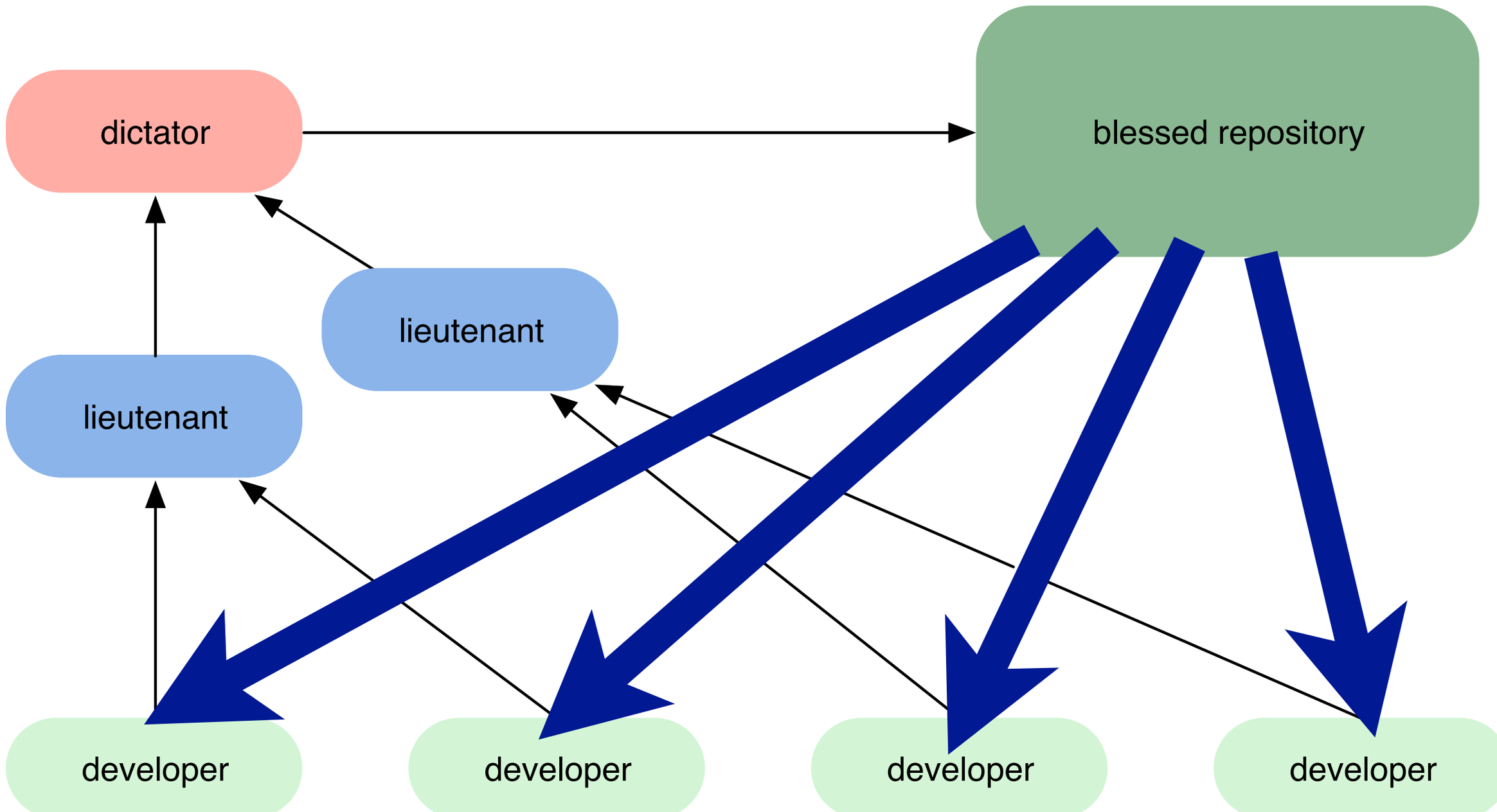
git fetch
git merge



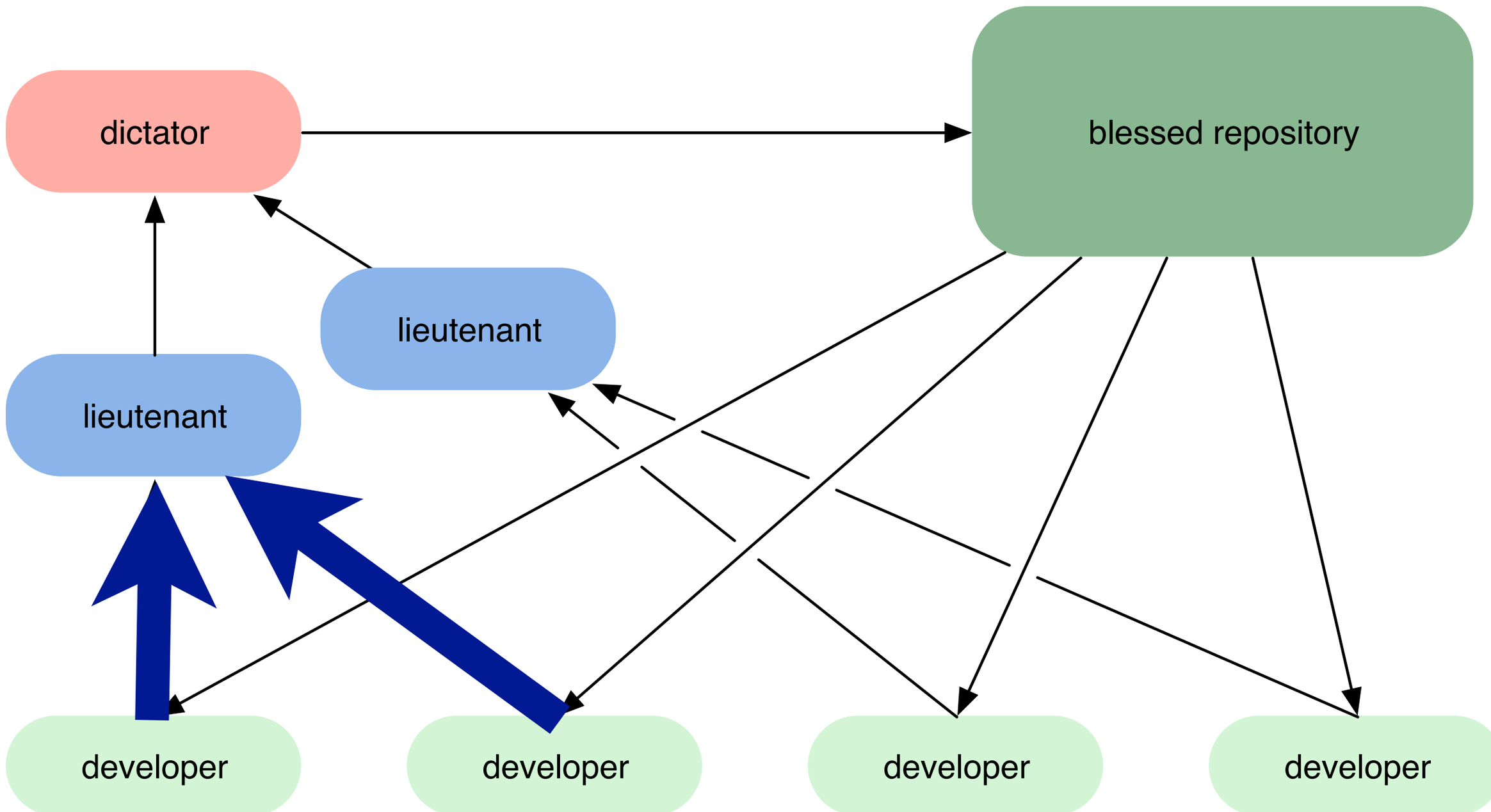
git push

dictator and lieutenants model


dictator
blessed repository
lieutenant
lieutenant
developer
developer
developer
developer

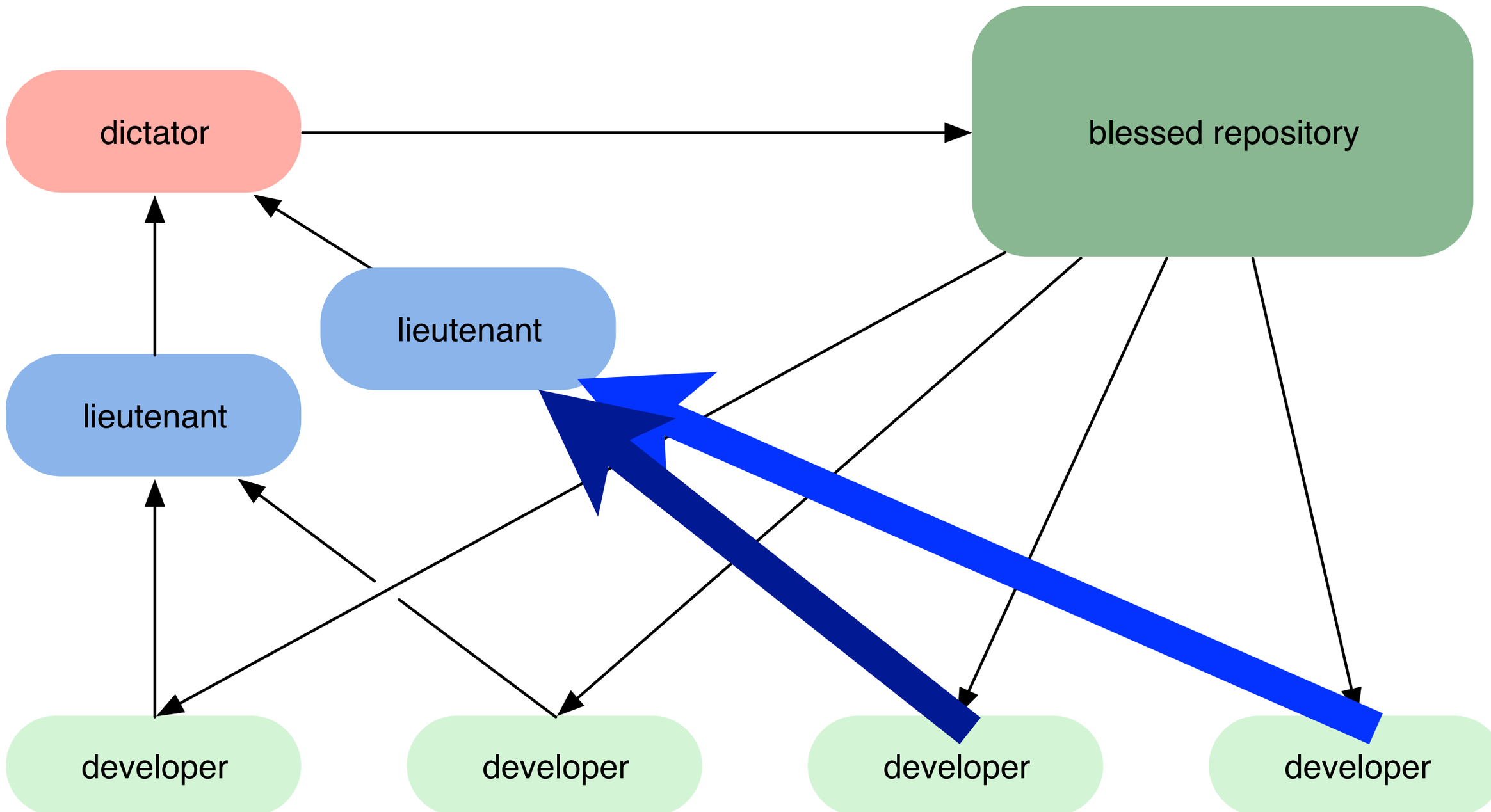

dictator
blessed repository
lieutenant
lieutenant
developer
developer
developer
developer

git clone



git fetch

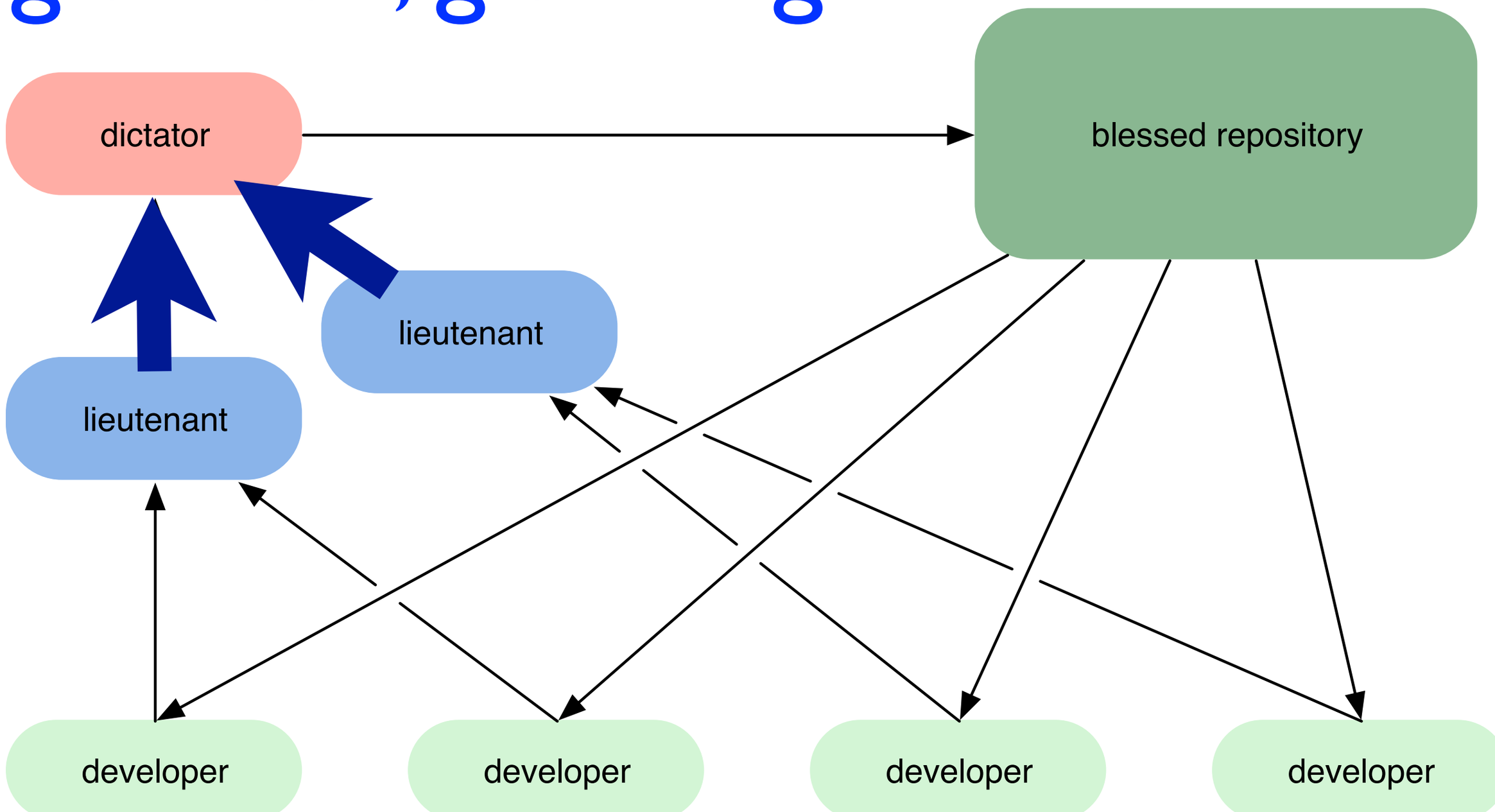
git merge



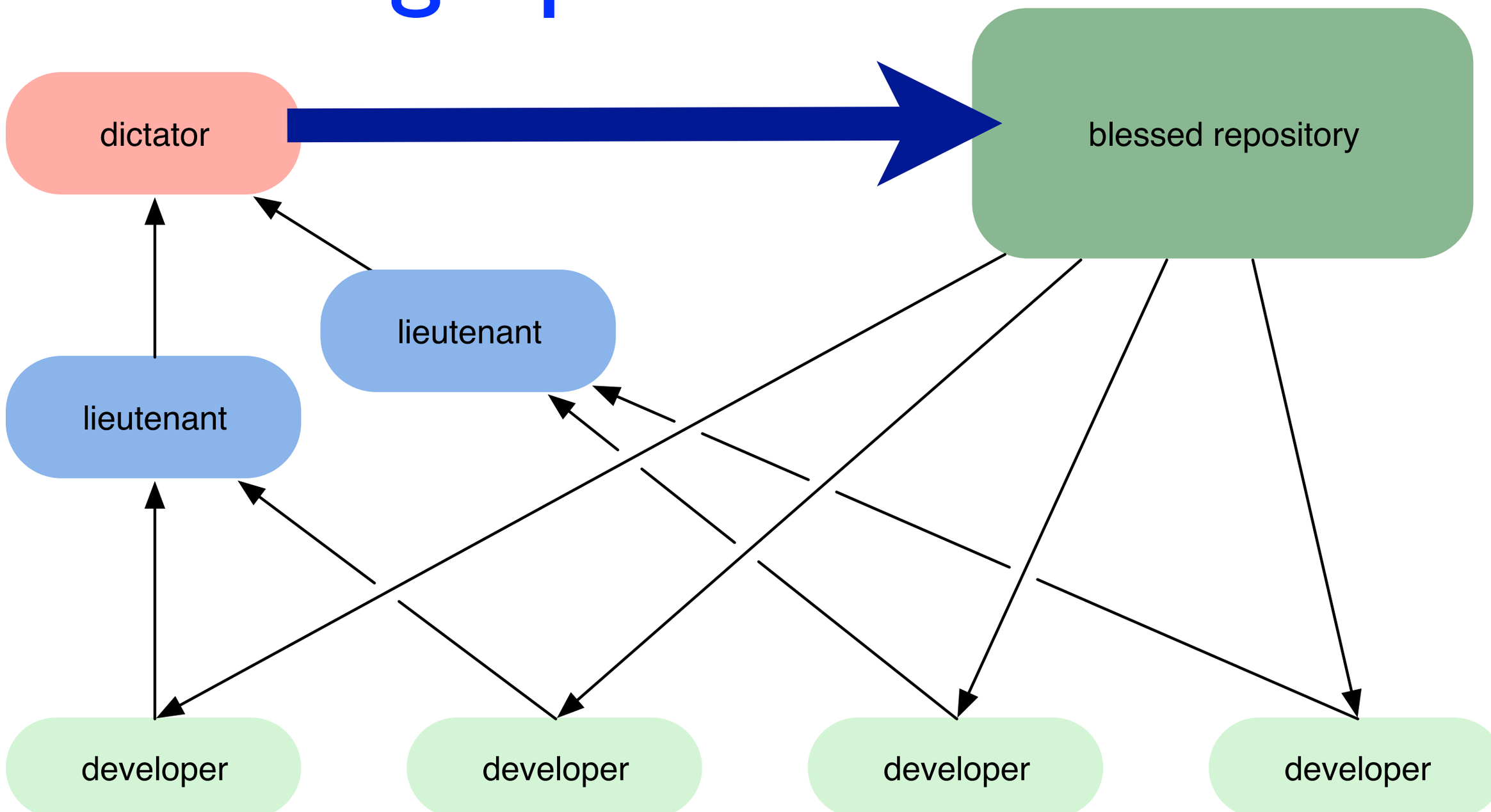
git fetch

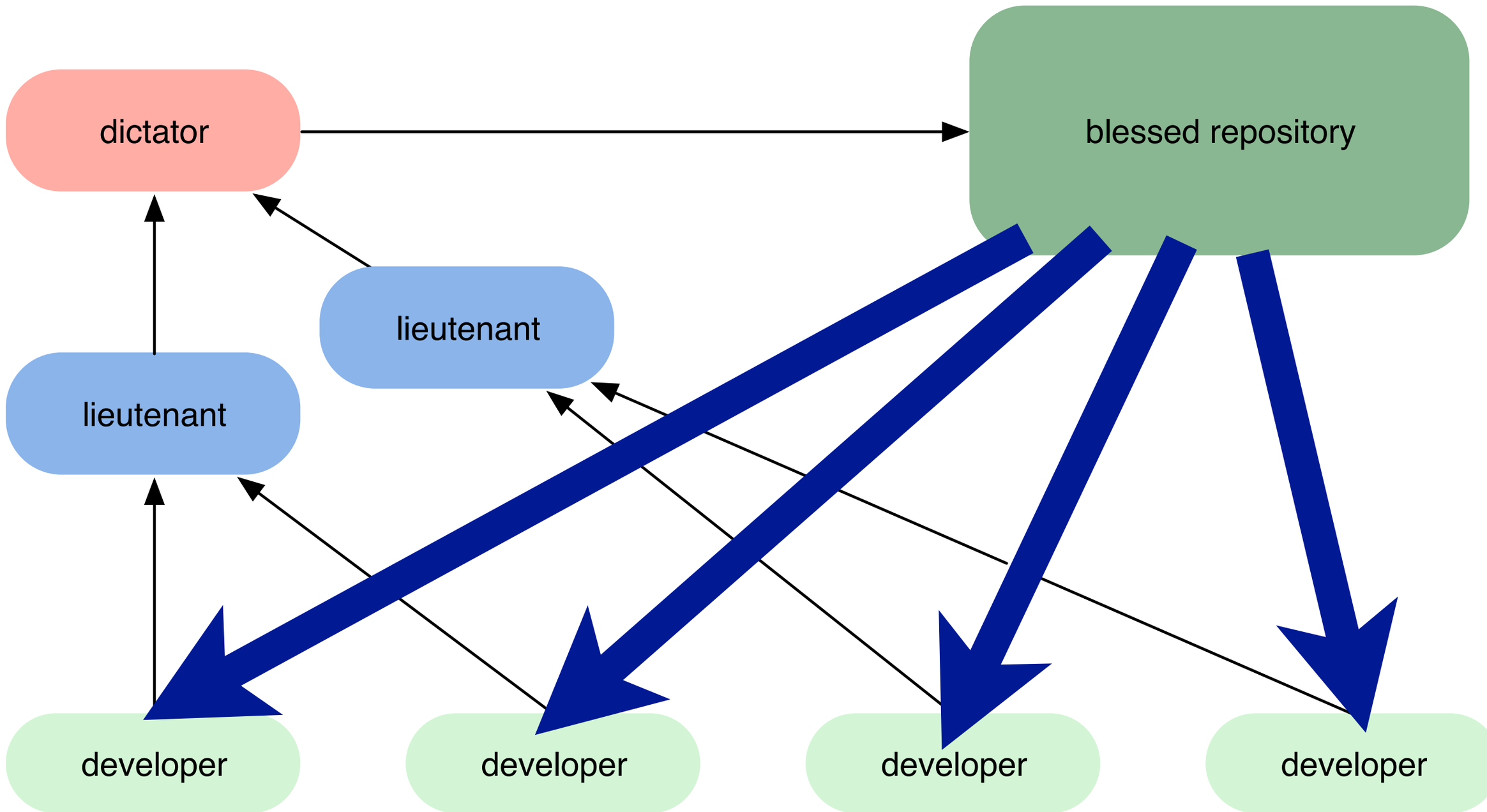
git merge

git fetch; git merge



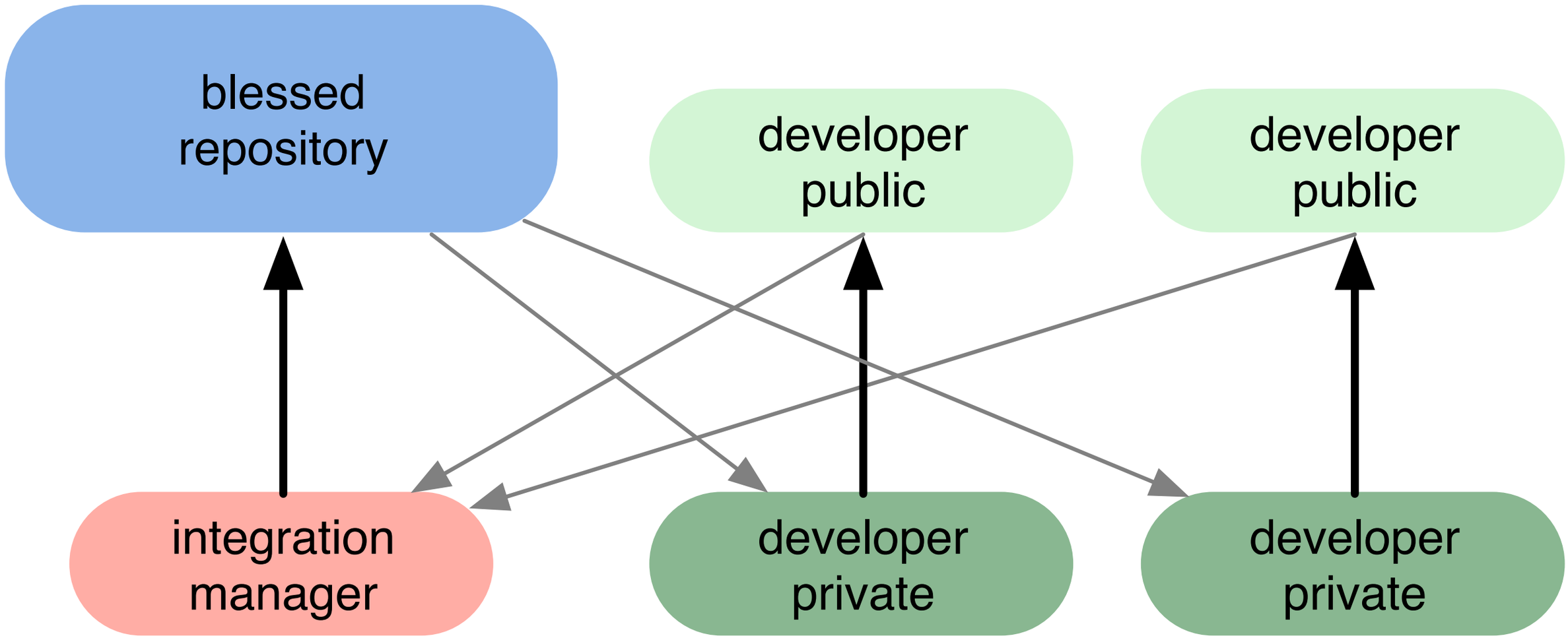
git push

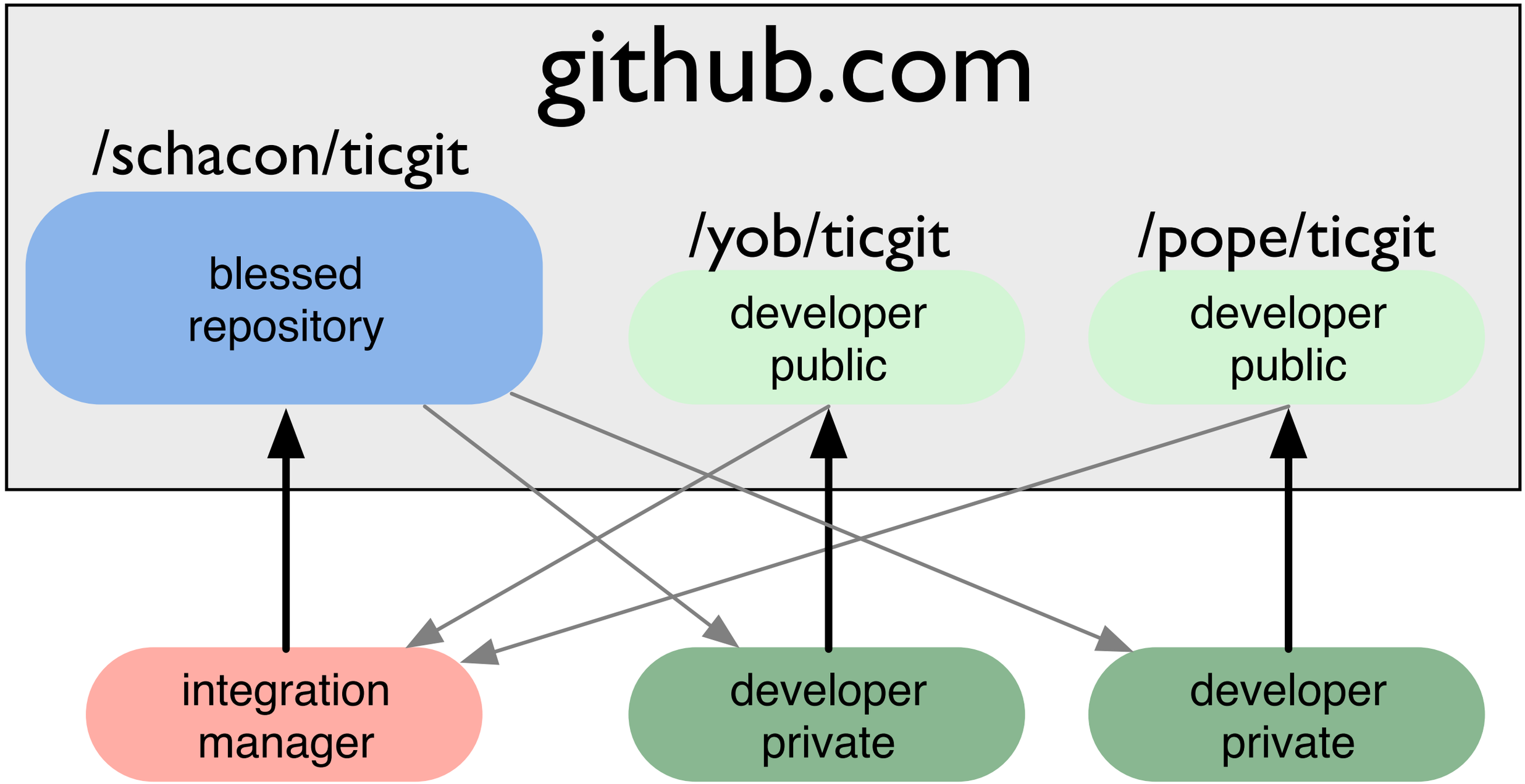

dictator
blessed repository
lieutenant
lieutenant
developer
developer
developer
developer

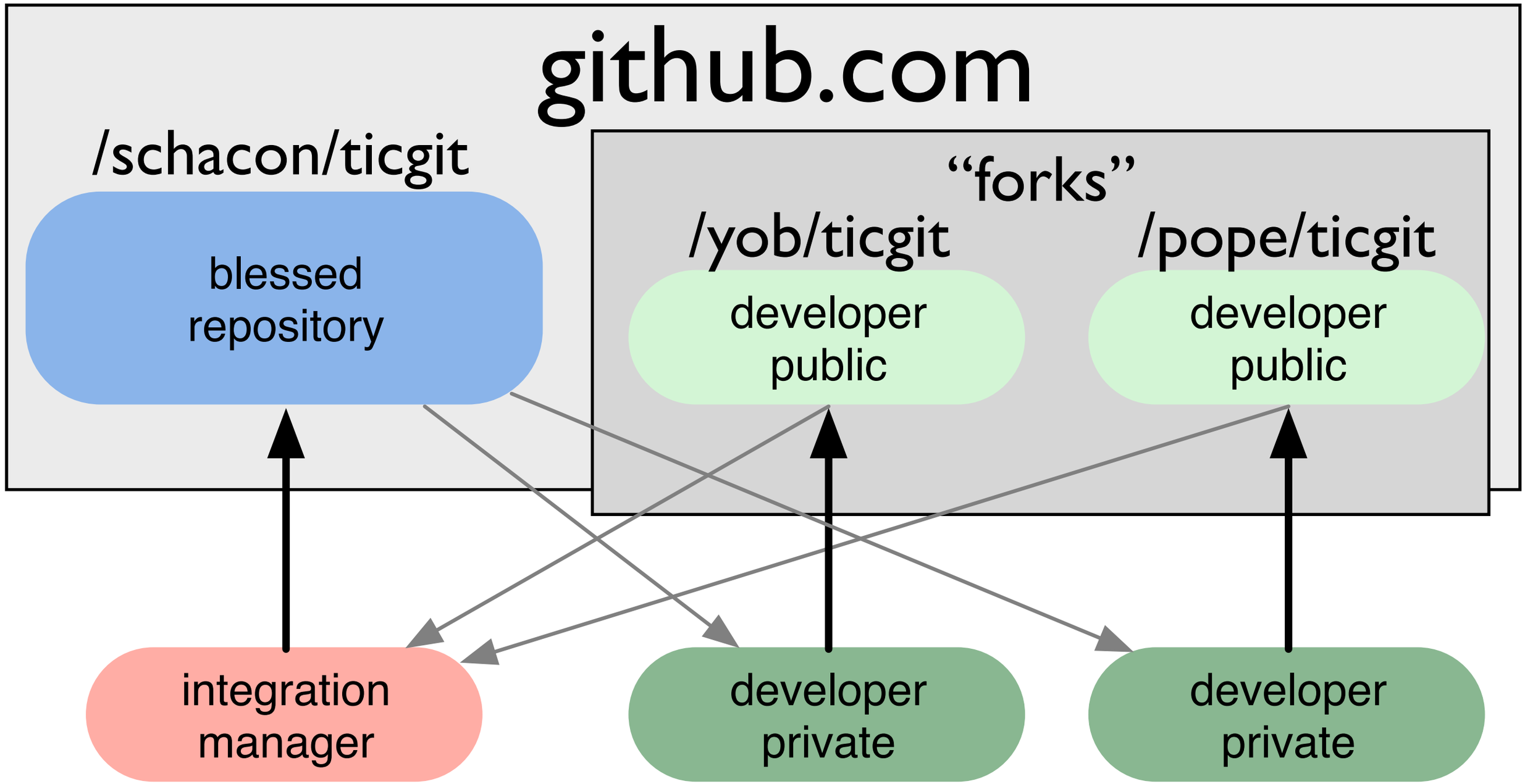

dictator
blessed repository
lieutenant
lieutenant
developer
developer
developer
developer

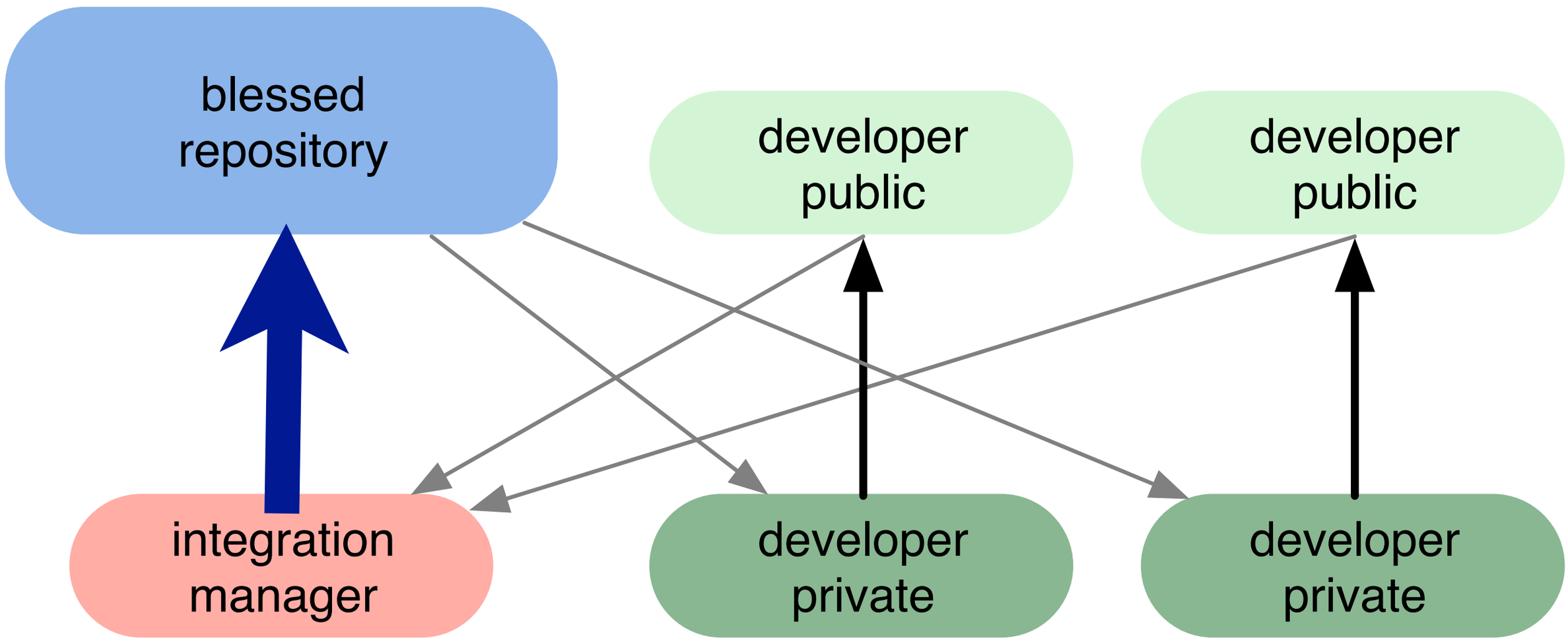
git fetch

integration manager model

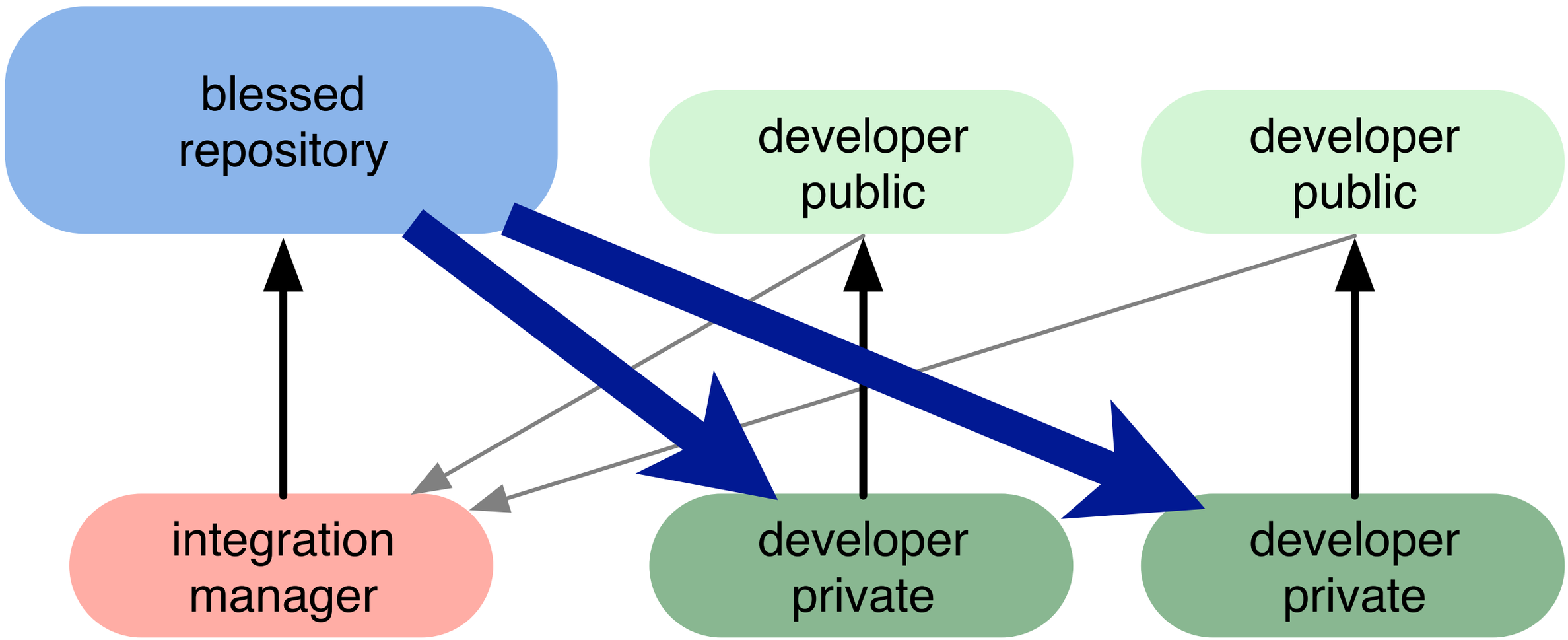

blessed repository
developer public
developer public
integration manager
developer private
developer private


github.com
/schacon/ticgit
blessed repository
/yob/ticgit
developer public
/pope/ticgit
developer public
integration manager
developer private
developer private

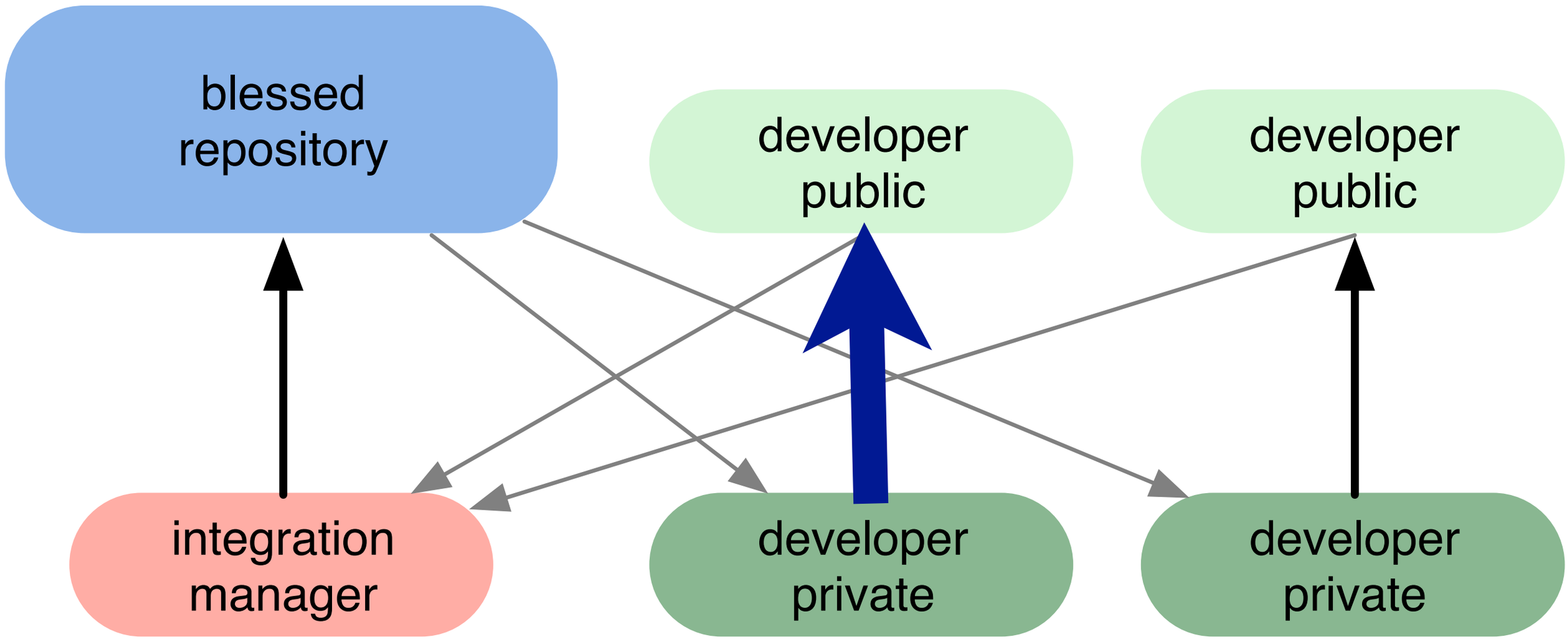

github.com
/schacon/ticgit
blessed repository
"forks"
/yob/ticgit
developer public
/pope/ticgit
developer public
integration manager
developer private
developer private


blessed repository
developer public
developer public
integration manager
developer private
developer private

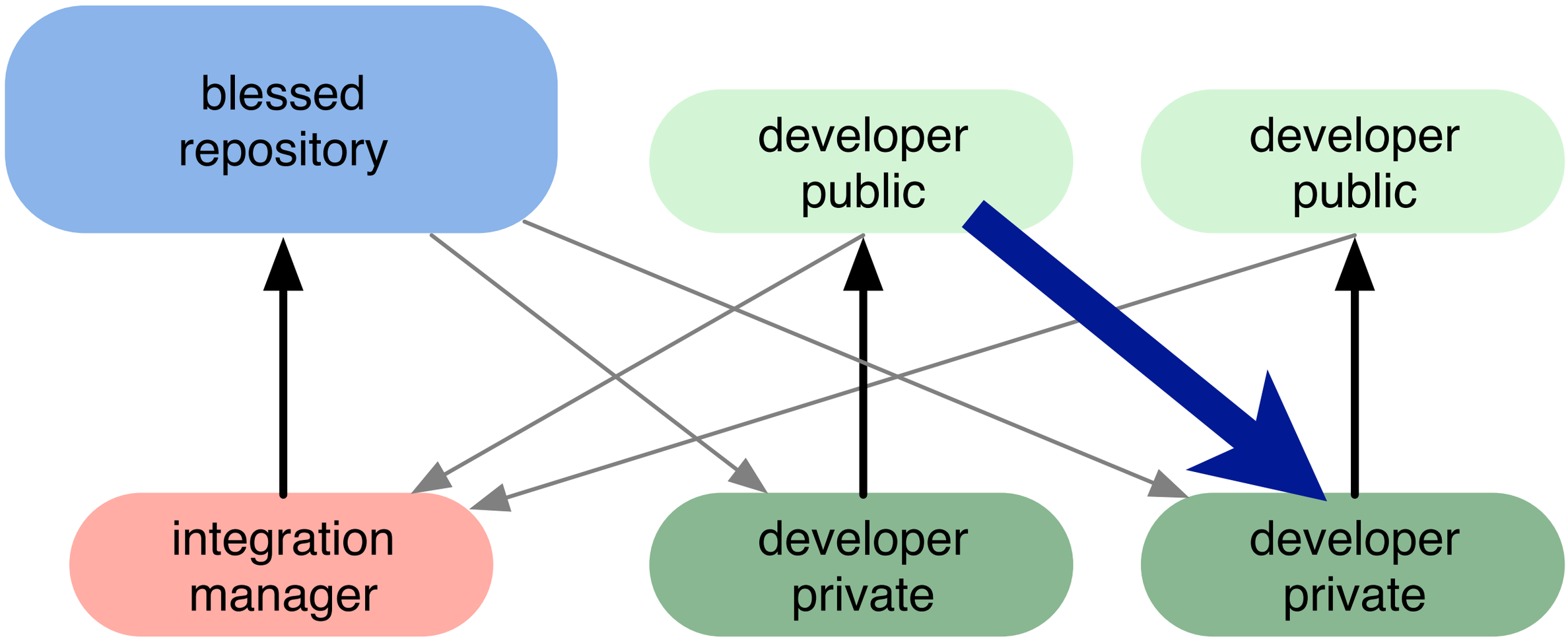
git push


blessed repository
developer public
developer public
integration manager
developer private
developer private

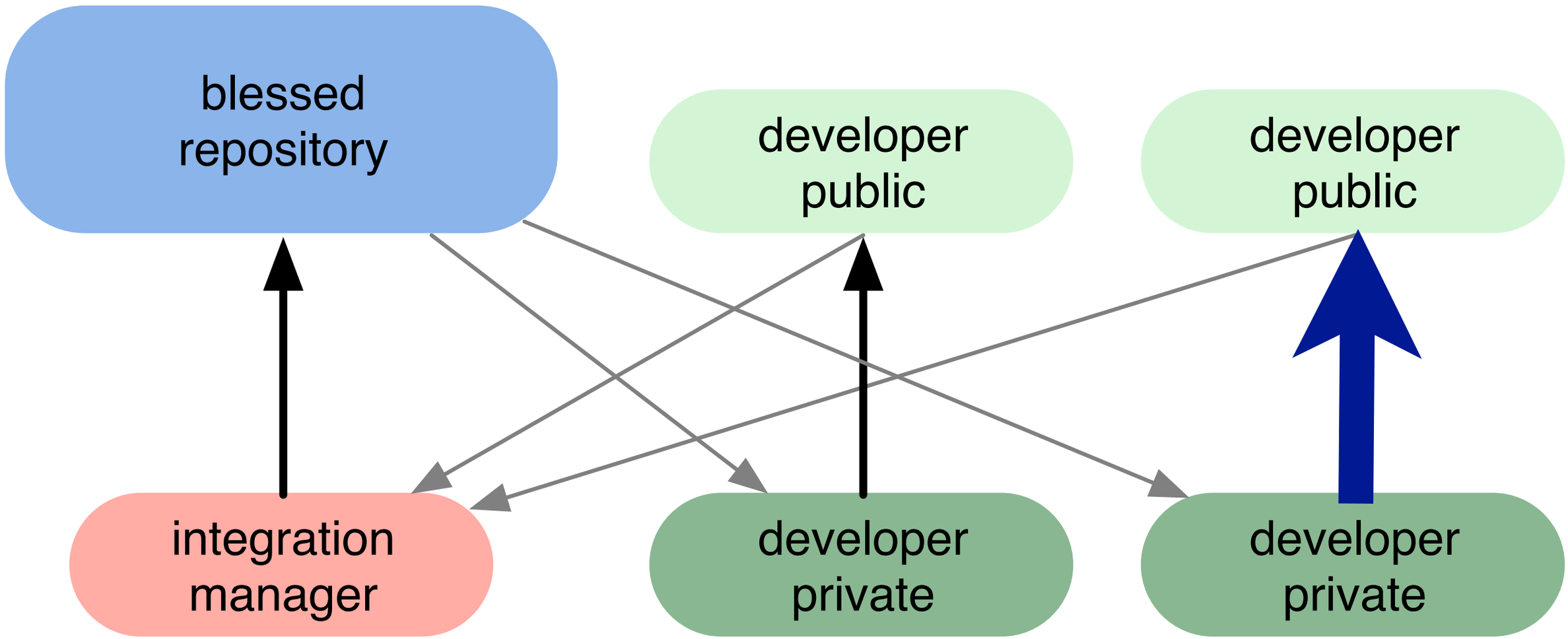
git clone


blessed repository
developer public
developer public
integration manager
developer private
developer private

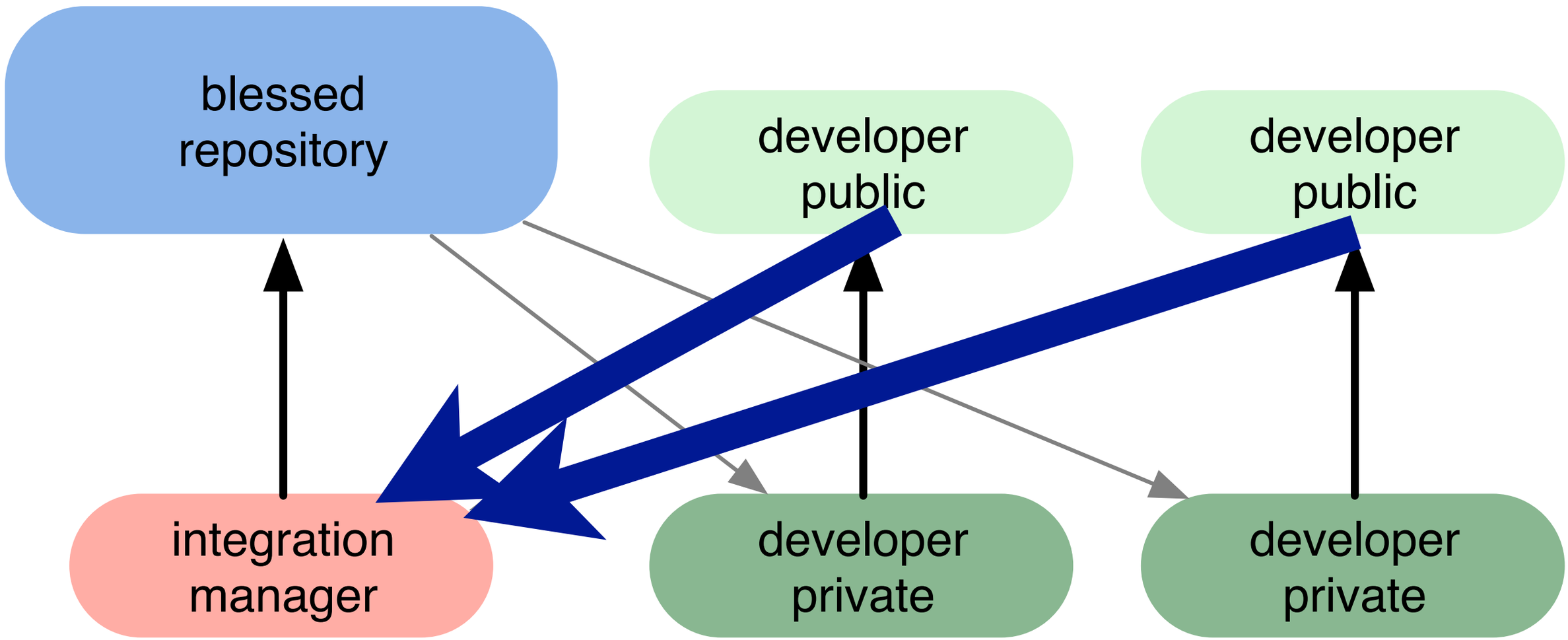
git push



git fetch
git merge

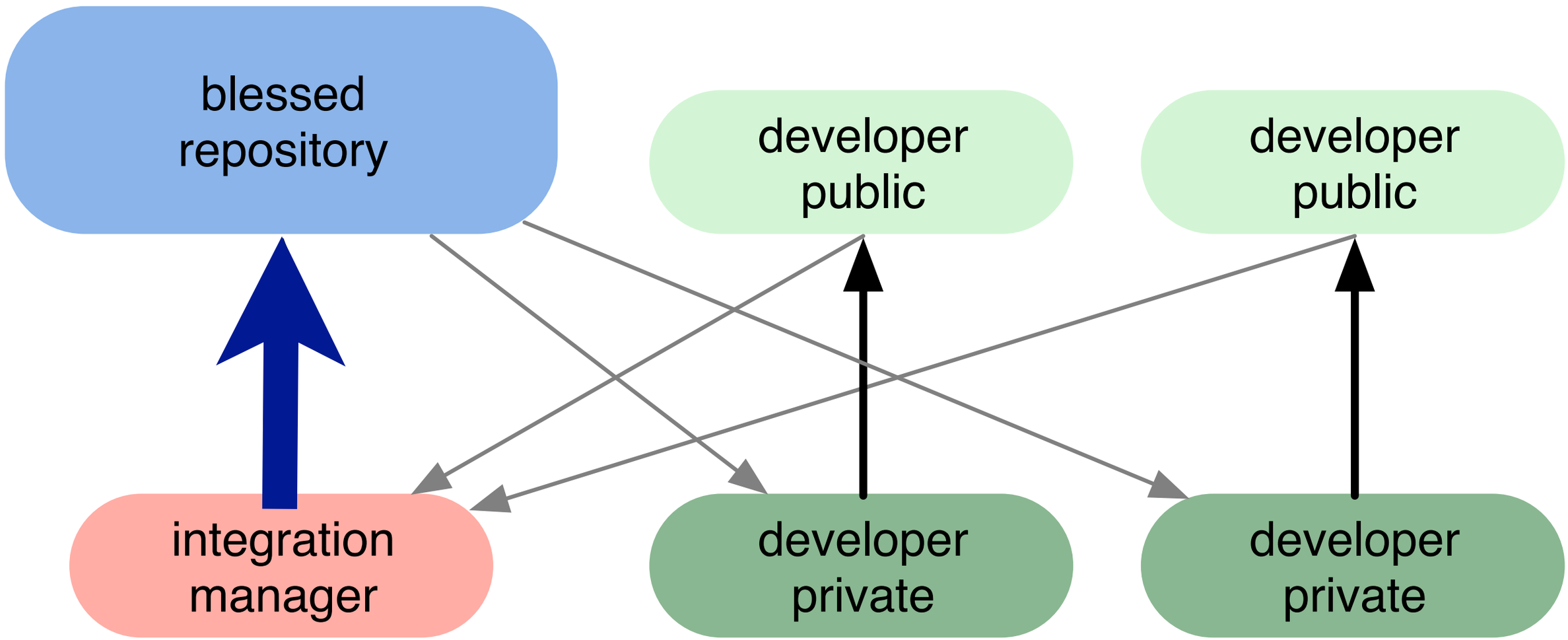

blessed repository
developer public
developer public
integration manager
developer private
developer private

git push



git fetch

git rebase / merge


blessed repository
developer public
developer public
integration manager
developer private
developer private

git push