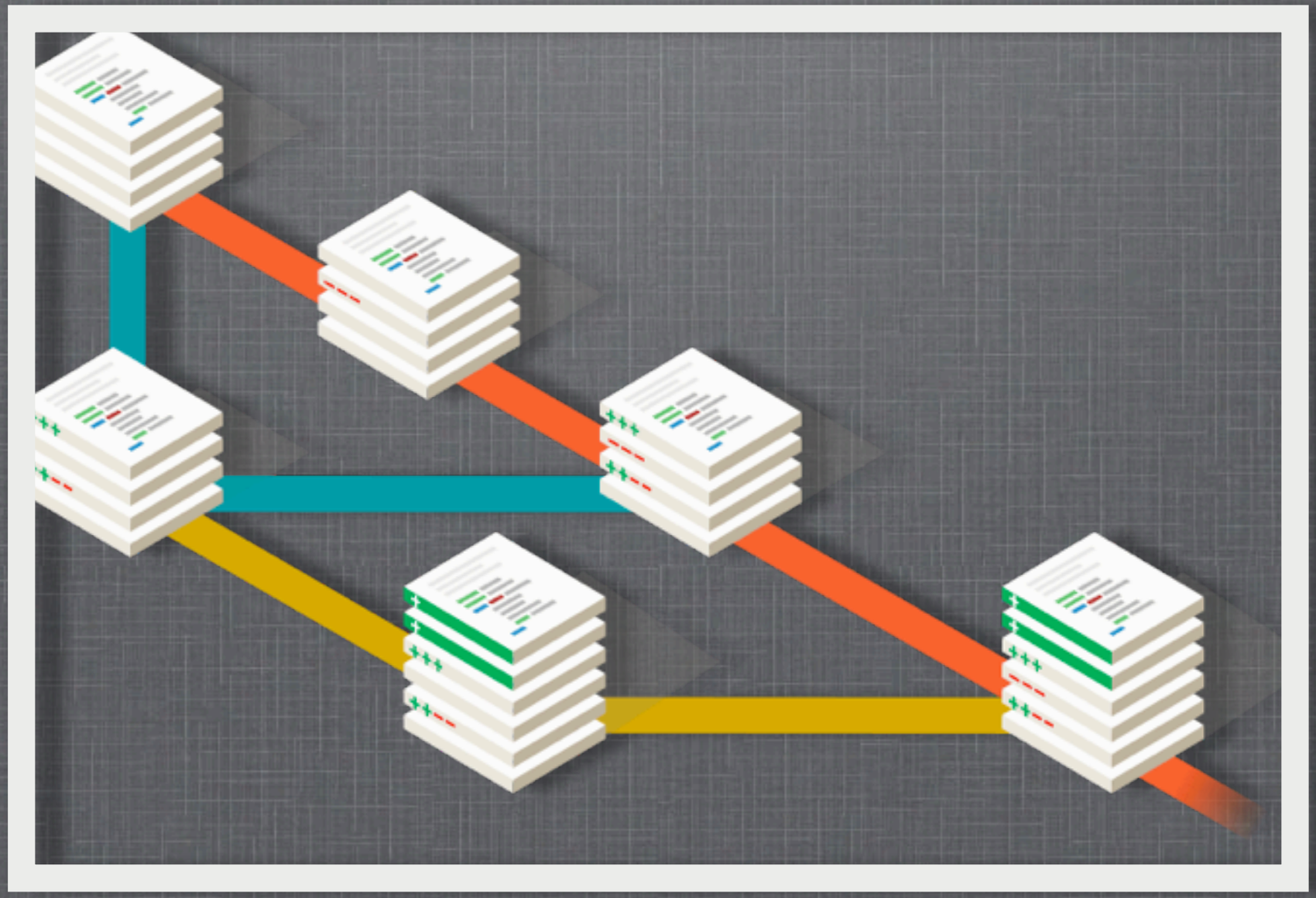
GIT

Ming-Hsien Tsai



SDM 2013

this picture is taken from http://git-scm.com

WHAT IS GIT

- Git is
  - a version control system (VCS)
  - free
  - open source
  - distributed

WHY VERSION CONTROL

version 1

WHY VERSION CONTROL

version 1

version 2

WHY VERSION CONTROL

version 1

version 3

version 2

WHY VERSION CONTROL

version 1

version 3

version 2

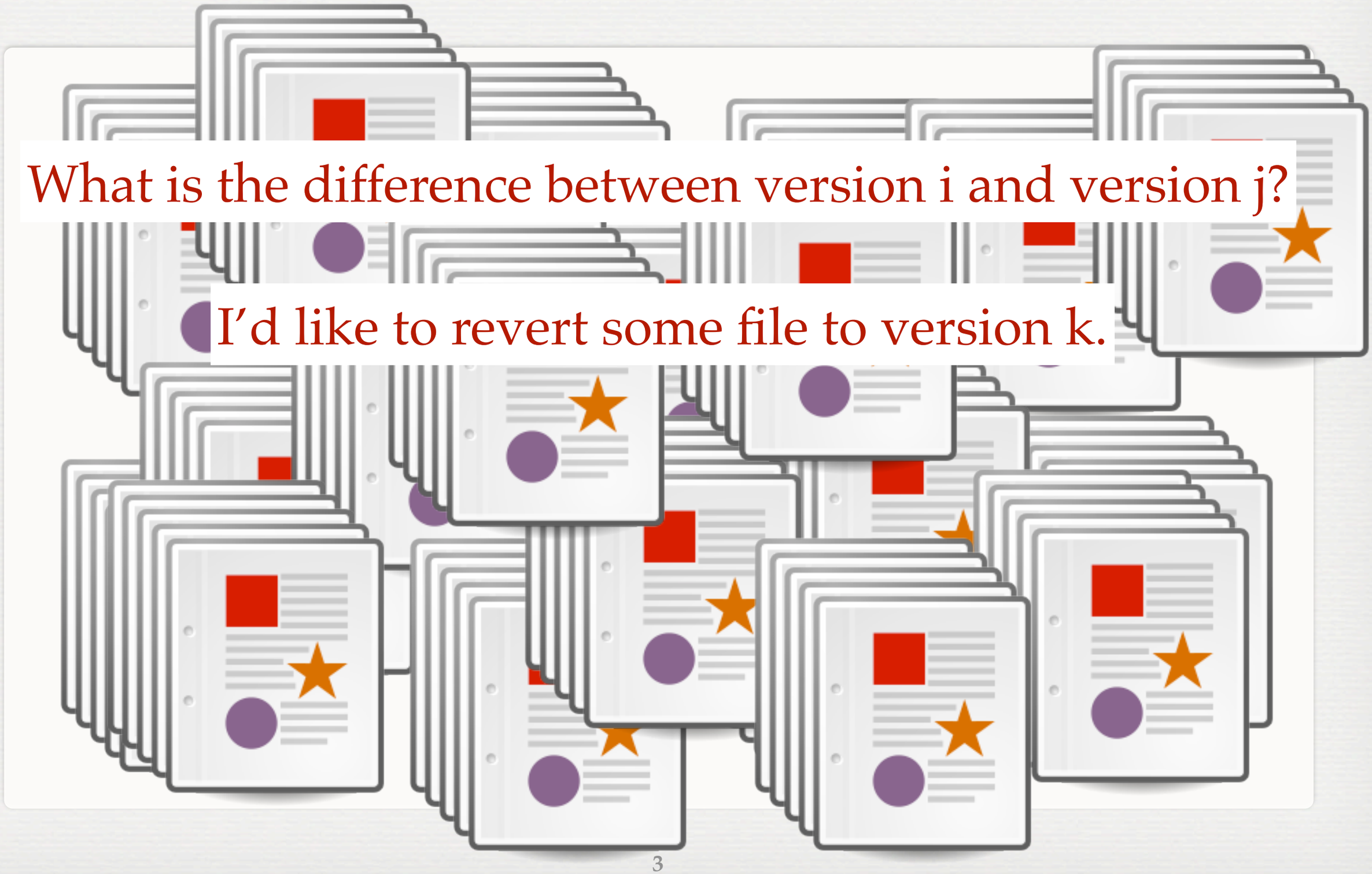
version 4

WHY VERSION CONTROL

WHY VERSION CONTROL

What is the difference between version i and version j?

WHY VERSION CONTROL



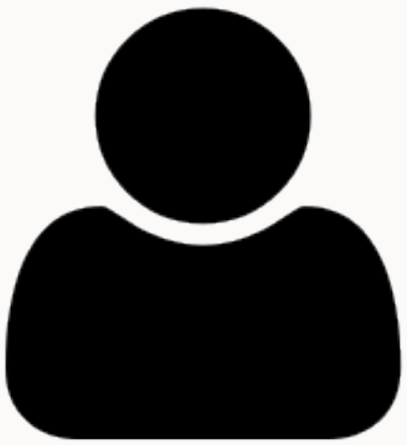
WHY VERSION CONTROL

What is the difference between version i and version j?

I'd like to revert some file to version k.

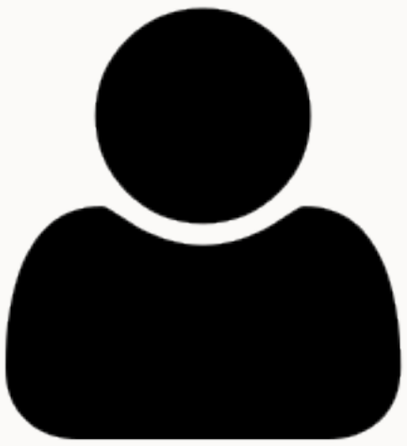
You need a VCS!

WITH GIT (1/2)



git repository

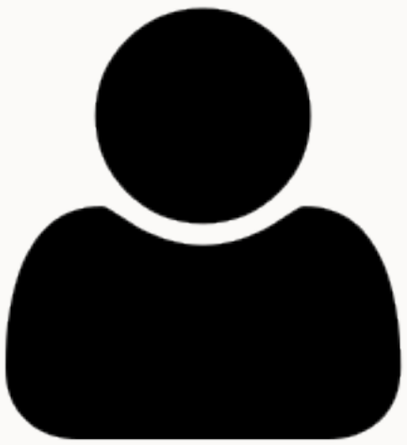
WITH GIT (1/2)



add a new version

git repository

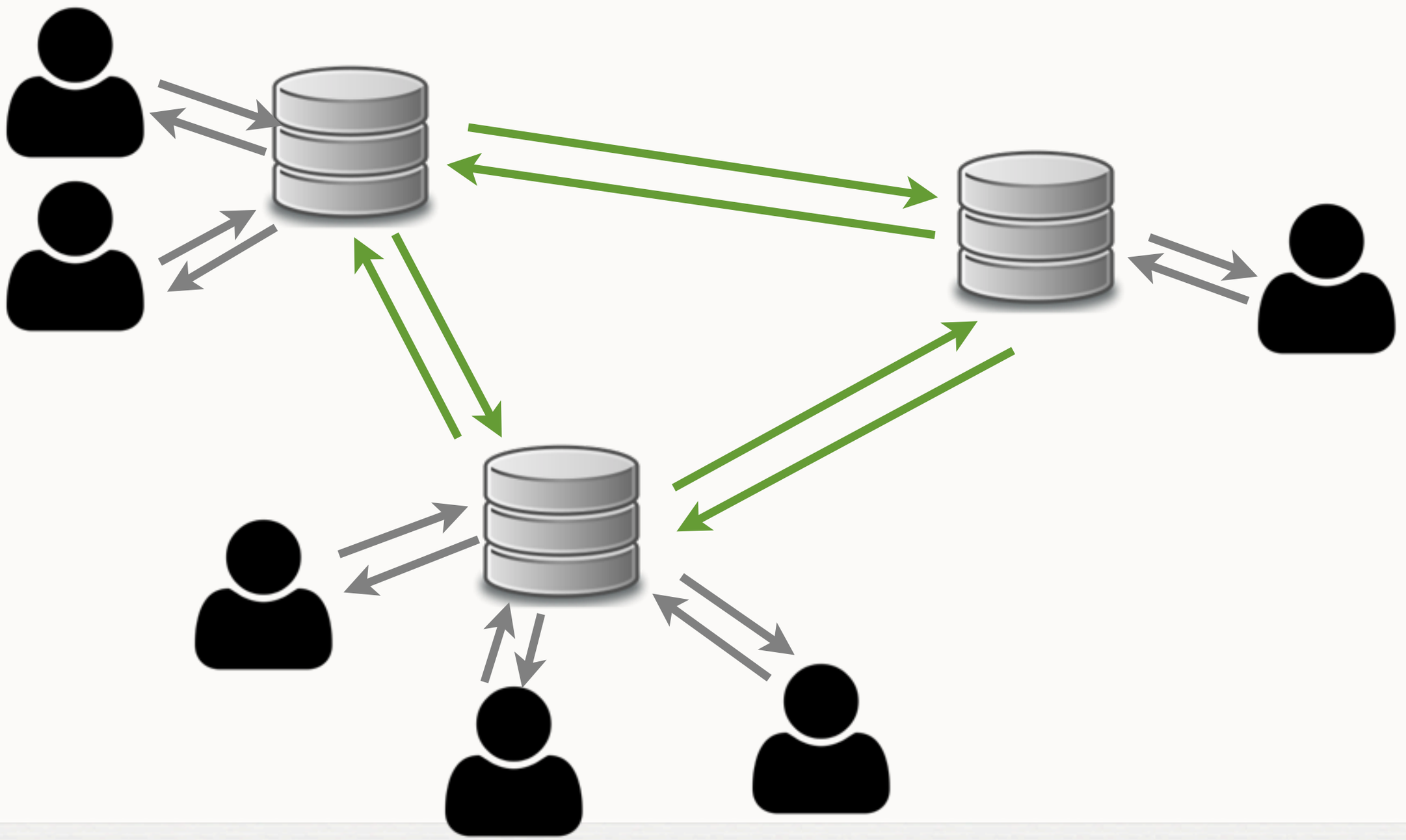
WITH GIT (1/2)



give me version i of file j

git repository

WITH GIT (2/2)



PROJECTS USING GIT

- Linux kernel
- Android
- Egit/jgit
- Fedora
- FFmpeg
- gcc
- jQuery
- .....

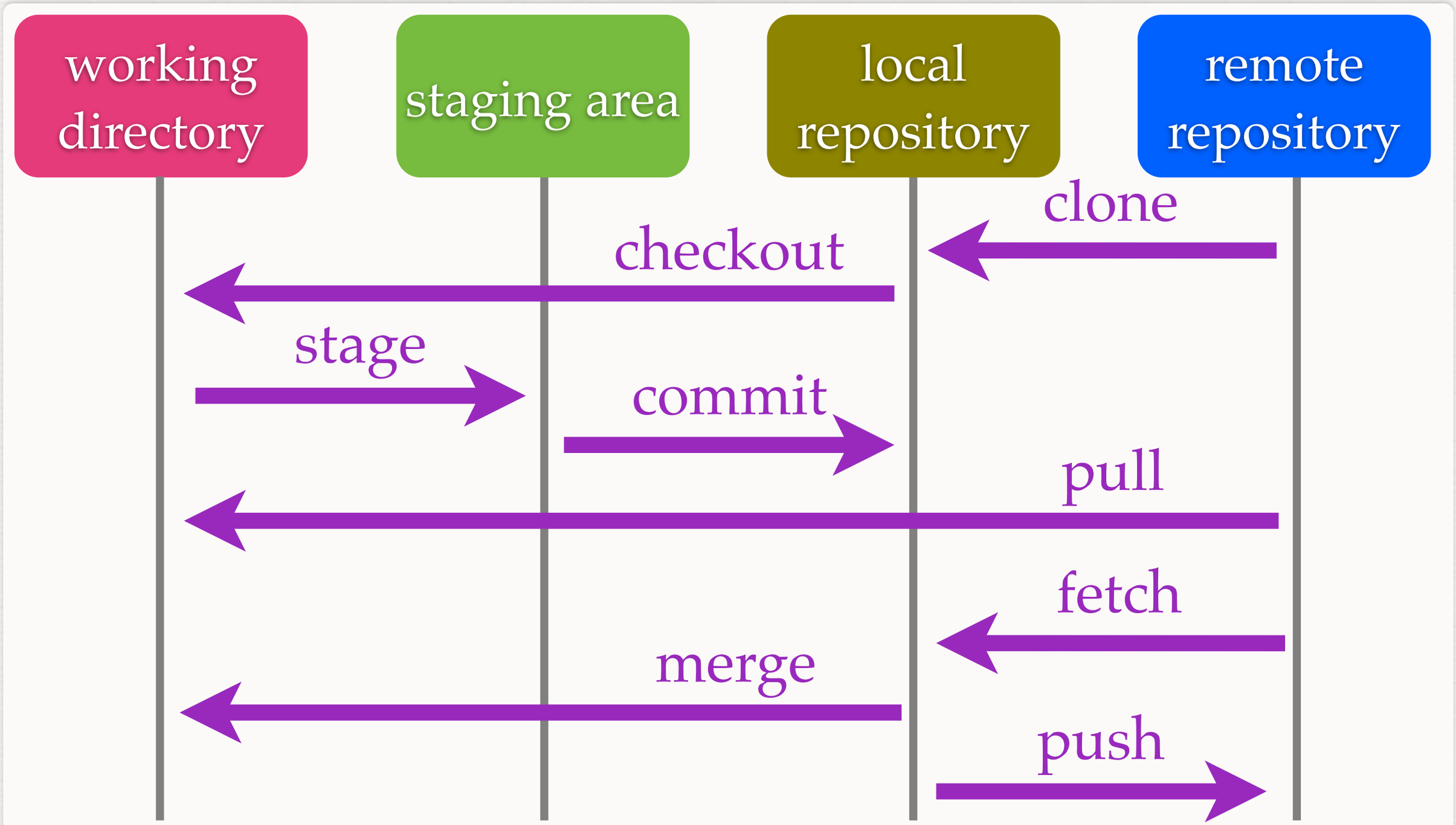
OTHER VCS

- CVS
- Subversion (SVN)
- Mercurial
- Rational Team Concert
- Visual SourceSafe
- ...

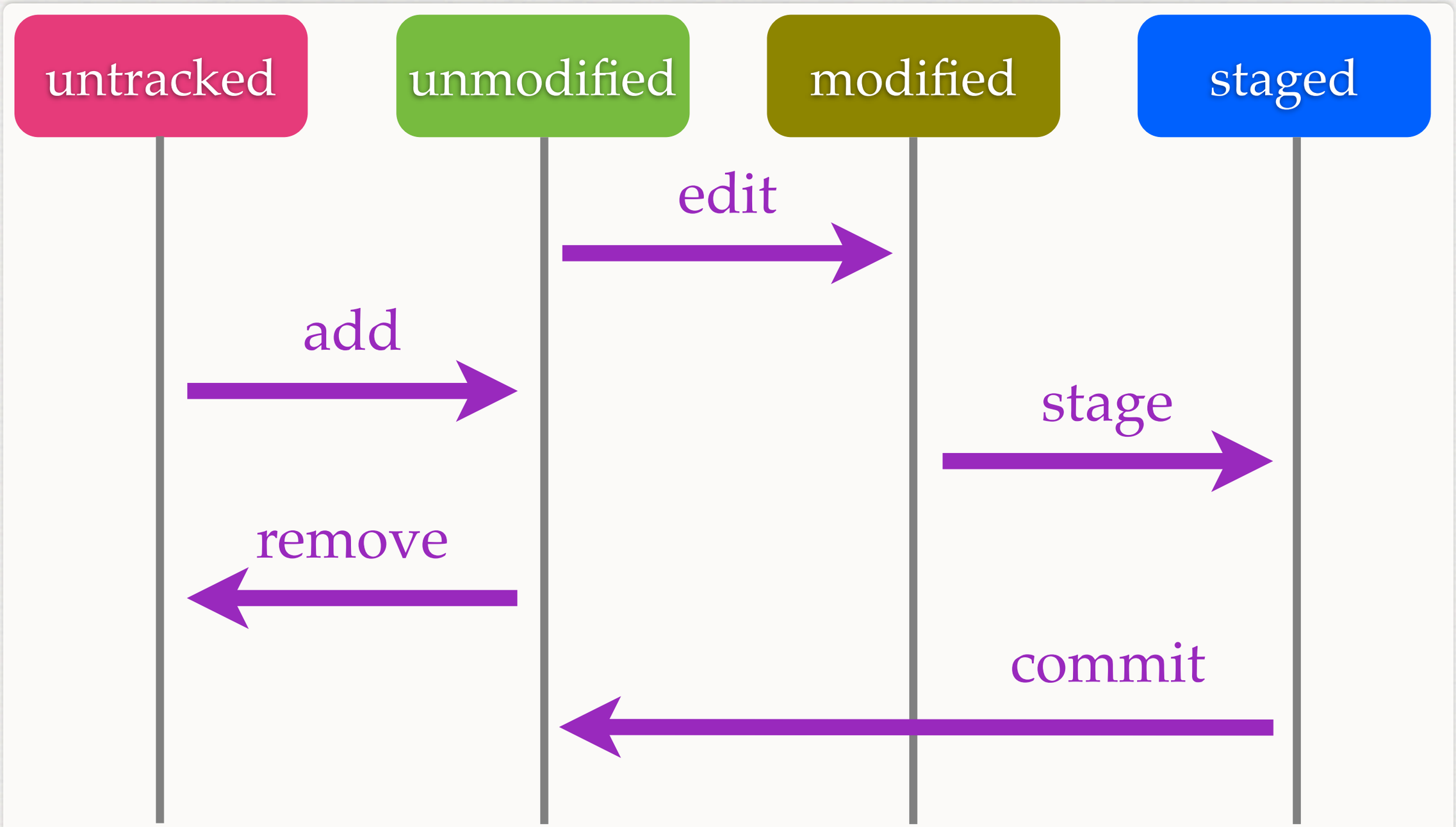
PROJECT HOSTING

- GitHub (http://github.com/):
  - git
- Bitbucket (http://gitbucket.org/)
  - git, mercuial
- Google Code (http://code.google.com/)
  - svn

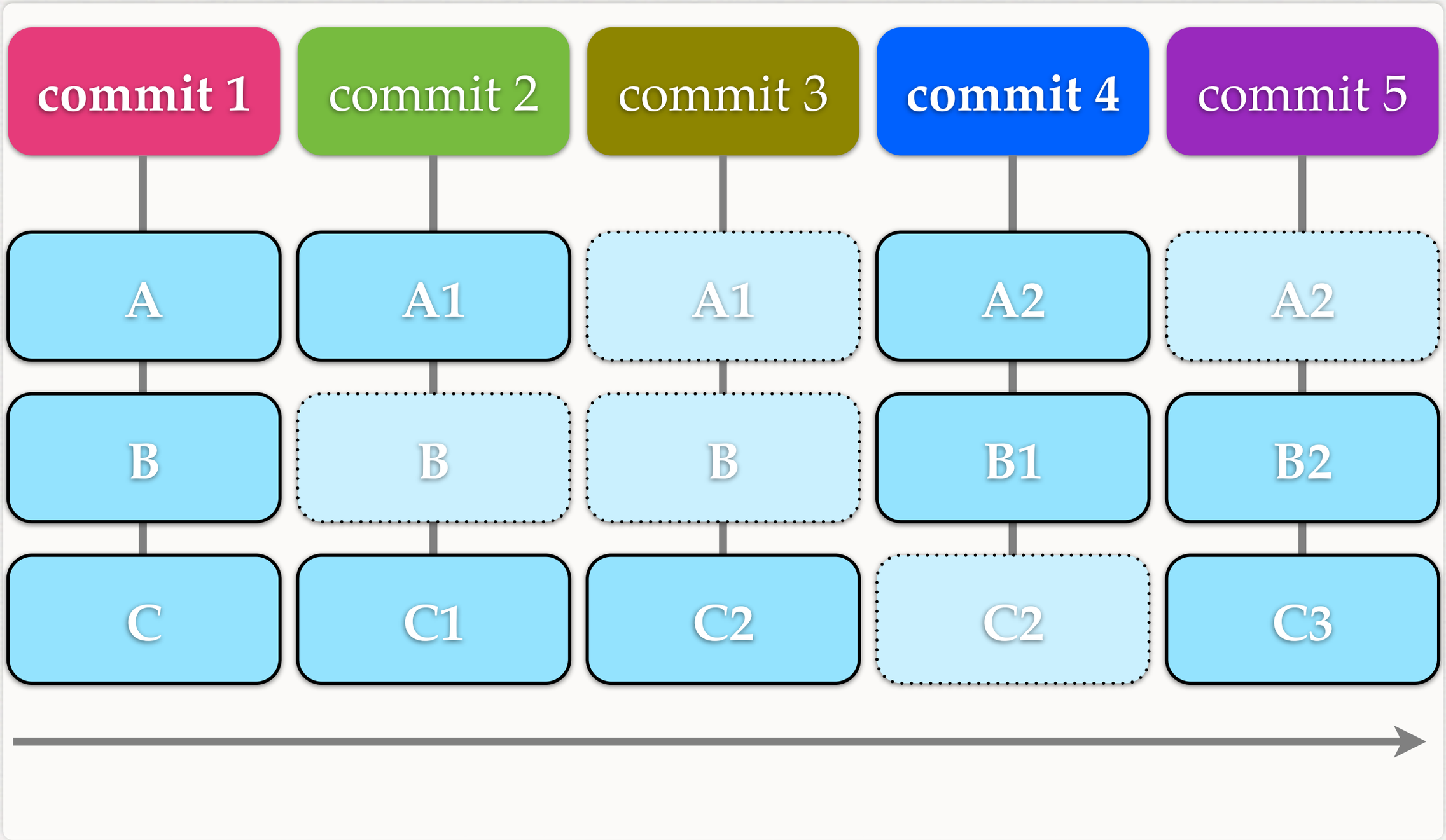
WORKING WITH GIT



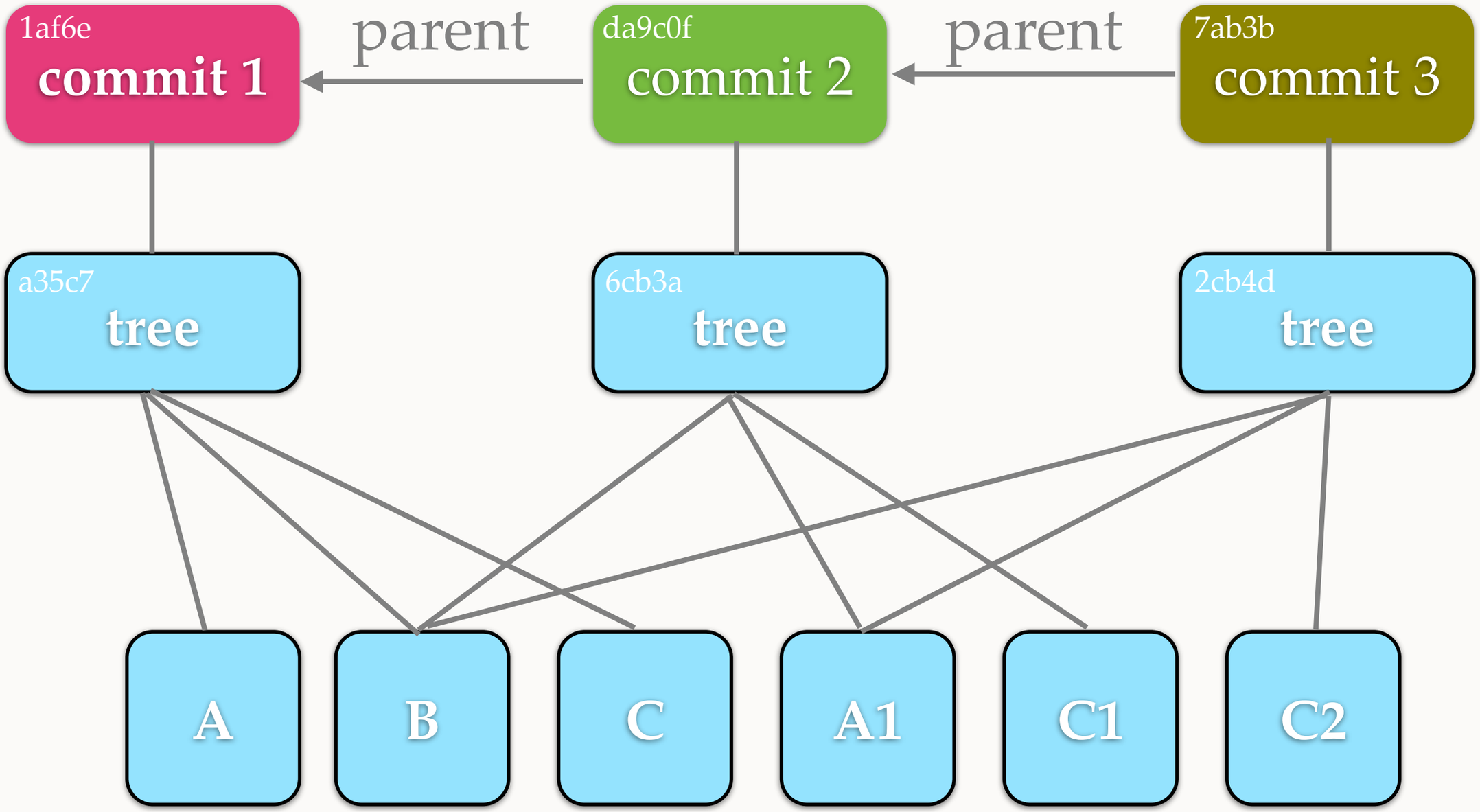
FILE STATUS LIFECYCLE



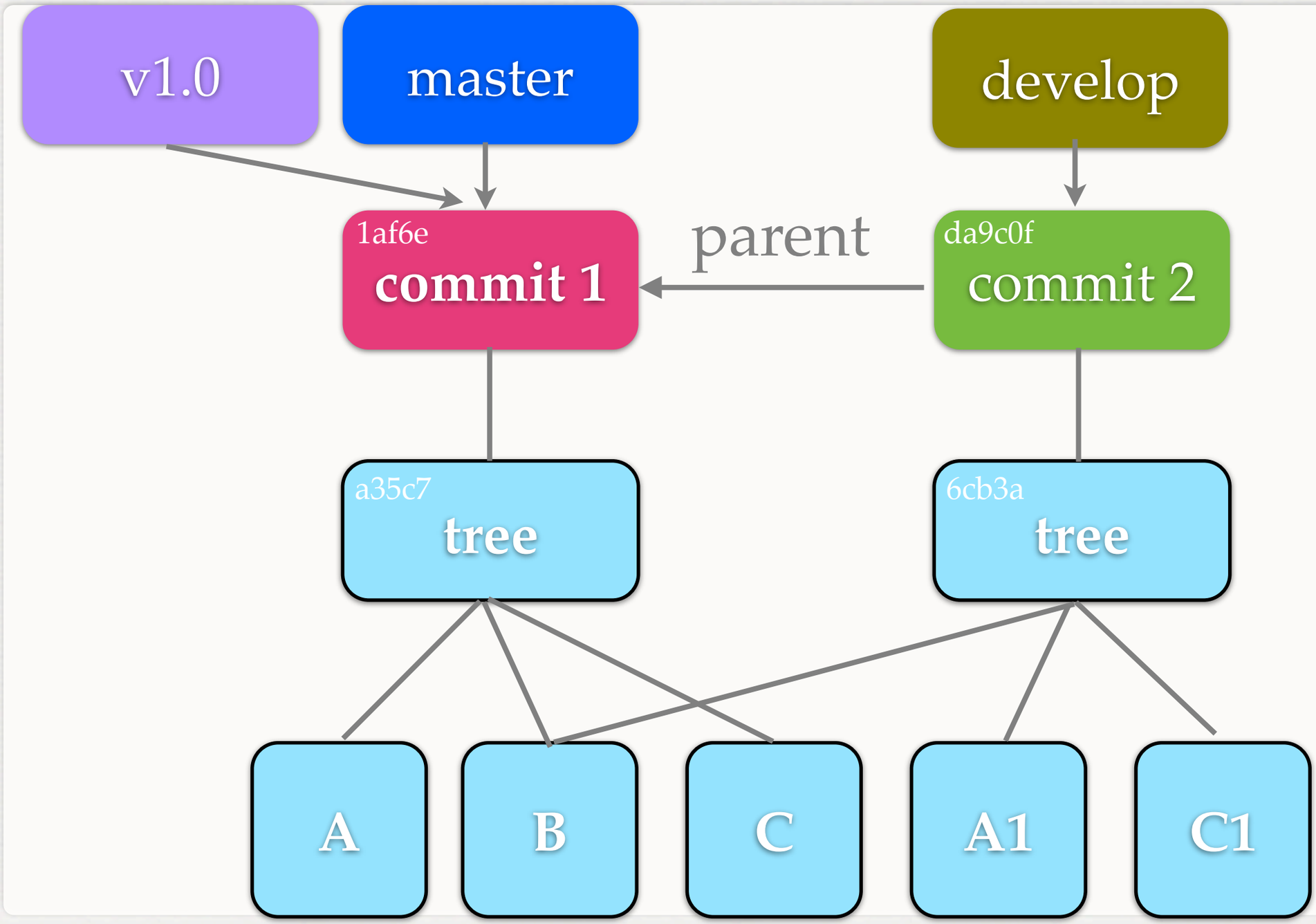
SNAPSHOTS


commit 1
commit 2
commit 3
commit 4
commit 5
A
A1
A1
A2
A2
B
B
B
B1
B2
C
C1
C2
C2
C3

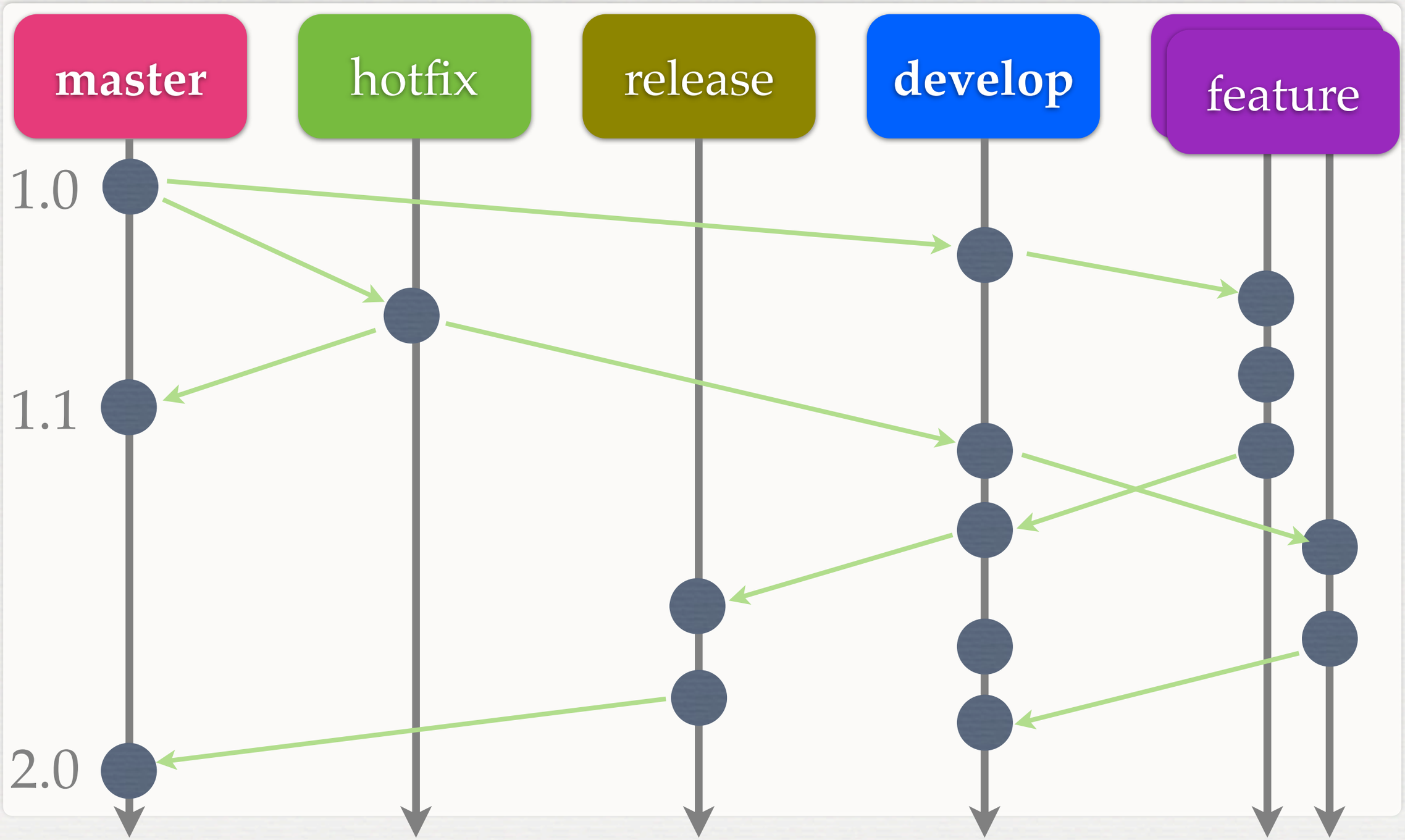
DATA MODEL


1af6e
commit 1
parent
da9c0f
commit 2
parent
7ab3b
commit 3
a35c7
tree
6cb3a
tree
2cb4d
tree
A
B
C
A1
C1
C2

BRANCHES & TAGS

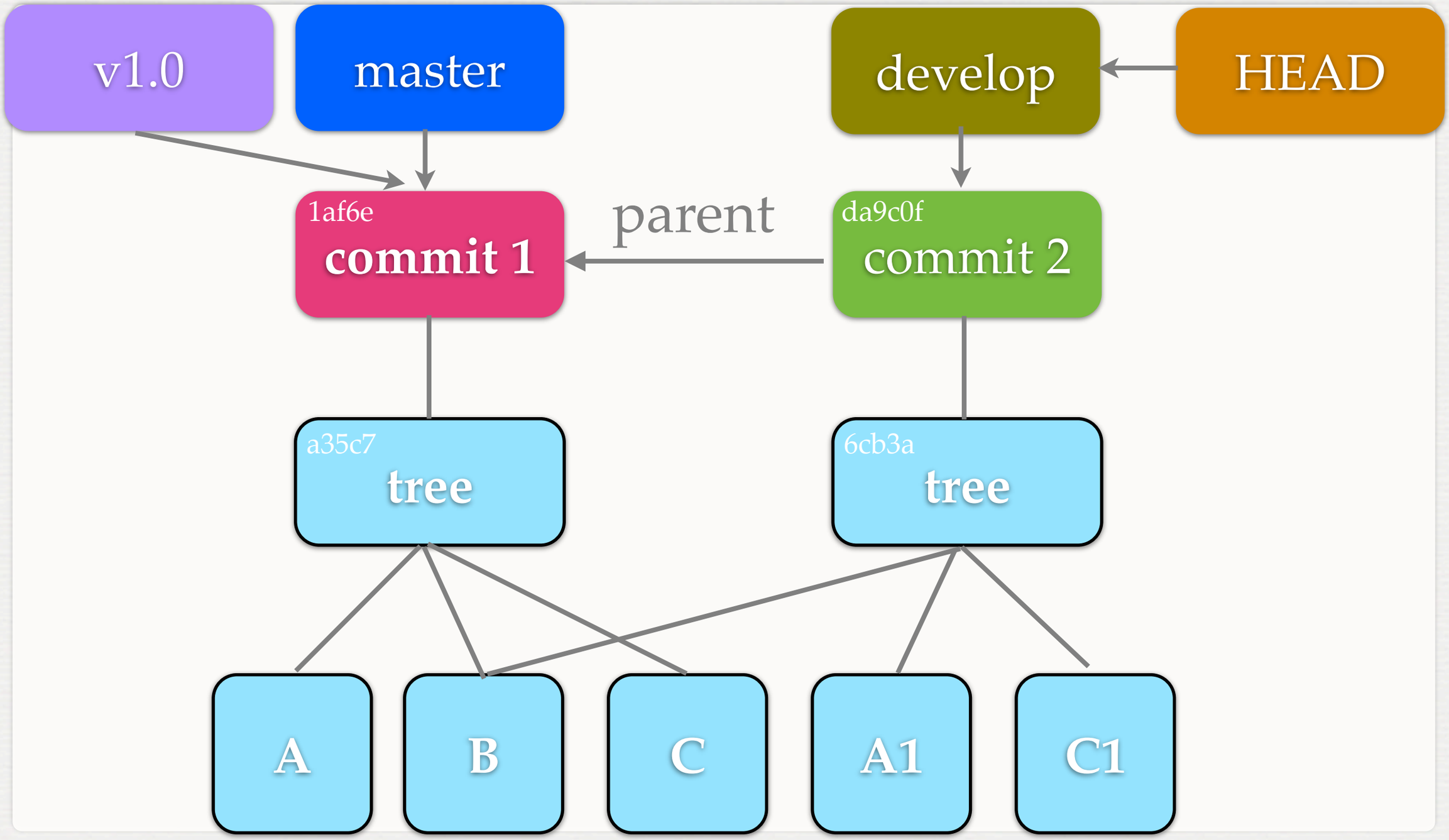


BRANCHING MODEL

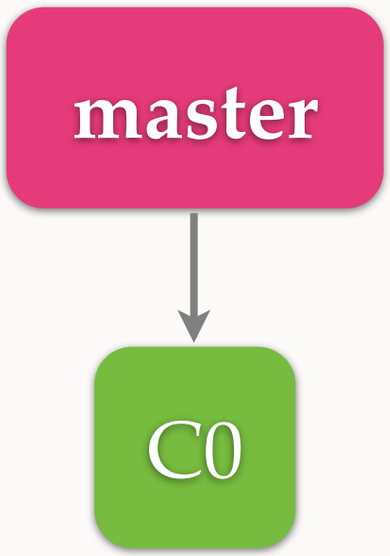


 http://nvie.com/posts/a-successful-git-branching-model/

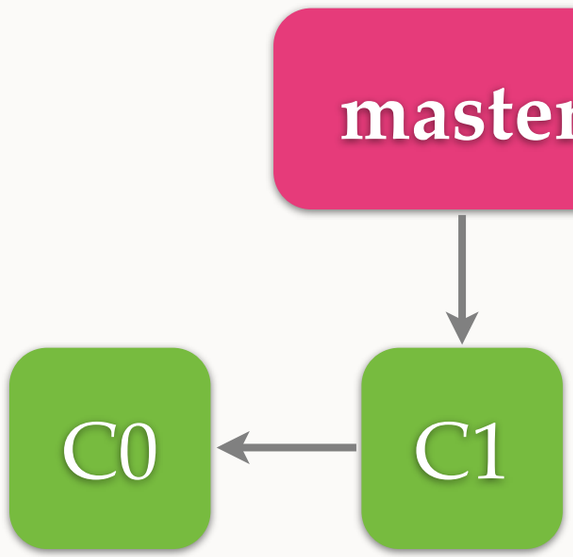
HEAD


v1.0
master
develop
HEAD
1af6e
commit 1
parent
da9c0f
commit 2
a35c7
tree
6cb3a
tree
A
B
C
A1
C1

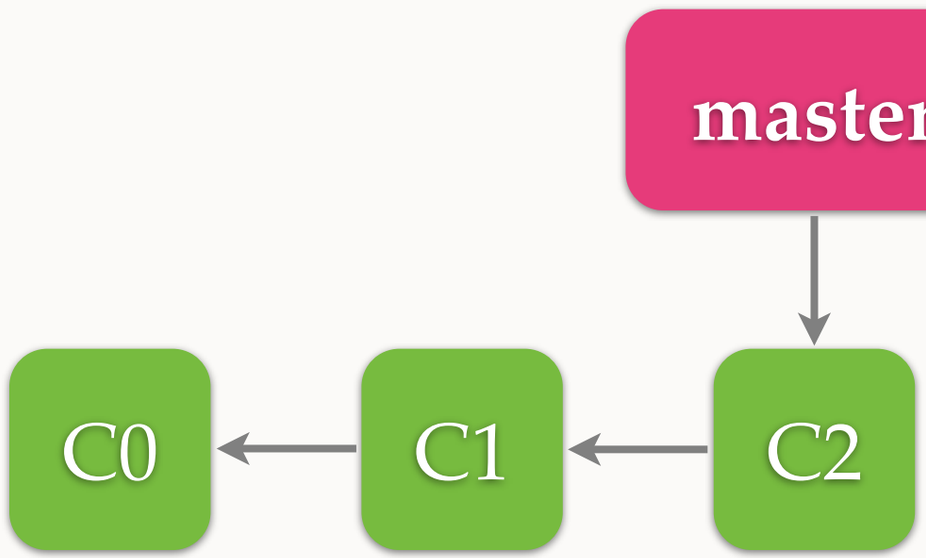
COMMITS



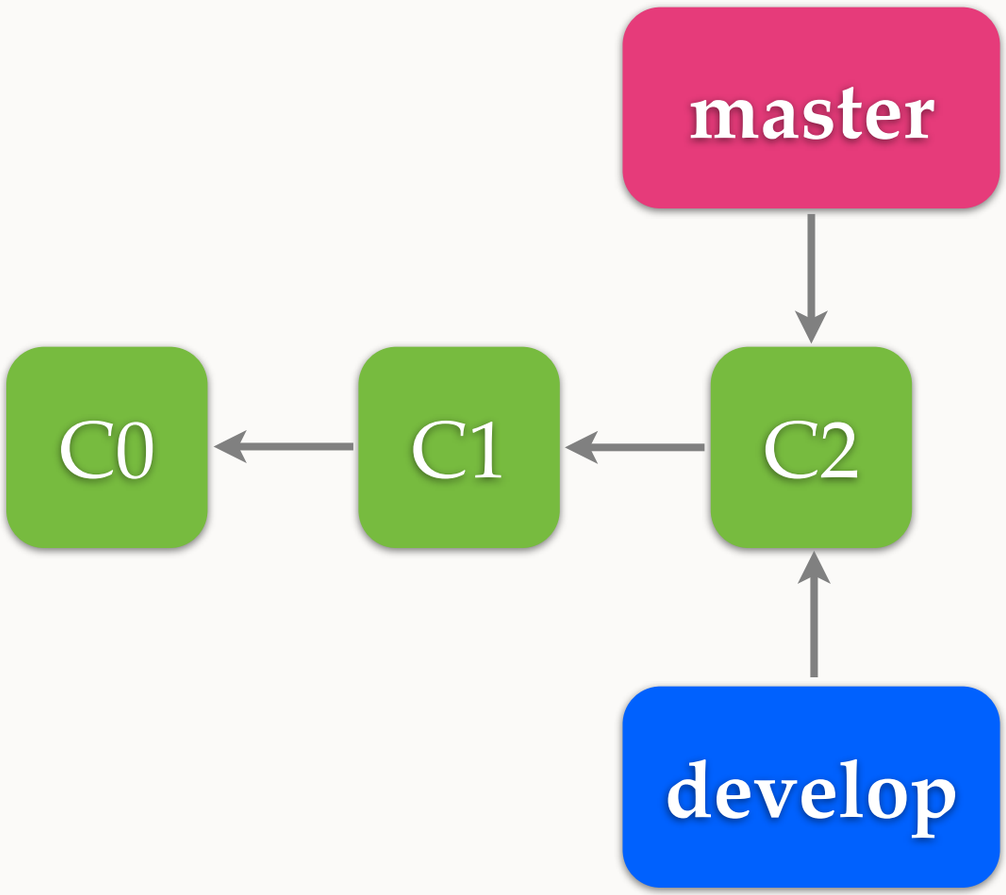
COMMITS



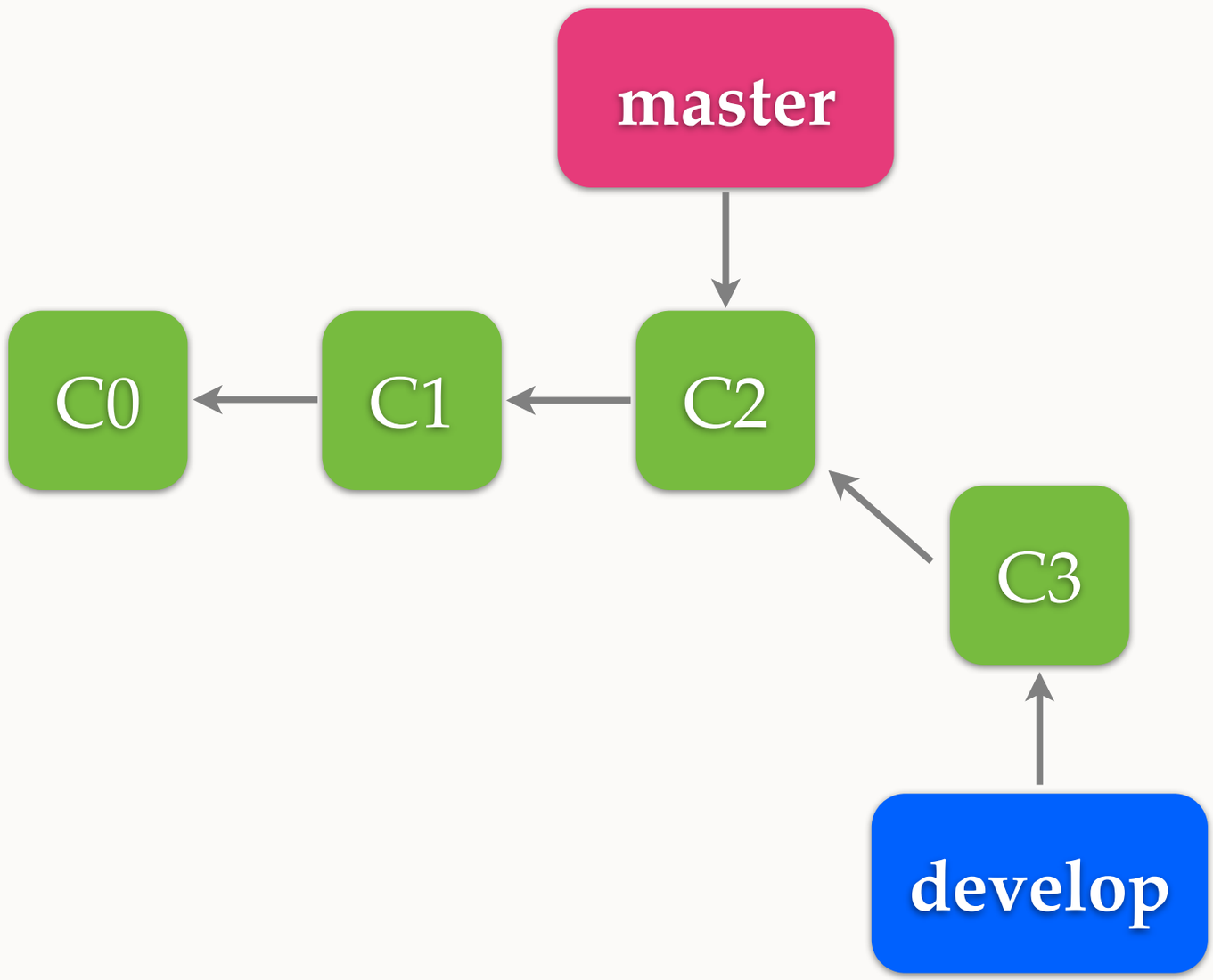
COMMITS



COMMITS



COMMITS



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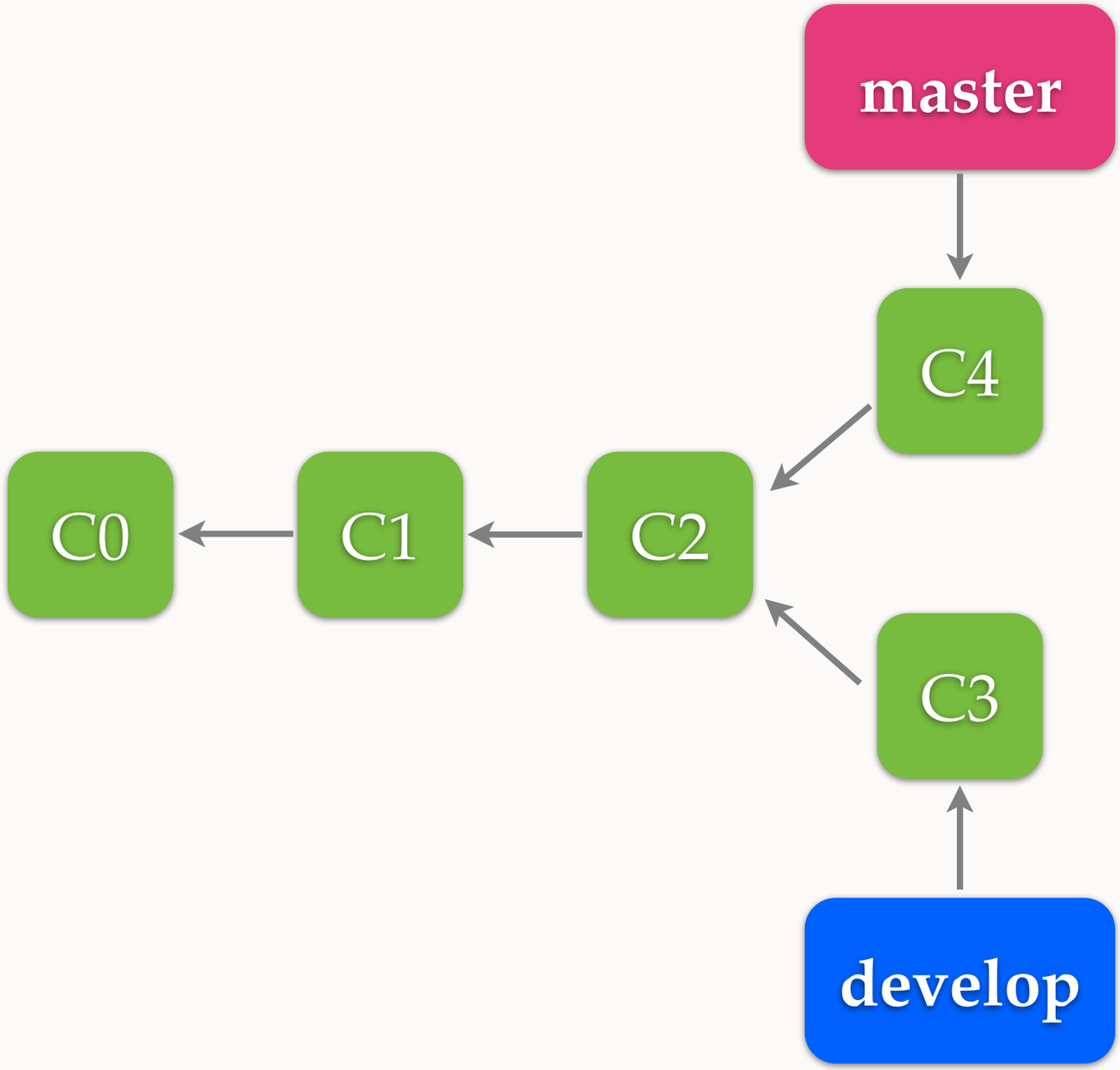
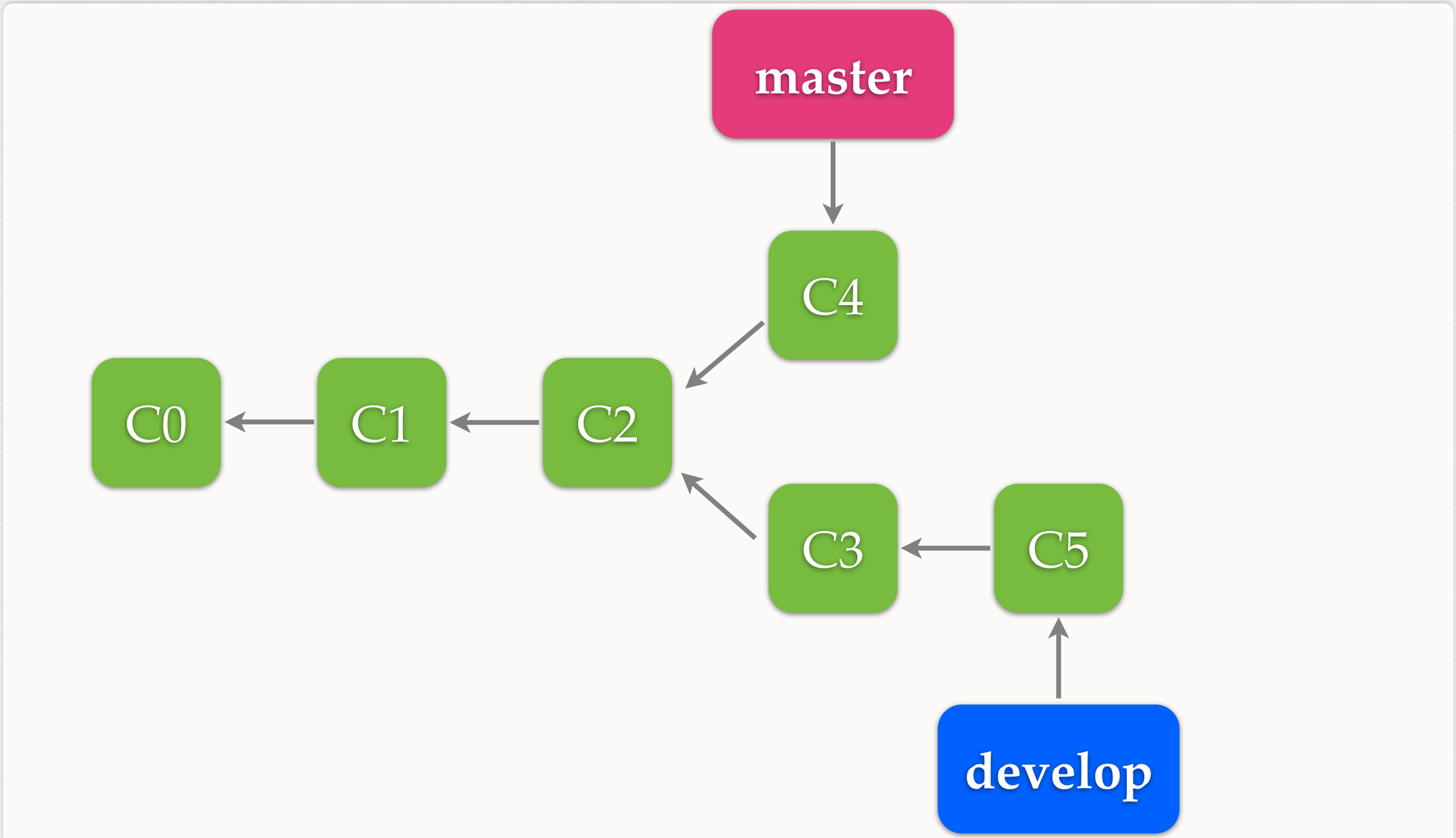
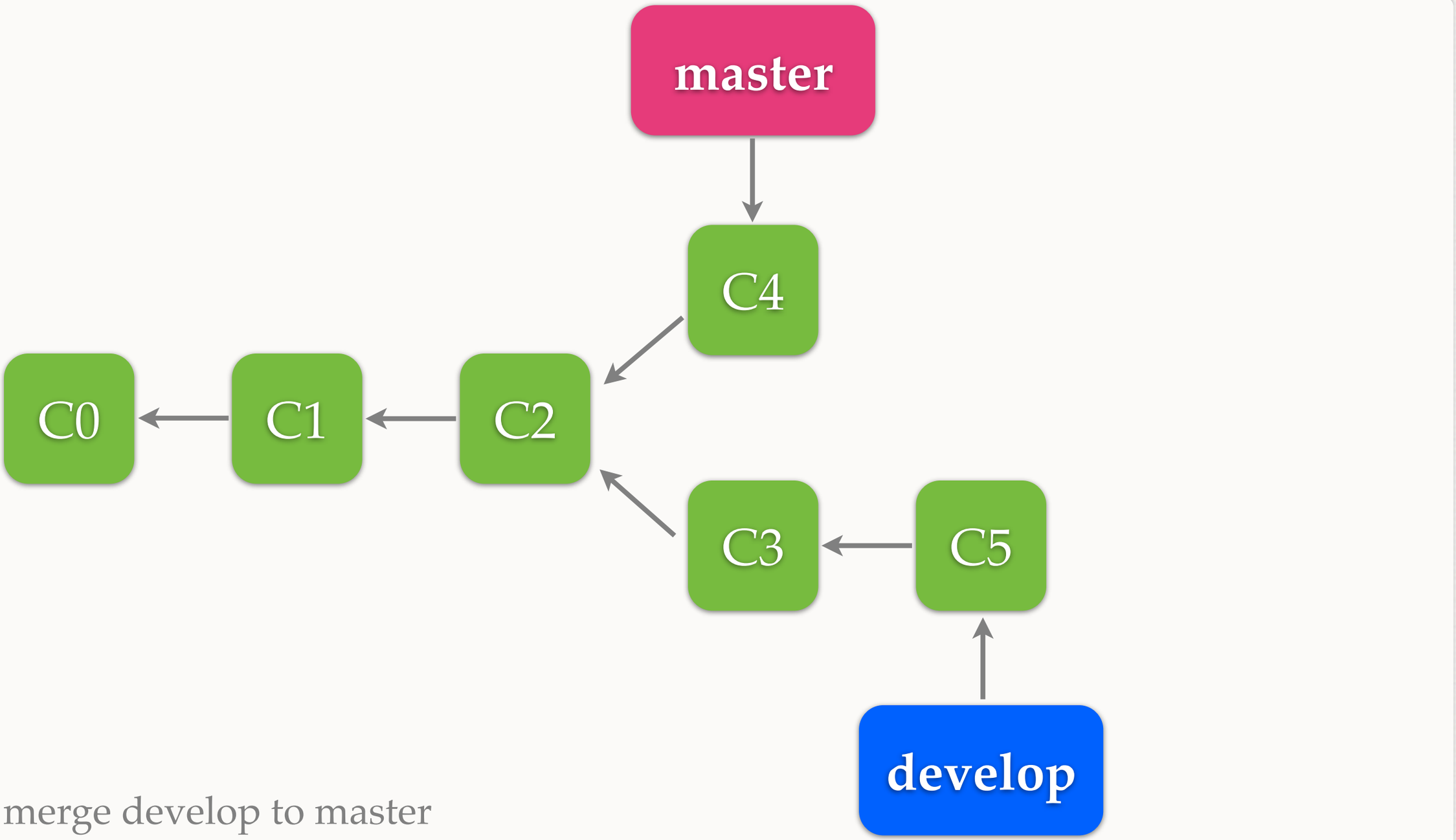


COMMITS

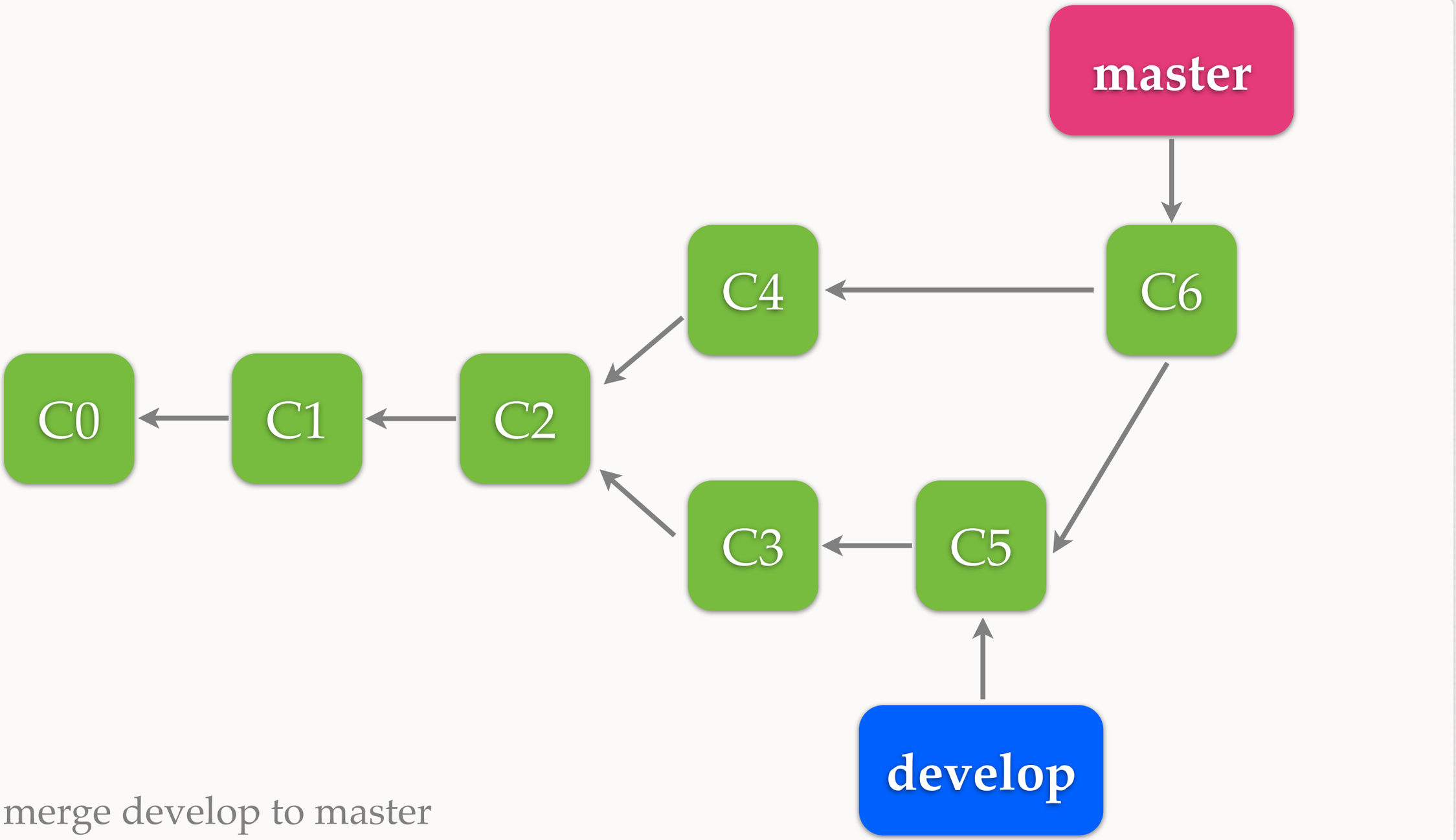


MERGE



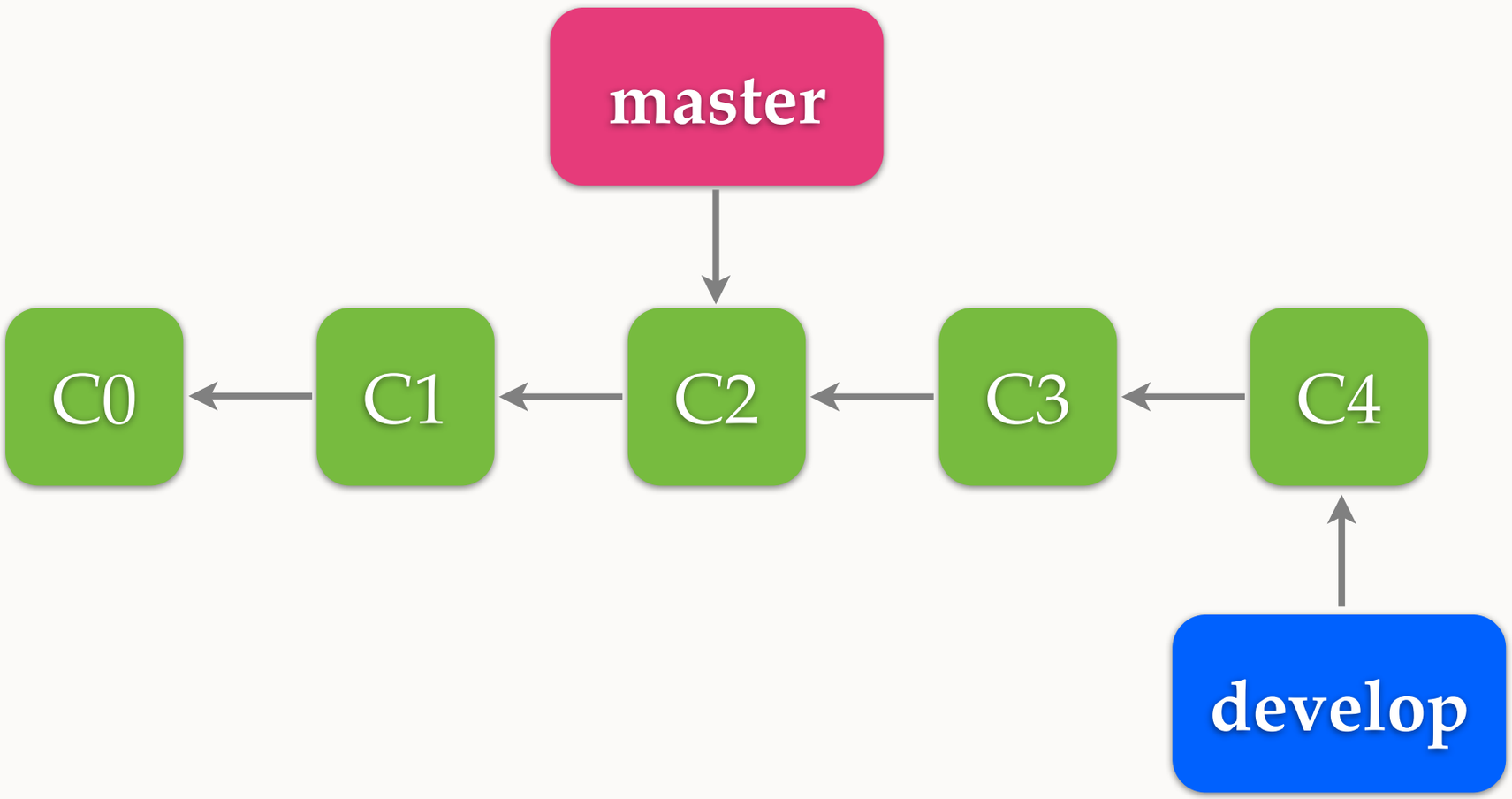
merge develop to master

MERGE



merge develop to master

FAST-FORWARD



merge develop to master

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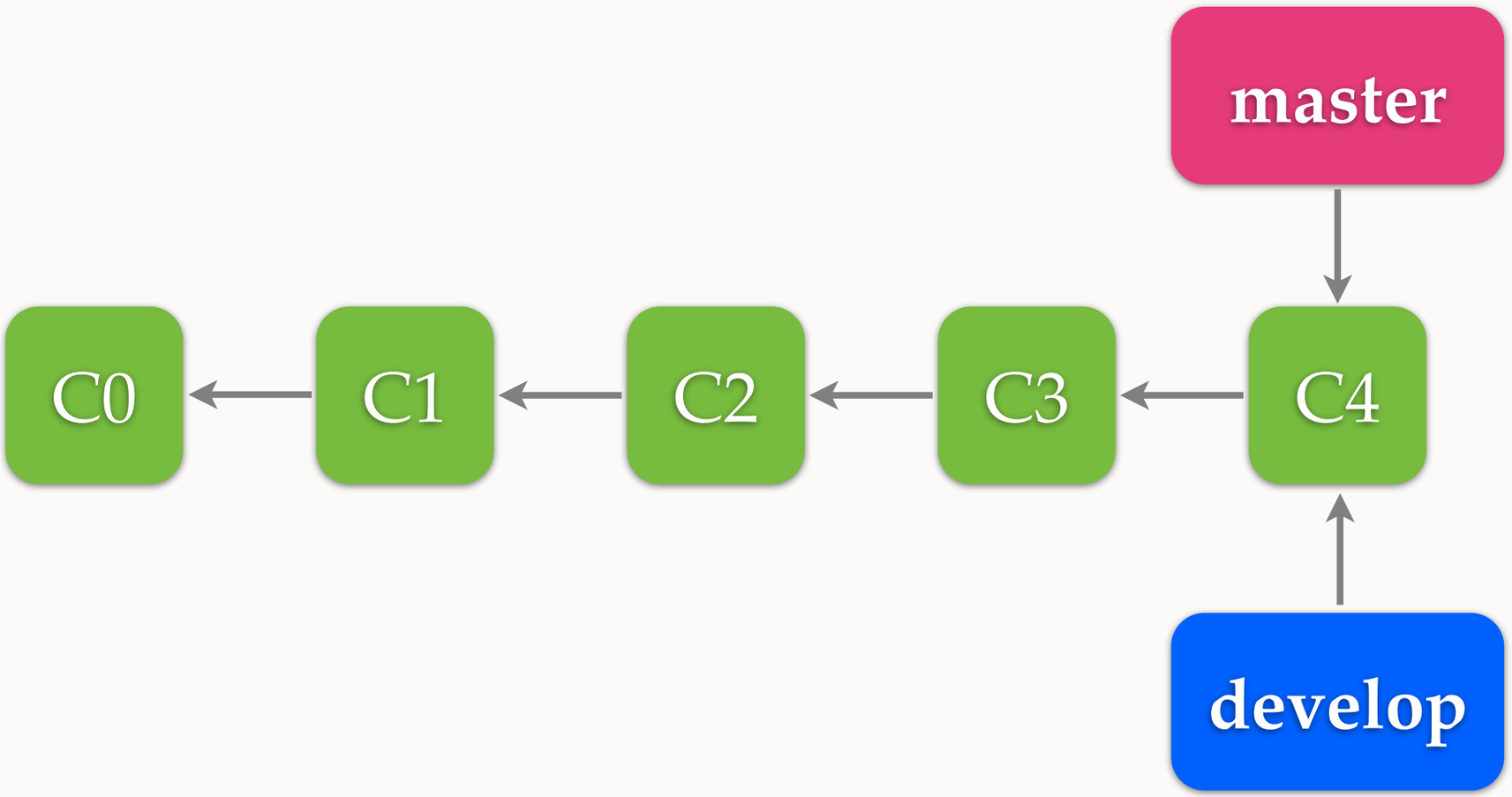

merge develop to master