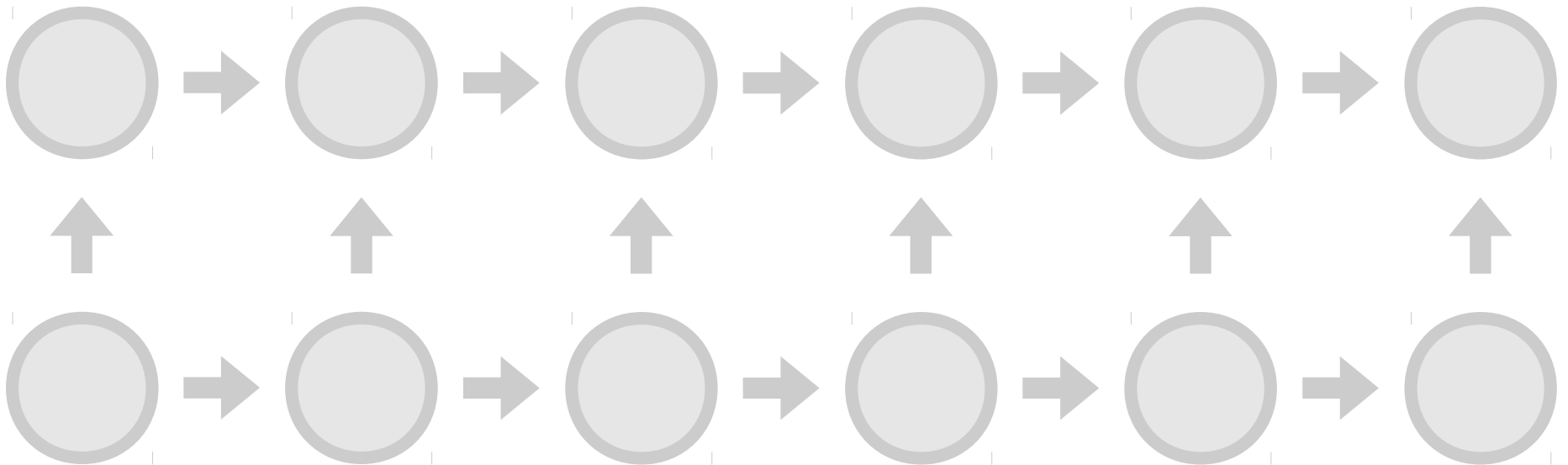


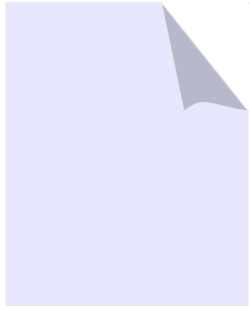
# ↑ Version Control with Git ↑



# What We're *Not* Talking About

- Conceived by Linus Torvalds around 2005
- Distributed Version Control vs. Central Version Control
- Why git is better than <insert favourite vcs>
- Extended Team Workflows
- Internal Workings

# Why Version Control?



welcome.html

# Why Version Control?

- So, what is the newest version of this file?
- Who changed the title?
- Yesterday, it was working just fine.
- Did you get my mail?
- Who's working on XYZ?
- Is this bugfix already included somewhere?
- Who is working on this project, anyway?

welcome.html

# What is Version Control?

## NOT Version Control

- Emailing files
- Central FTP / Fileshare
- Periodical Backup of your project directory
- Dropbox

„Better than nothing“  
Award in silver

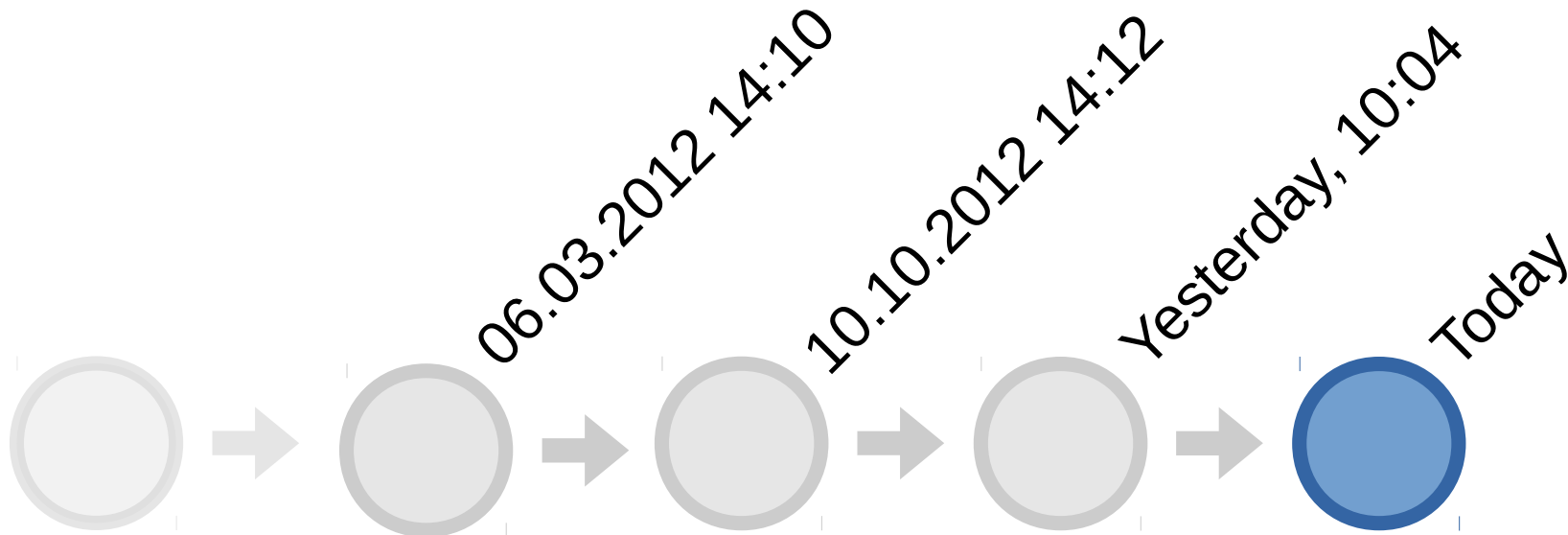
„Better than nothing“  
Award in bronze

## Version Control

- CVS (old)
- SVN
- Mercurial
- Bazaar
- Bitkeeper
- Git
- ...

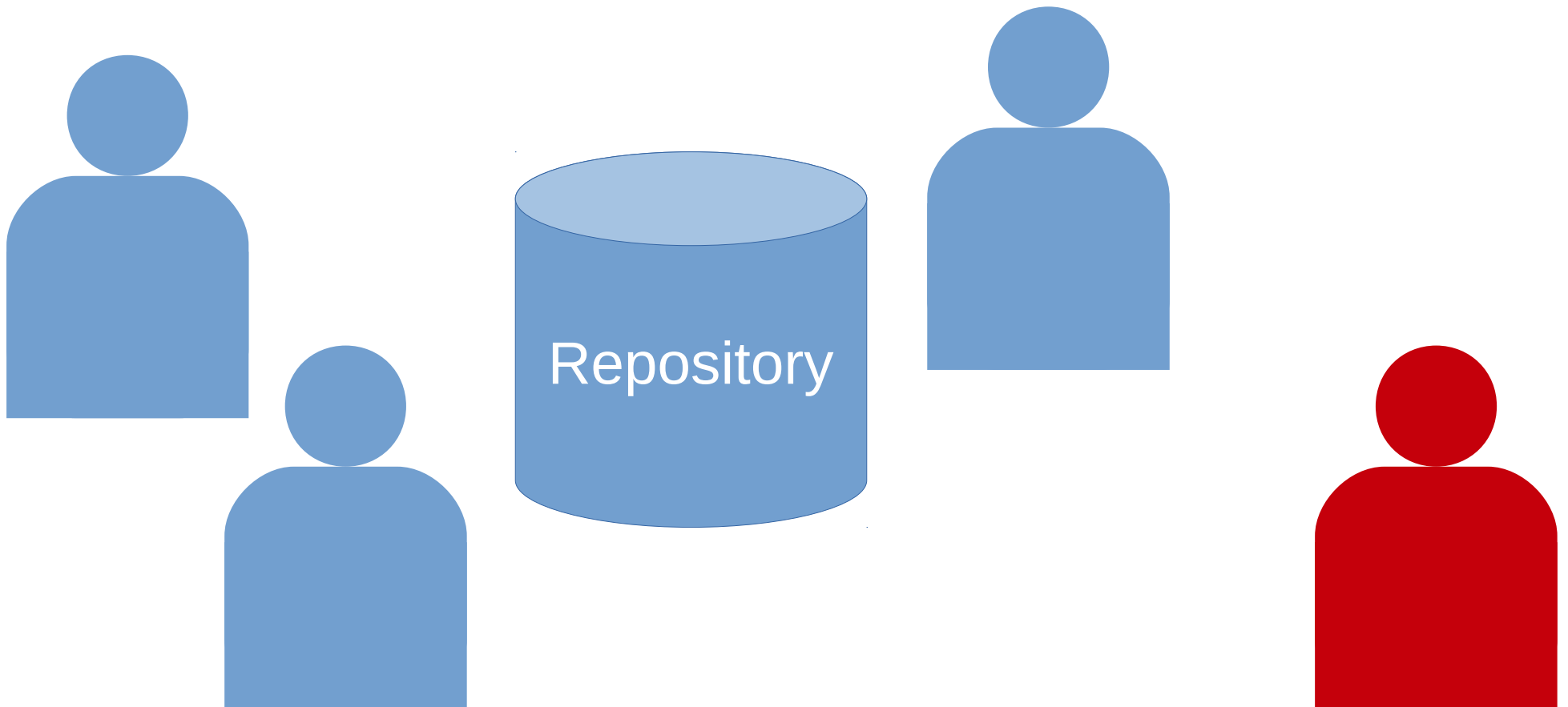
# Safe-Keeping of Versions

- When you check something into version control, it will remember this exact version for you
- You can return to a previous version
- You get a fancy timeline of your project



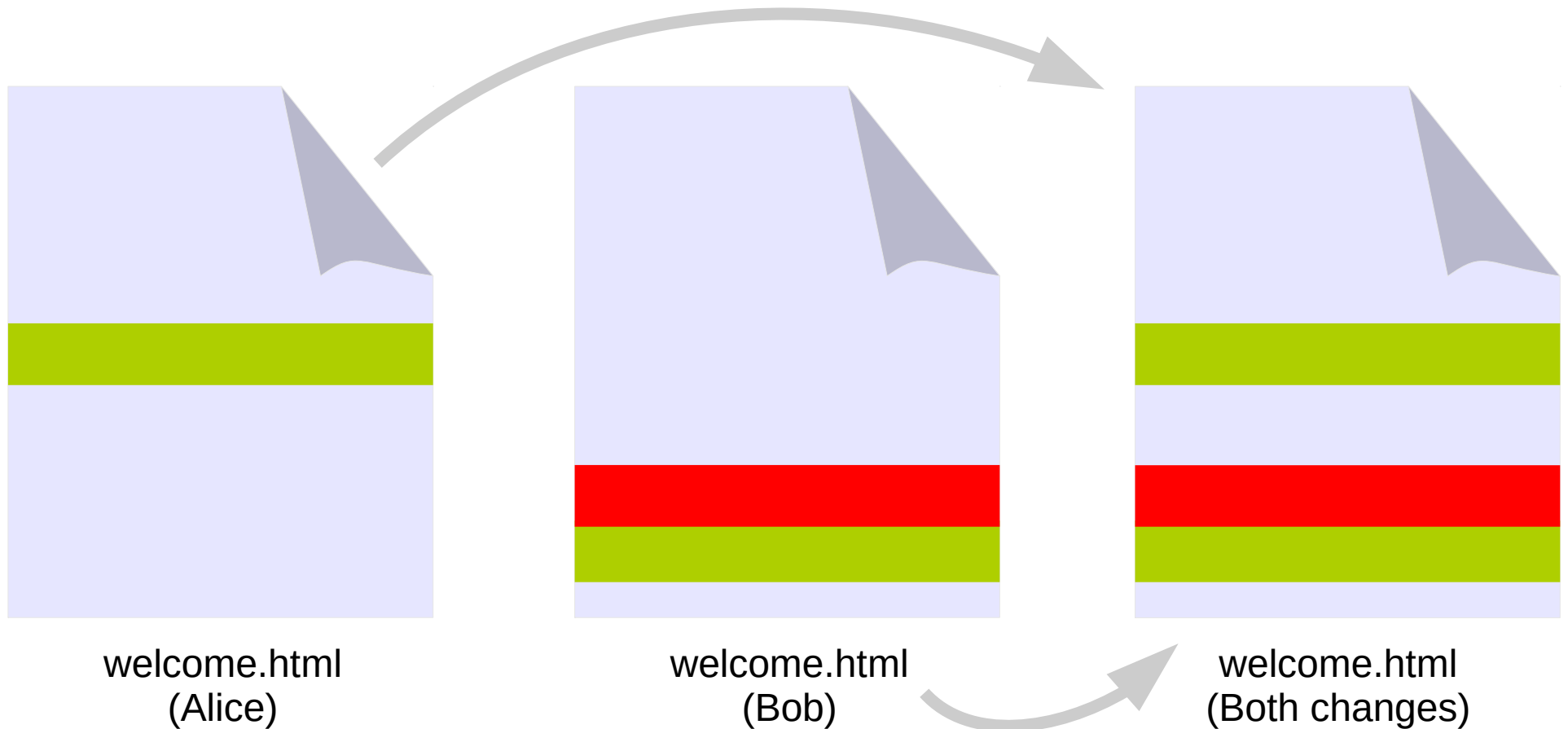
# Access Control

- Usually on a per-project basis
- Who can read and/or write a „repository“



# Conflict Resolution

- Files edited by different people can usually be resolved automatically.





# The „Commit“

- An item in the history
- Think of this as a snapshot of your project

Commit-Hash

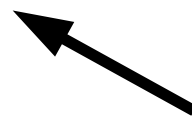


```
commit f303d887ebf263b466958ca7c83aebb9385936f0
```

```
Author: Claudius Coenen <coenen@meso.net>
```

```
Date: Sat Feb 15 02:08:44 2014 +0100
```

```
Ticket #2342: fixing file upload to work with  
animated gif
```



Commit-Message

# Full Workflow

`git pull`

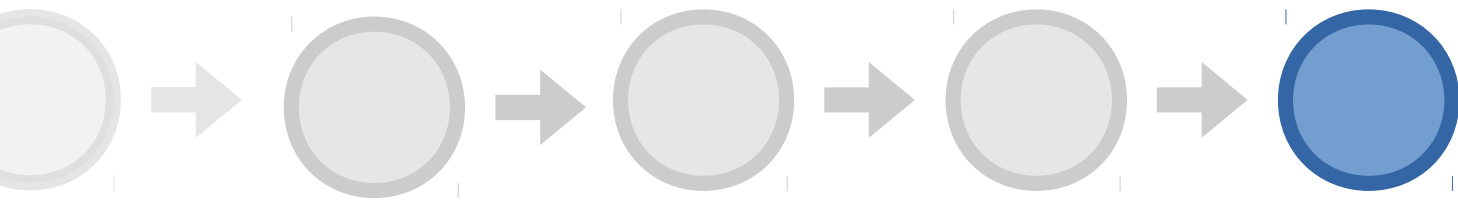
- **DO STUFF**  
change files the way you normally would
- **PREPARE**  
`git add` the changes, so git knows about them
- **COMMIT**  
`git commit`, preferably with a nice message

`git push`

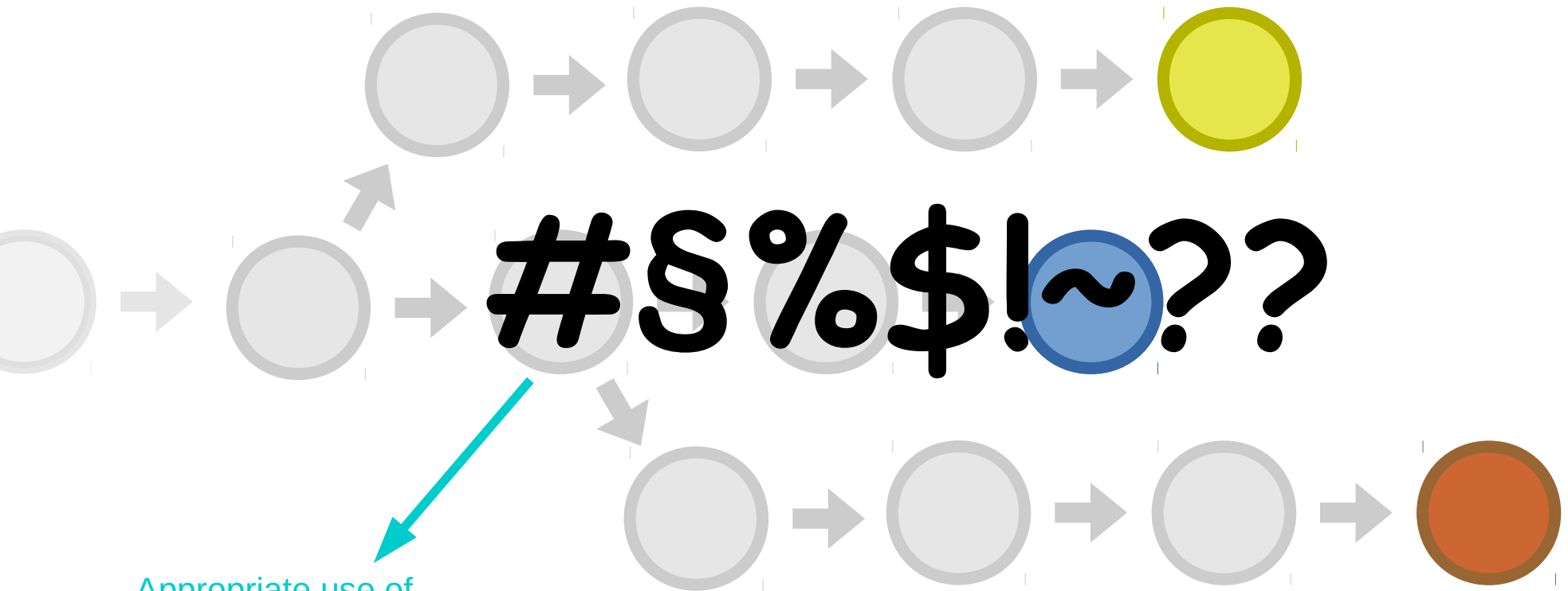


think: „committing to memory“  
or „commitment“

# Branching/Merging And The History



# Branching/Merging And The History

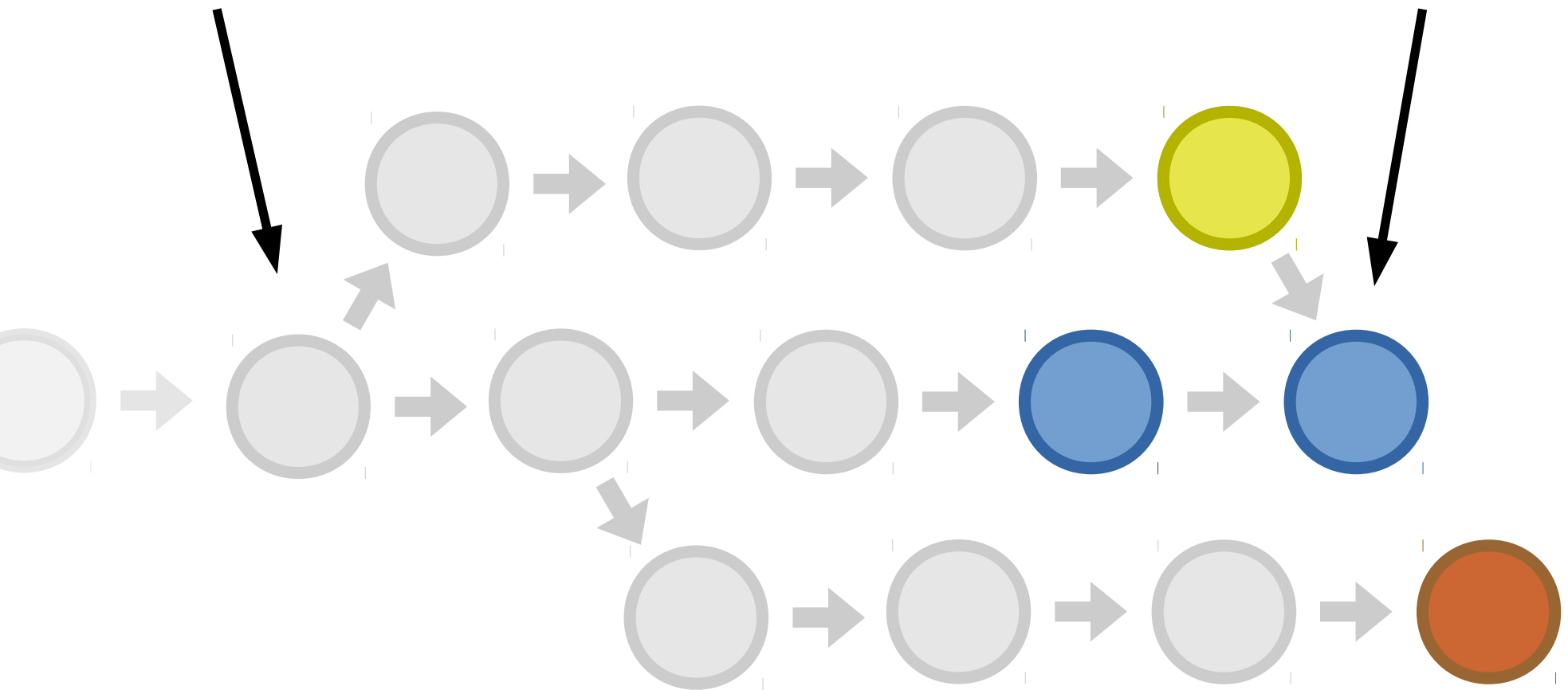


Appropriate use of  
Comic Sans!

# Branching/Merging And The History

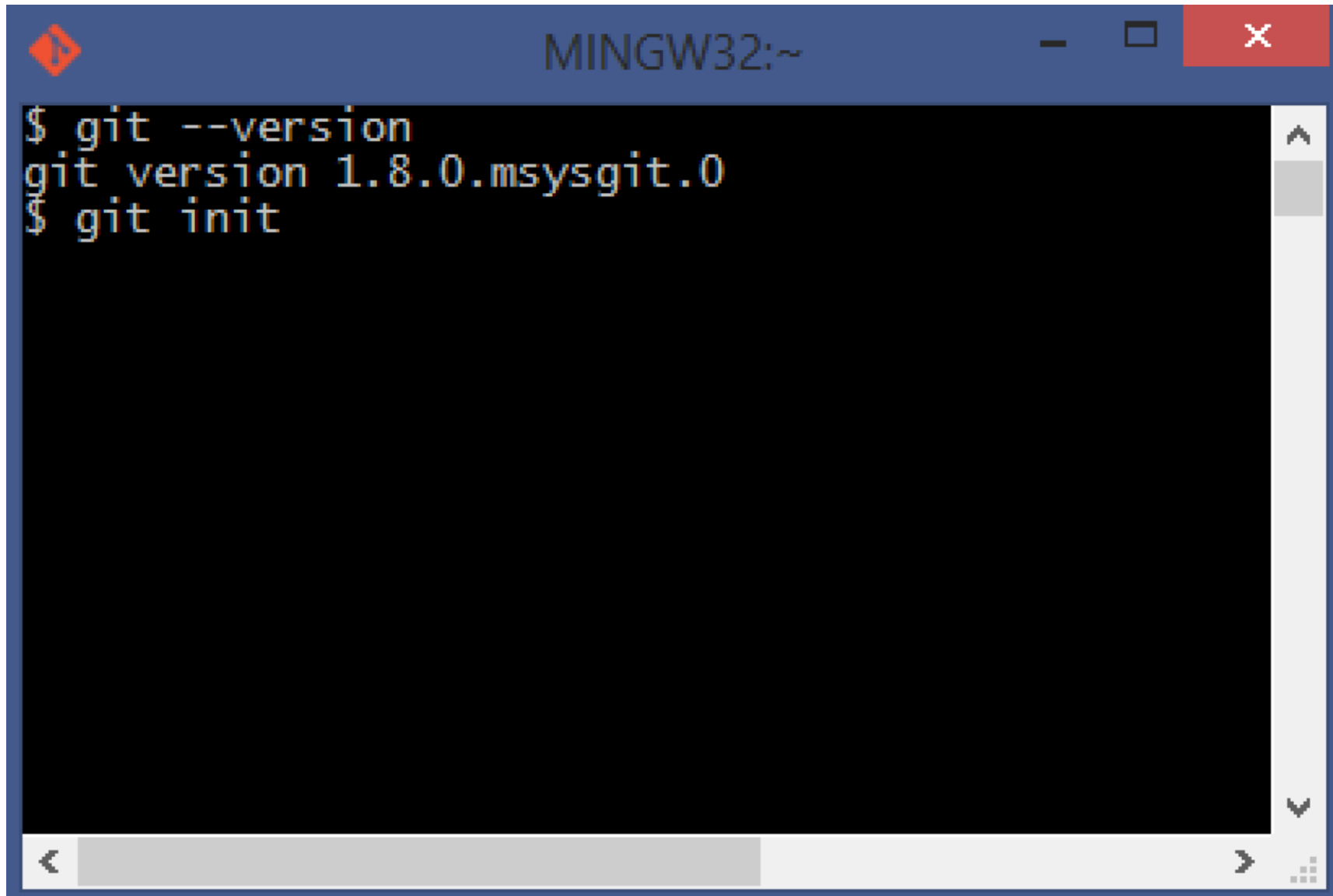
Branch starts here

Merge



Usually no problem

# Git Command Line Interface



A screenshot of a MINGW32 terminal window. The window title is "MINGW32:~". The terminal shows the following commands and output:

```
$ git --version  
git version 1.8.0.msysgit.0  
$ git init
```

The terminal has a dark background and a light-colored scrollbar on the right side. The window has a blue title bar with standard Windows window controls (minimize, maximize, close) on the right.

# Github App

The screenshot displays the Github App interface for the ReactiveCocoa repository. The top navigation bar includes 'Repositories', 'ReactiveCocoa', and a 'Sync Branch' button. The left sidebar contains navigation icons for History, Changes, Branches, and Settings. The main content area is divided into two sections: a list of pull requests on the left and a code diff on the right.

**3515 commits in master**      SHA: bba8fa0dee0e88ece51ed1cdc30b3dc5799af331

**History**

- Merge pull request #864 from ReactiveC...** (5 hours ago) by joshaber (b35e733)
- Merge pull request #859 from ReactiveC...** (5 hours ago) by jspahrsummers (1c39fc6)
- Test for +createSignal: disposing of inne...** (6 hours ago) by jspahrsummers (bba8fa0) - **Selected**
- Test that RACSerialDisposable.disposab...** (6 hours ago) by jspahrsummers (0549fcd)
- Use `CFBridgingRetain` in place of a cas...** (12 hours ago) by keithduncan (c175133)
- Fix RACSerialDisposable leaking its set...** (2 days ago) by jspahrsummers (6de8f44)
- Dispose of RACSubscriber.disposable re...** (2 days ago) by jspahrsummers (d390f76)

**Test for +createSignal: disposing of inner subscriptions** (6 hours ago) by jspahrsummers

Authored by jspahrsummers on Oct 14, 2013 at 10:18 AM.  
Verified to fail on master.

Showing 1 changed file with 22 additions.

ReactiveCocoaFramework/ReactiveCocoaTests/RACSignalSpec.m      22 additions

```
... @@ -223,6 +223,28 @@ describe(@"subscribing", ^{
223     });
224     expect(currentScheduler).willNot.beNil();
225     });
226 +
227 + it(@"should automatically dispose of other subscriptions from
+createSignal:", ^{
228 +     __block BOOL innerDisposed = NO;
229 +
230 +     RACSignal *innerSignal = [RACSignal
createSignal:^(id<RACSubscriber> subscriber) {
231 +         return [RACDisposable disposableWithBlock:^(
232 +             innerDisposed = YES;
233 +         ]];
234 +     }];
235 +
236 +     RACSignal *outerSignal = [RACSignal createSignal:^
RACDisposable * (id<RACSubscriber> subscriber) {
237 +         [innerSignal subscribe:subscriber];
238 +         return nil;
239 +     }];
240 +
```

# Atlassian SourceTree

The screenshot displays the SourceTree application interface. At the top is a menu bar (File, Edit, View, Repository, Actions, Tools, Help) and a toolbar with icons for various actions like Clone, Commit, Checkout, Discard, Stash, Add, Remove, Add/Remove, Fetch, Pull, Push, Branch, Merge, Tag, and Terminal. Below the toolbar are several tabs for different projects: SourceTree, testproject, Sparkle, RestSharp, fantasticgitproject, and MultiSelectTreeView.

The main area is divided into several sections:

- File Status:** Shows 'Working Copy' and 'Branches' (master).
- Graph:** A commit history graph showing the relationship between branches and commits.
- Table:** A table listing recent commits with columns for Graph, Description, Date, Author, and Commit ID.
- Commit Details:** A section for the selected commit, showing the commit ID, parents, author, date, and labels.
- Diff View:** A view showing the changes in a file, with a diff between the current state and the parent commit.

| Graph | Description   | Date              | Author             | Commit  |
|-------|---|-------------------|--------------------|---------|
|       | Merge pull request #259 from Dharun/patch-1               | 11 Jan 2013 19:18 | Andrew Young <ai>  | cc283fb |
|       | Update CONTRIBUTING.markdown                              | 18 Sep 2012 0:26  | John Sheehan <jol> | 054adce |
|       | Merge pull request #324 from PedroLamas/master            | 17 Sep 2012 18:18 | Pedro Lamas <pec>  | a529617 |
|       | Added CONTRIBUTING.markdown                               | 17 Sep 2012 18:15 | Pedro Lamas <pec>  | cfce270 |
|       | Merge pull request #321 from apodlaski/master             | 13 Sep 2012 5:56  | Andrew Young <ai>  | eef0c86 |
|       | Another fix for ExecuteAsync                              | 7 Sep 2012 14:16  | Aleksander Podlas  | 2ce5204 |
|       | 104.1 Version bump: 401.1                                 | 7 Sep 2012 6:39   | Andrew Young <ai>  | 196fa7e |
|       | Merge pull request #320 from jasonmoore2k/ExecuteAsyncFix | 5 Sep 2012 14:16  | Pete Johanson <la> | 4531670 |

**Commit:** cc283fb0843e1141f717dcc6b3009206b6c95b62 [cc283fb]  
**Parents:** 054adce80b, c68de9d856  
**Author:** Andrew Young <andrewyoung@gmail.com>  
**Date:** 11 January 2013 19:18:31  
**Labels:** HEAD, origin/master, origin/HEAD, master

Merge pull request #259 from Dharun/patch-1

| Filename                    | Path                    |
|-----------------------------|-------------------------|
| XmlAttributeDeserializer.cs | RestSharp\Deserializers |
| .gitignore                  |                         |
| NuGet.Config                | .nuget                  |
| NuGet.exe                   | .nuget                  |

```
Context: 3 Lines | Ignore Whitespace | Diff Vs: First Parent | External Diff
RestSharp/Deserializers/XmlAttributeDeserializer.cs
Modified file, 1 lines added, 1 lines removed | Reverse File
Hunk 1: Lines 109-115
109 109
110 110
111 111
112 -
112 +
113 113
114 114
115 115
var value = GetValueFromXml(root, name, is
jif (value == null)
jif (value == null || value == string.Empty)
{
// special case for inline list it
if (type.IsGenericType)
```

Clean | master Atlassian



# References

# Command Cheat Sheet (Infrequent Commands)

- `git config --global user.name "Jane Doe"`
- `git config --global user.email "j.d@test.com"`
- `git config --global color.ui true`
- `git config --system core.editor <editor>`
  
- `git init` (creates a new repository)
- `git clone <repository url>` („clones“ existing)

# Command Cheat Sheet (Frequent Commands)

- git status (what's up on my drive)
- git log (what happened so far)
- git add (prepare these files for commit)
- git commit (commit the added files)
- git checkout (return to a previous version)
- git reset (reset the git index)

**These Commands  
are Local!**

# Command Cheat Sheet (Used often)

- git fetch (just download)
- git pull (download AND merge)
- git push (send my changes out)

These Commands  
go over the network\*

\*) simplification

# Where to Start

- Baby steps in your browser
  - <http://try.github.io>
- Download git for your system
  - <http://git-scm.com/downloads>
- Maybe add a Git client that suits your taste
  - At least *try* the commandline. Git in its purest form.
  - gitk, GitHub-App, SourceTree, GitTower, TortoiseGit
- Integrate git into your IDE / Editor
  - Eclipse, Sublime, WebStorm, RubyMine, NetBeans

# Hand-Picked Resources

- Git has extensive documentation
  - <http://git-scm.com/documentation>
- There's a lot of Tutorials out there
  - <http://marklodato.github.io/visual-git-guide/index-en.html>
  - <https://www.kernel.org/pub//software/scm/git/docs/everyday.html>
  - <http://www.teehanlax.com/blog/github-fundamentals/>
  - <http://mislav.uniqpath.com/2010/07/git-tips/>
  - <http://nvie.com/posts/a-successful-git-branching-model/>
- In-Depth Info
  - <http://git-scm.com/book>
- Cannon fodder for lengthy debates with your fellow geek
  - <http://thkoch2001.github.io/whygitisbetter/>