pijul – post-git SCM

https://lukas-prokop.at/talks/glt25-pijul

meisterluk
2025-04-26
Lightning Talk, GLT25

the epoch of git

(darcs)

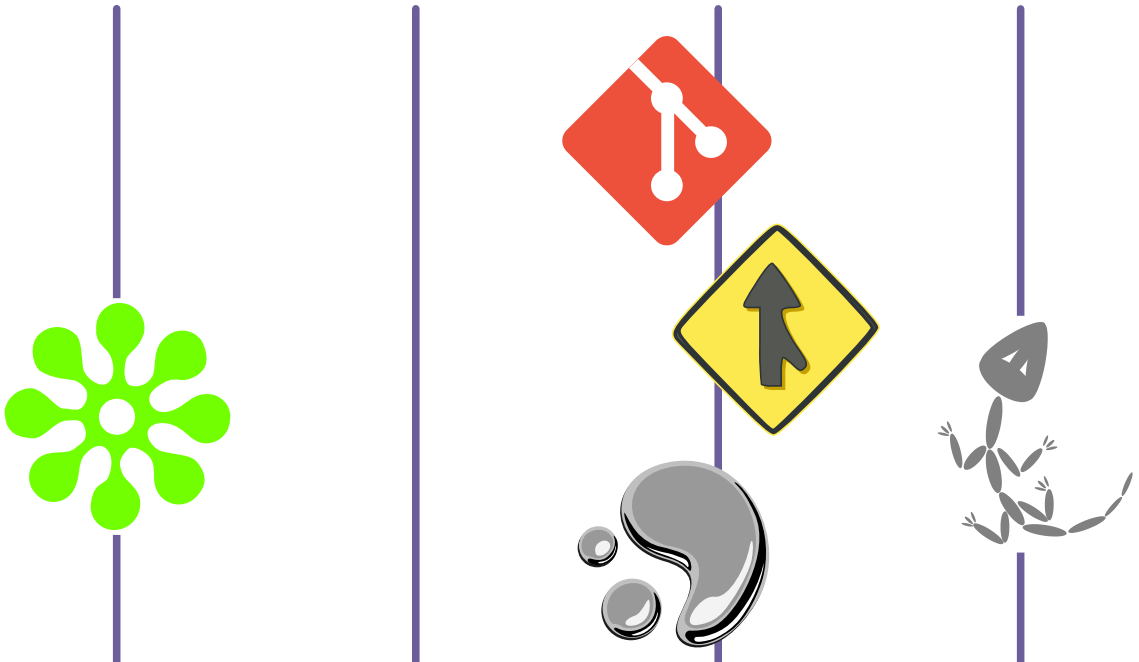
2003

2004

2005

(Fossil)

2006



(mercurial, bazaar, git)

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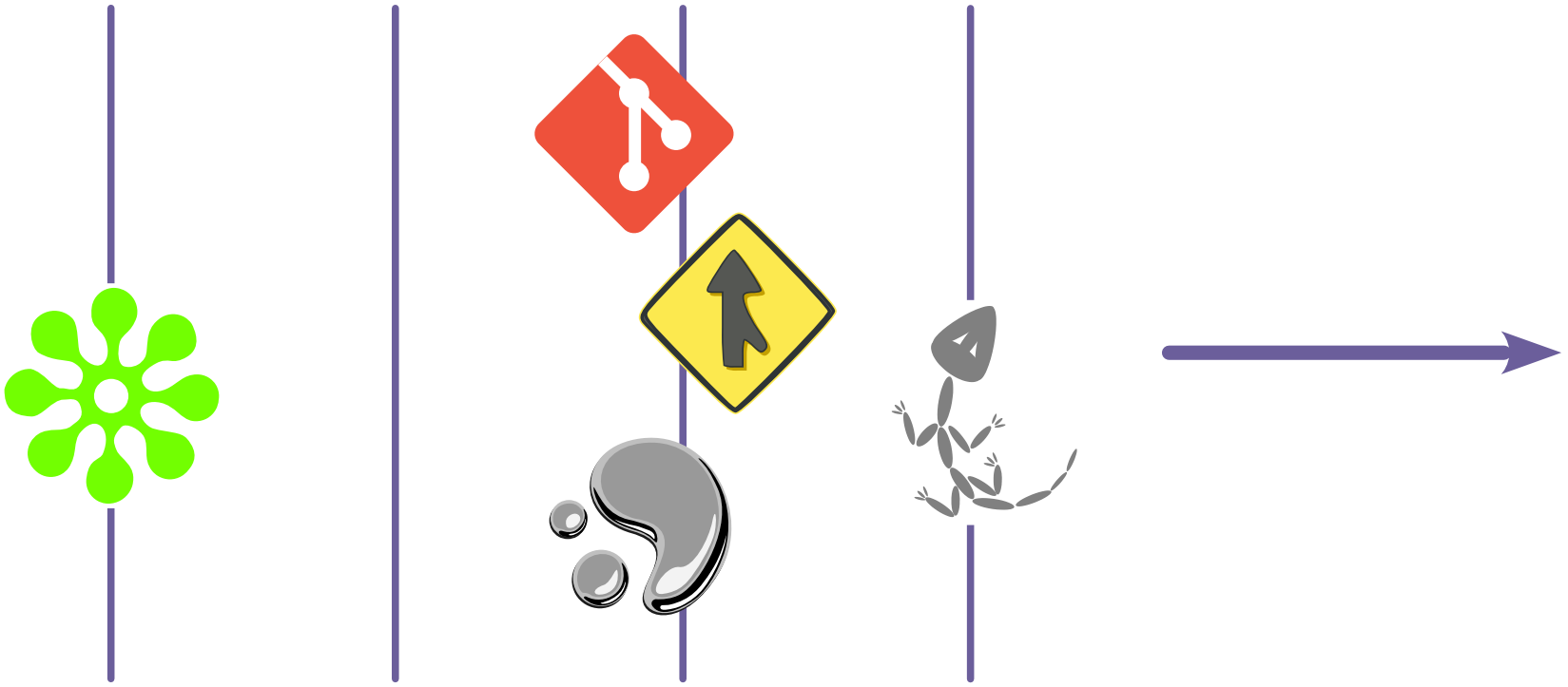


(mercurial, bazaar, git)

the epoch of git

(darcs)

2003

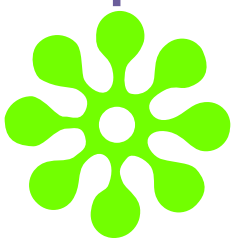
2004

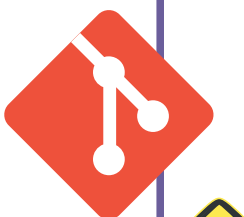
2005

(Fossil)

2006

2016





(mercurial, bazaar, git)

Pijul

git applied

```
$ git init
Initialized empty Git repository in /tmp/gitex/.git/

$ echo "In which branch am I? main" > text.txt

$ git add text.txt

$ git commit -m 'initial commit'
[main (root-commit) 51337ac] initial commit
 1 file changed, 1 insertion(+)
 create mode 100644 text.txt

$ git branch feature

$ echo "In which branch am I? feature" > text.txt

$ git commit -m 'feature branch'
On branch main
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   text.txt

no changes added to commit (use "git add" and/or "git commit -a")
```

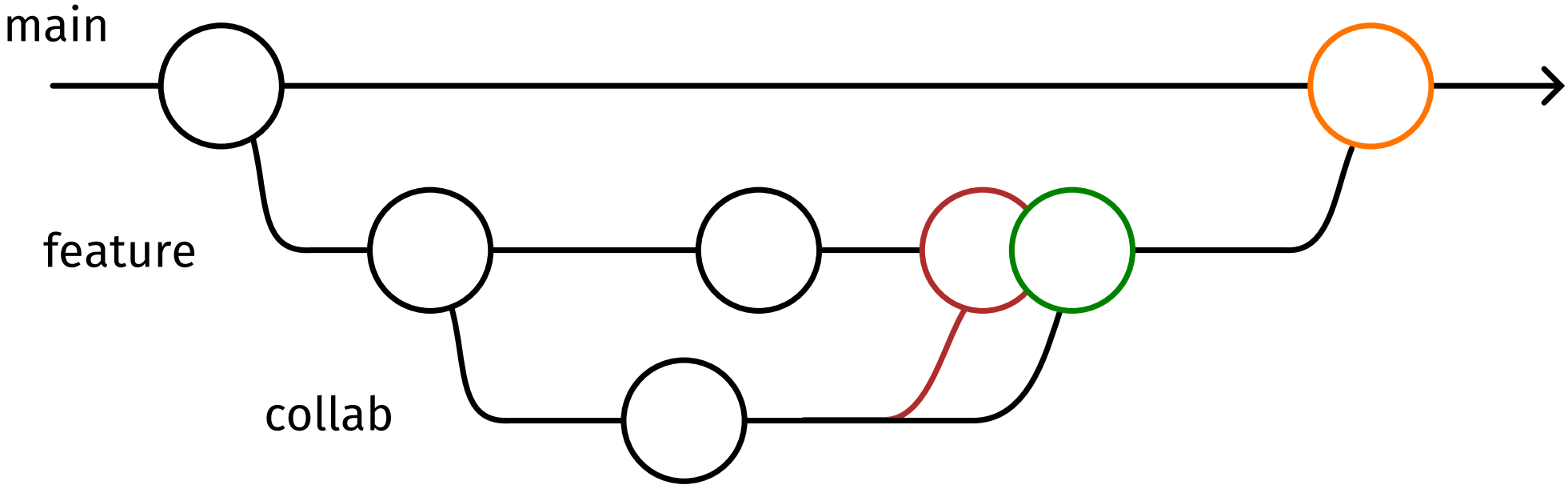
git applied

```
$ git commit -a -m 'feature branch'
[main 2ce74b7] feature branch
 1 file changed, 1 insertion(+), 1 deletion(-)

$ git branch collab

$ echo "In which branch am I? collab" > text.txt

$ git commit -a -m 'collab branch'
[main ed81b85] collab branch
 1 file changed, 1 insertion(+), 1 deletion(-)

$ git switch feature
Switched to branch 'feature'

$ echo "In which branch am I? feature. I swear!" > text.txt

$ git commit -a -m 'feature branch for sure'
[feature b256b5b] feature branch for sure
 1 file changed, 1 insertion(+), 1 deletion(-)

$ git merge collab
Auto-merging text.txt
CONFLICT (content): Merge conflict in text.txt
Automatic merge failed; fix conflicts and then commit the result.

$ echo "In which branch am I? some-merged-branch" > text.txt
```

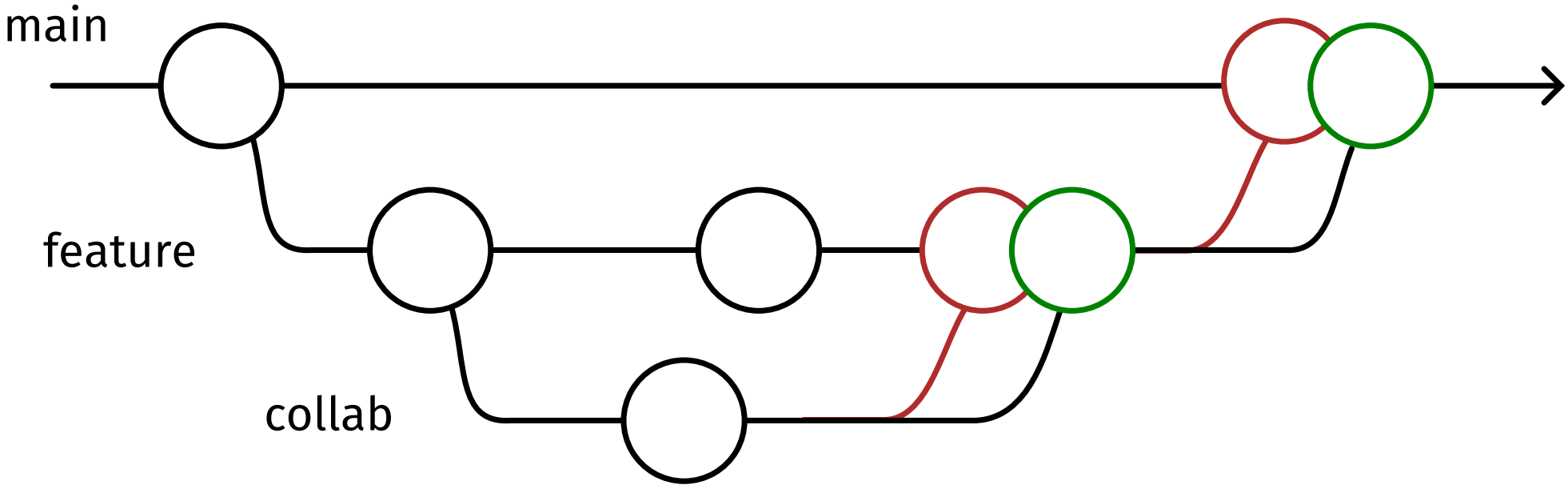
git applied

```
$ git commit -a -m 'feature and collab merged'
[feature 3a6d2ea] feature and collab merged

$ git switch main
Switched to branch 'main'

$ git merge feature
Auto-merging text.txt
CONFLICT (content): Merge conflict in text.txt
Automatic merge failed; fix conflicts and then commit the result.

$ git log --graph --oneline --all
*   3a6d2ea (feature) feature and collab merged
|\
* | b256b5b feature branch for sure
| | * ed81b85 (HEAD -> main) collab branch
| |/
| * 2ce74b7 (collab) feature branch
|/
* 51337ac initial commit
```

git visualized



git visualized



7.9 Git Tools - Rerere

Rerere

The `git rerere` functionality is a bit of a hidden feature. The name stands for "reuse recorded resolution" and, as the name implies, it allows you to ask Git to remember how you've resolved a hunk conflict so that the next time it sees the same conflict, Git can resolve it for you automatically.

There are a number of scenarios in which this functionality might be really handy. One of the examples that is mentioned in the documentation is when you want to make sure a long-lived topic branch will ultimately merge cleanly, but you don't want to have a bunch of intermediate merge commits cluttering up your commit history. With `rerere` enabled, you can attempt the occasional merge, resolve the conflicts, then back out of the merge. If you do this continuously, then the final merge should be easy because `rerere` can just do everything for you automatically.

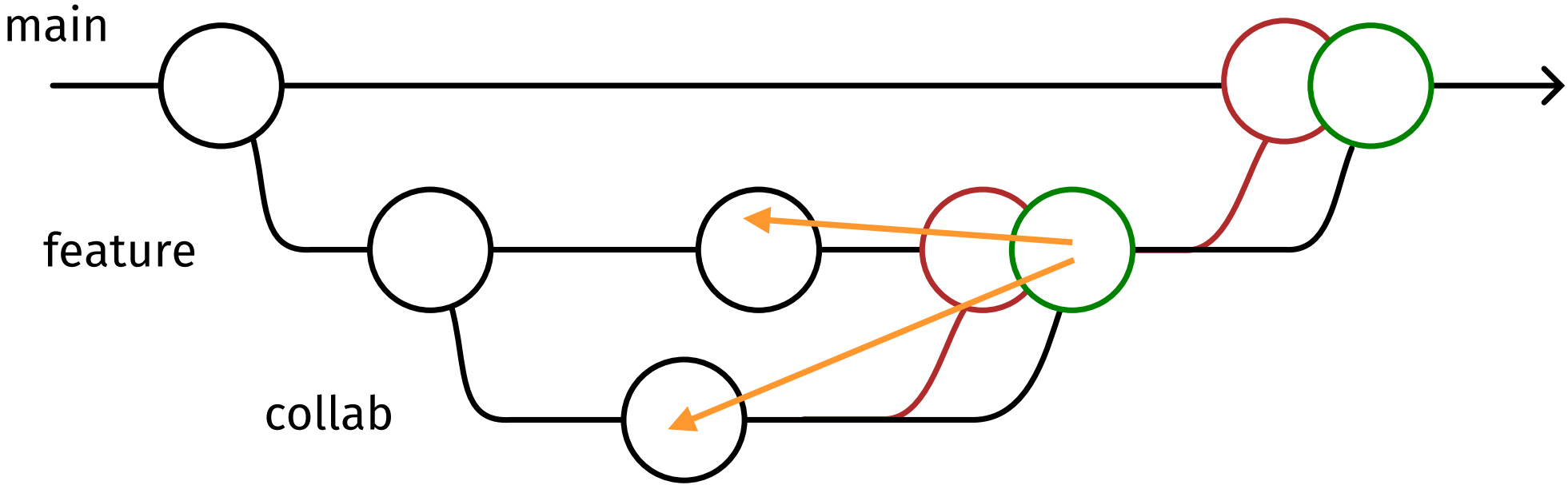
This same tactic can be used if you want to keep a branch rebased so you don't have to deal with the same rebasing conflicts each time you do it. Or if you want to take a branch that you merged and fixed a bunch of conflicts and then decide to rebase it instead — you likely won't have to do all the same conflicts again.

Another application of `rerere` is where you merge a bunch of evolving topic branches together into a testable head occasionally, as the Git project itself often does. If the tests fail, you can rewind the merges and re-do them without the topic branch that made the tests fail without having to re-resolve the conflicts again.

To enable `rerere` functionality, you simply have to run this config setting:

```
$ git config --global rerere.enabled true
```

git visualized



author, time, commit message, filepaths, file states, ...

https://stackoverflow.com/a/68806436

pijul

- developed by ...
  - Pierre Étienne Meunier
  - Florent Becker
- command-line tool written in rust
- built upon the theory of patches (like darcs)

theory of patches

- *commutativity:* independent patches commute

  $a \cdot b = b \cdot a$

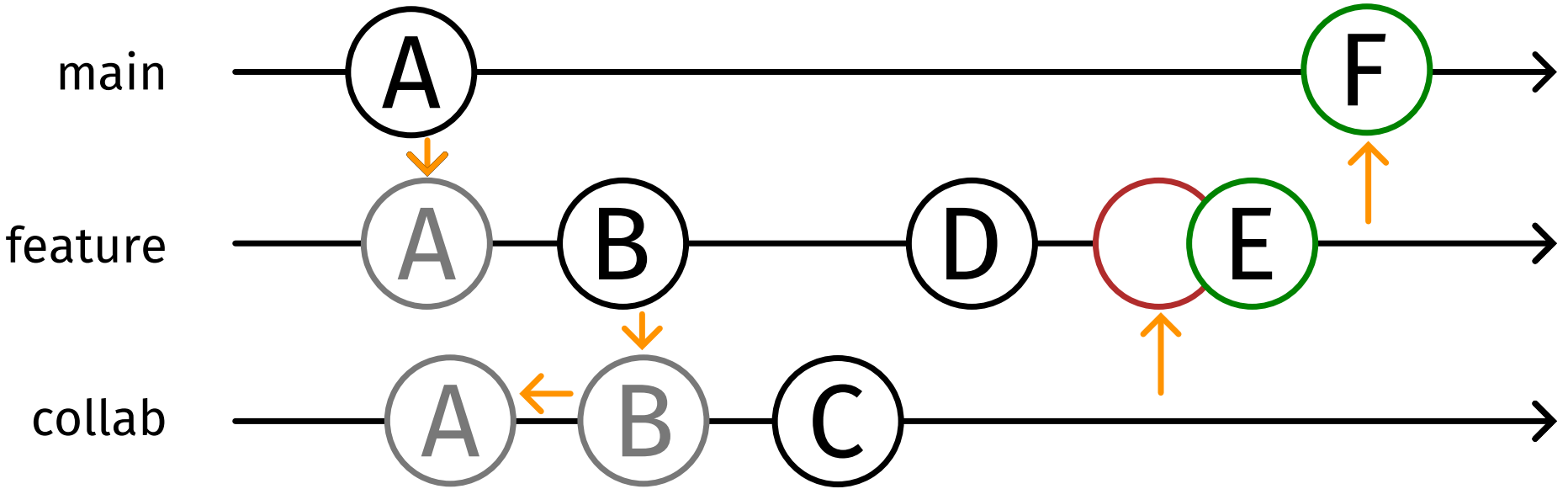
- *associativity:* repositories are sets of patches

  $(a \cdot b) \cdot c = a \cdot (b \cdot c)$

- inversion: patches have a semantic inverse

based on: Pijul: Sane Version Control

pijul visualized



pijul applied

```
$ pijul init
Repository created at /tmp/pijul-test

$ echo "On which channel am I? main" > text.txt
$ pijul add text.txt
Tracked 1 path(s)

$ pijul record -a -m 'initial record'
Hash: KBNAAFTJ3OBGOV2TL4DDVO5DSWSJPSZT4VY6B6WECISYPCL74JOQC

$ pijul fork feature

$ pijul channel switch feature
Outputting repository... done!
Reset given paths to last recorded change

$ echo "On which channel am I? feature" > text.txt
$ pijul record -a -m 'record on feature'
Hash: 5URL4O5LX7D5Y3HOHY62HEOHD5WU4NFWSHFY6EPYZFQIYR7B4JOAC
```

pijul applied

```
$ pijul fork collab

$ pijul channel switch collab
Outputting repository... done!
Reset given paths to last recorded change

$ echo "On which channel am I? collab" > text.txt
$ pijul record -a -m 'record on collab'
Hash: DJD2OHJLWLV4NZSRBTHEEV4UDFXYHDPQLJAIYPOA4IXH746DZXPQC

$ pijul channel switch feature
Outputting repository... done!
Reset given paths to last recorded change

$ echo "On which channel am I? feature - I swear!" > text.txt
$ pijul record -a -m 'record on feature, for sure'
Hash: ZSF4ZYMUV5CDWVMGKXSHDWQDYN5BQRMR4X4HCI7EJWWJHDRBOA6QC

$ pijul apply DJD2OHJLWLV4NZSRBTHEEV4UDFXYHDPQLJAIYPOA4IXH746DZXPQC
There were conflicts:
  - Order conflict in "text.txt" starting on line 1
  - Order conflict in "text.txt" starting on line 1
Outputting repository... done!
```

pijul applied

```
$ pijul channel switch main
Outputting repository... done!
Reset given paths to last recorded change

$ pijul apply
RCCMQI3IX3ORSCOZ6VALKUX2XZHLDHNWHXU66FS5L4DPLOAGUDAAC
Outputting repository... done!
```

pijul summarized

- pijul has a simpler model & CLI than git
- pijul fixes performance problems of darcs
- no three-way merge algorithm per default
- no discussions like “merge or rebase workflow?”
- web interface for repositories? nest.

git ⟷ pijul

`git init`	`pijul init`
`git branch`	`pijul branch`
`git switch`	`pijul branch switch`
`git commit`	`pijul record`
`git blame`	`pijul credit`
`git remote`	`pijul remote`
`git push`	`pijul push`
`git pull`	`pijul pull`

git ⟷ pijul

`git init`	`pijul init`
`git branch`	`pijul branch`
`git switch`	`pijul branch switch`
`git commit`	`pijul record`
`git blame`	**`pijul credit`**
`git remote`	`pijul remote`
`git push`	`pijul push`
`git pull`	`pijul pull`

crotophaga sulcirostris

a bird known to do collaborative nest building

https://pijul.org/

¡Gracias por su atención!