Sviluppo software in gruppi di lavoro complessi

Mattia Monga, Carlo Bellettini, …

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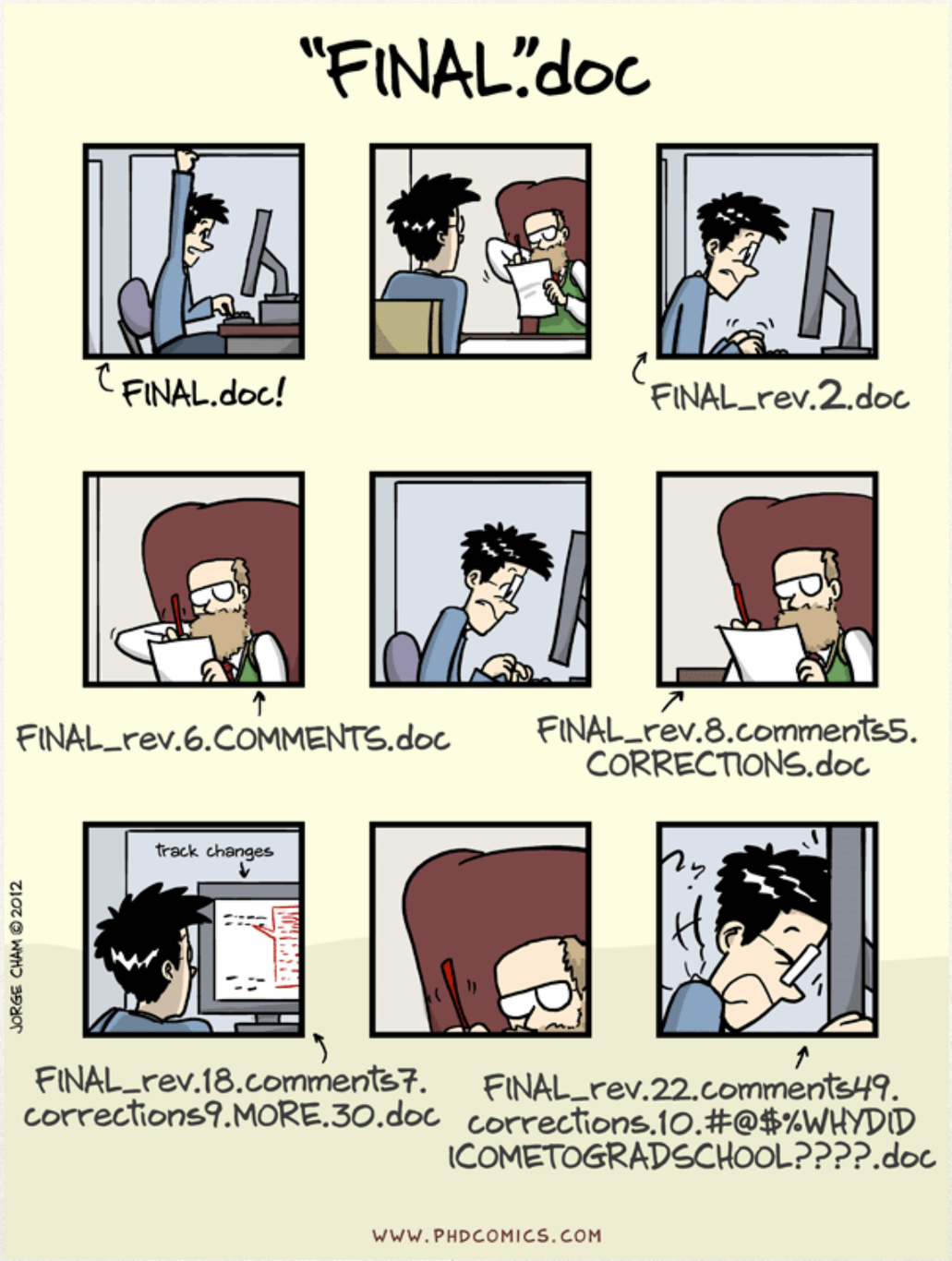
Maintain a Single Source Repository

http://www.phdcomics.com/comics/archive.php?comicid=1531



Source Code Management (versioning)

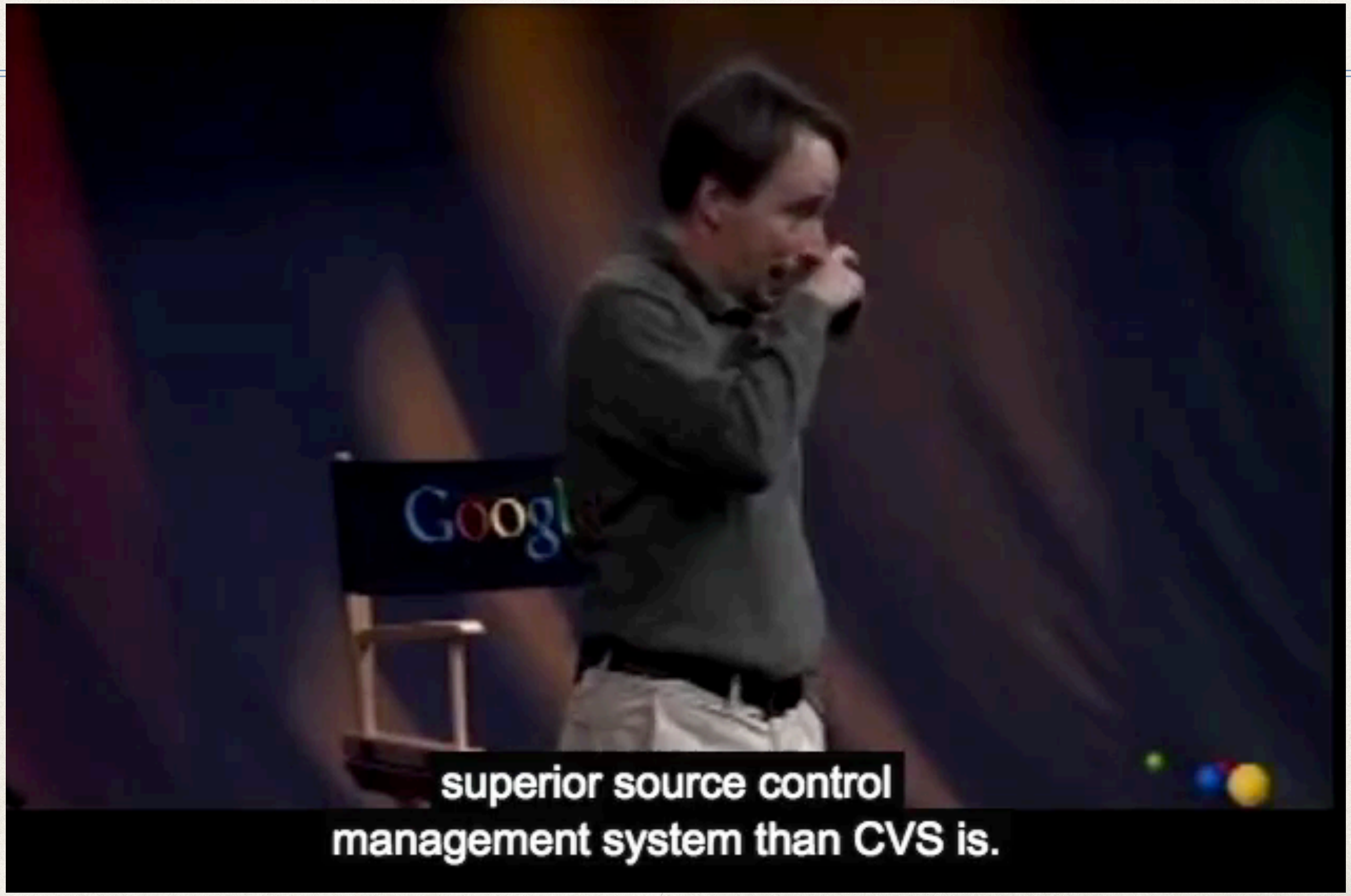
M. Fowler http://www.martinfowler.com/articles/continuousIntegration.html 2006

- Cambiato drasticamente negli ultimi 10 anni
  - Martin Fowler
    - *"The current open source repository of choice is Subversion. (The older open-source tool CVS is still widely used, and is much better than nothing, but **Subversion is the modern choice**.)"*
    - *"One of the features of version control systems is that they allow you to create **multiple branches**, to handle different streams of development. This is a useful, nay essential, feature - but it's **frequently overused and gets people into trouble**. Keep your use of branches to a minimum."*

Versioning distribuito: Git

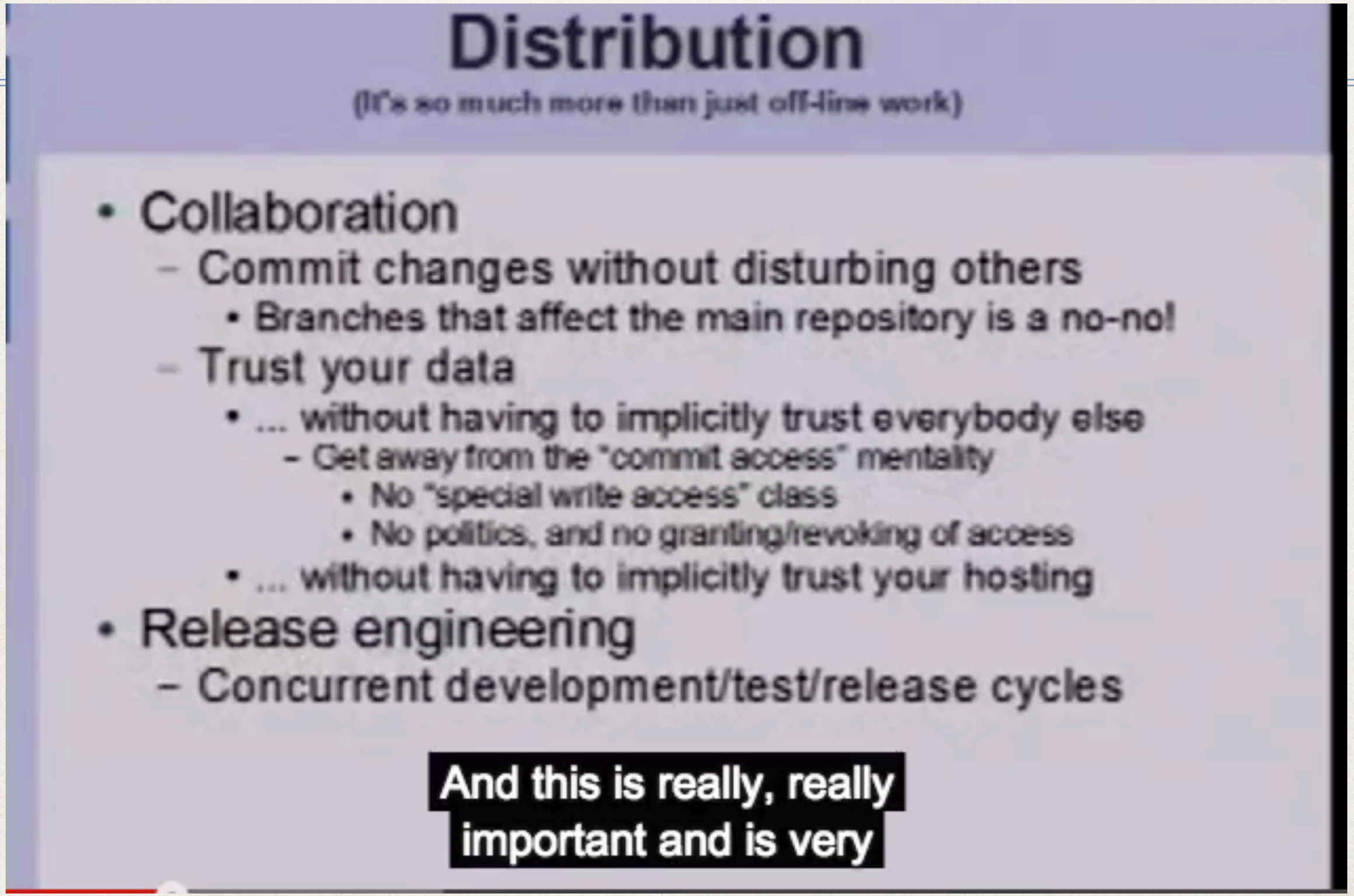
Linus Torvalds (Pt.1)

https://www.youtube.com/watch?v=4XpnKHJAok8&t=3m2s



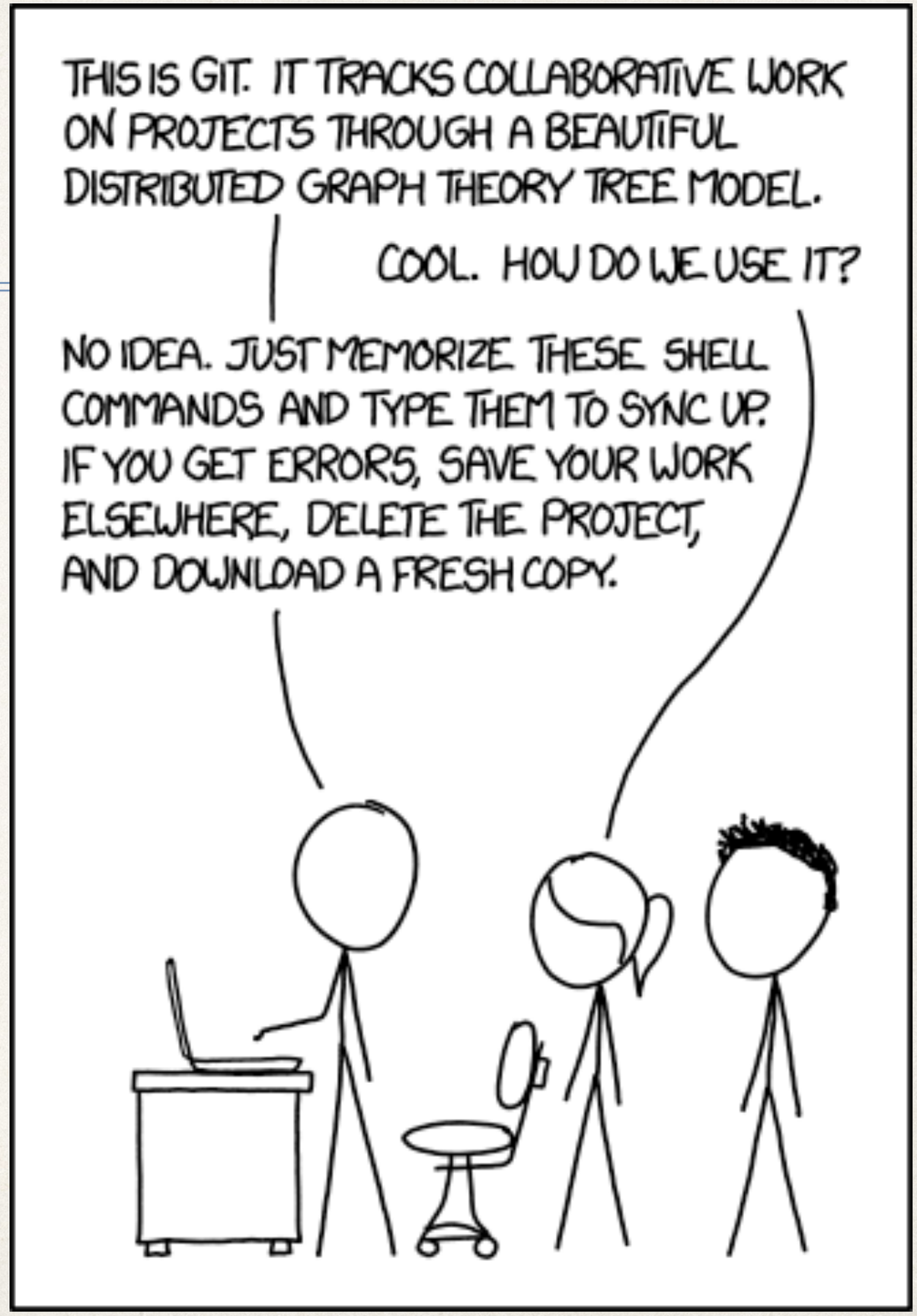
Linus Torvalds (Pt.2)

https://www.youtube.com/watch?v=4XpnKHJAok8&t=15m25s



Git

https://imgs.xkcd.com/comics/git.png



Cosa vedremo

- Alcuni internals
- Alcuni comandi e usi un po’ più avanzati
- Alcuni workflow

Comandi base (che assumo già conosciate)

http://git-scm.com/docs

- git init
- git clone
- git diff
- git status
- git log
- git branch
- git add
- git commit
- git checkout
- git merge
- git cherry-pick
- git remote
- git push
- git pull

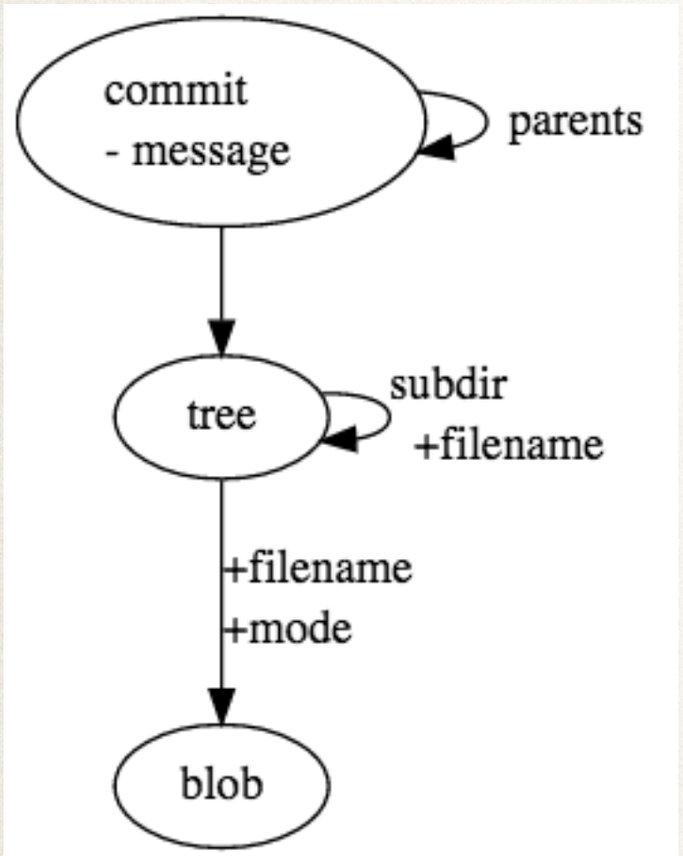
Formato degli objects

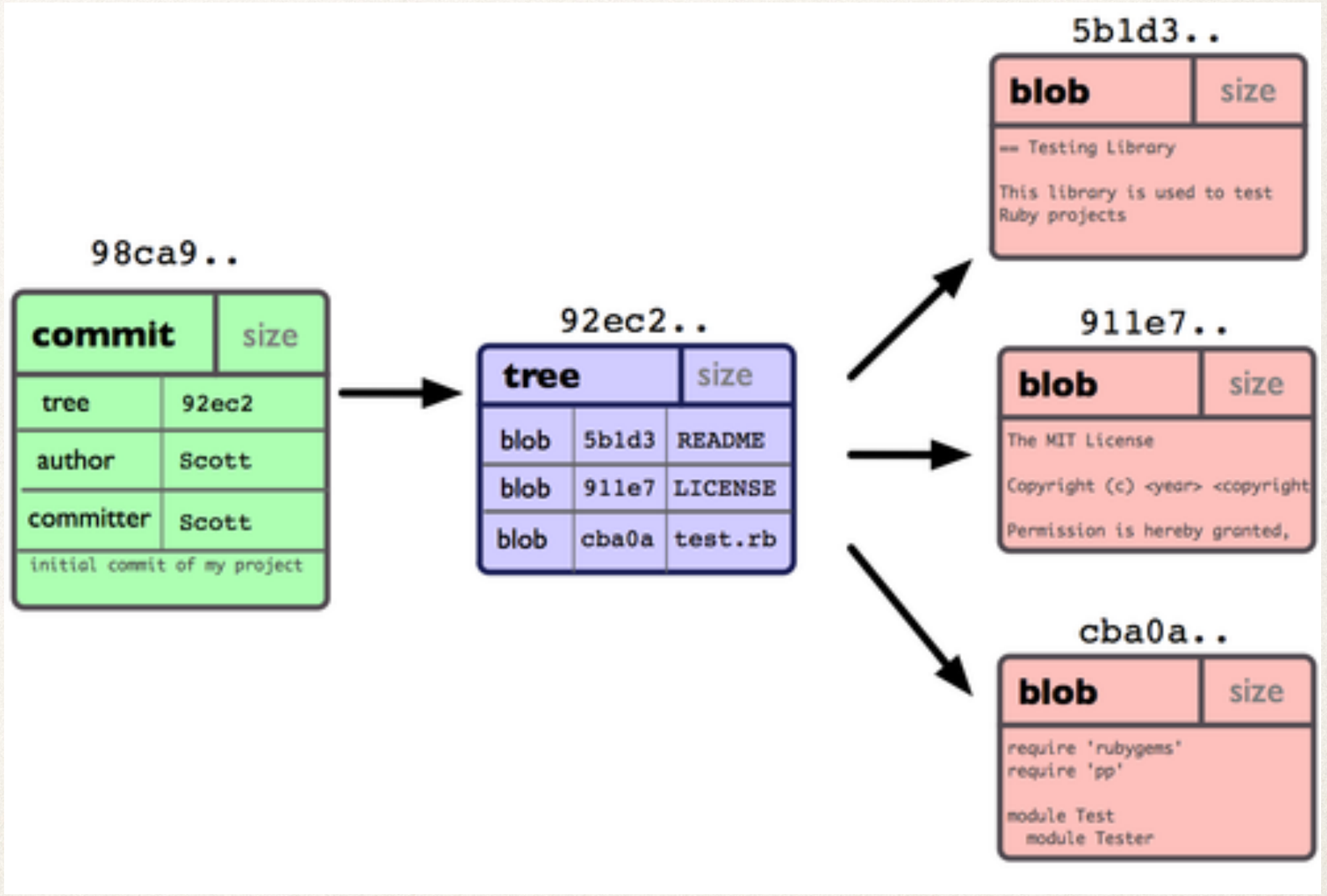
```
def put_raw_object(content, type)
  size = content.length.to_s

  header = "#{type} #{size}\0" # type(space)size(null byte)
  store = header + content

  sha1 = Digest::SHA1.hexdigest(store)
  path = @git_dir + '/' + sha1[0...2] + '/' + sha1[2..40]

  if !File.exists?(path)
    content = Zlib::Deflate.deflate(store)

    FileUtils.mkdir_p(@directory+'/'+sha1[0...2])
    File.open(path, 'w') do |f|
      f.write content
    end
  end
  return sha1
end
```

Git data: commit, tree, blob

http://eagain.net/articles/git-for-computer-scientists

http://arokem.github.io/2013-09-16-ISI/lessons/git-notebook/git-for-scientists.slides.html





Git data: repository