Mercurial and the Isabelle Repository

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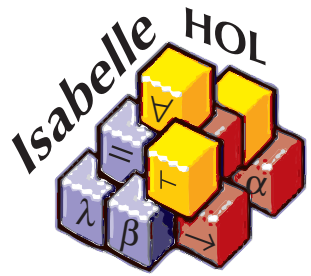

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You aren't losing functionality,
you are losing the illusion that you ever had anything reliable.

— Darren J. Moffat, OpenSolaris developer

Why CVS sucks

Merge fear

cvs: must merge before commit

hg: separates commit - merge - push/pull

Insiders/Outsiders

cvs: Need write access on central server to record history!!!

hg: No outsiders. Anyone can create / share changes

Centralism

cvs: Always need network, slow response

hg: Fully productive anywhere

Empty your mind!

For the rest of this tutorial:

Please **forget** all your cvs/svn knowledge!

Mercurial concepts

Repository: Project sources + history

- local, remote, everywhere
- directory (no big server/database)

  `hg init, hg clone SOURCE`

Changeset: Point in history

- immutable
- globally identified (`a8cb3af50308`)
- relations: parent, children, head, tip

  `commit, push, pull`

Working directory: Where you edit files

- associated to repository & changeset
- state: unchanged/changed

  `commit, update, merge`

Basic Commands

`init`	create empty repository
`clone`	produce identical copy
`update`	update working dir to specific changeset
`commit`	create changeset from working dir
`push,pull`	move changesets between repositories
`merge`	start a merge of two changesets (then: `commit`)
`resolve`	mark conflicts as resolved
`status`	inspect status of files in working dir
`diff`	show diff of uncommitted changes
`(g)log`	show changesets
`serve`	fancy web interface
`revert`	revert files in working dir to some revision
`help COMMAND`	the most important

Example

The Isabelle Repository

```
hg clone http://isabelle.in.tum.de/repos/isabelle
```

Answer questions like

- How old is this function?
- Who wrote this code (Whom can I ask?)

Contribute

- Make changes in your local clone
- Share your local clone (http, email)
- Community can easily review/test/discuss/pull your changes

see: README_REPOSITORY

Changing History

Important

This cannot work once changes have escaped “into the wild”

Repairing major accidents

- E.g., committed your online banking password
- `strip` (removes changesets)

Rebasing changes

- Avoids excessively long edges in the revision graph
- Various extensions, e.g. `mq`

Folding

- `mq`

Configuration

Configuration files

- `~/.hgrc`
- `/path/to/repo/.hg/hgrc`
- key=value format

Activate extensions

```
[extensions]
hgext.graphlog =
```

Set defaults

```
[defaults]
log = -l 5
```

Exercise

Create a child of changeset `A` which has the content of `A`, but with file `f` as in changeset `B`

```
hg up A
hg revert -r B f
hg ci -m "reverted f to B"
```

Thank you!