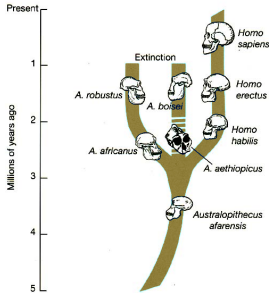


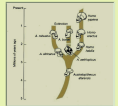
DIKU :: GP&LD, May 2007

Version Control

Marek Kočańczyk
Jagiellonian University, Kraków



"Evolution is cleverer than you are." (Francis Crick)



Purpose

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2007

1 Purpose

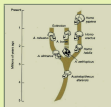
- Collaborative sharing and edition of data.
- Management of changes.

'Collaborative':

It is assumed that project **evolves** over time:
common access for publicly visible modifications.

'Data':

- architectural blueprints,
- diagrams of electronic models,
- configuration files and **source code**.



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2007

2 Purpose

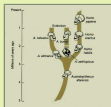
- Collaborative sharing and edition of data.
- **Management of changes.**

Changes are identified at least by:

- revision number (multiple conventions),
- identity of the author of the change.

Actions:

- reverting,
- branching & tagging.



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3 Control models

Distributed

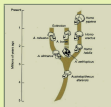
Egalitarian in the p2p sense:

Every working copy is a repo, every repo is a working copy.

- BitKeeper/Git.

Client-Server

- CVS,
- **Subversion (SVN)**,
- ClearCase (by Rational Software).



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2007

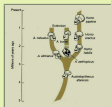
4 Client-Server Models

- Lock-Modify-Unlock
- Copy-Modify-Merge

Only one person is allowed to change a file at a time, after registering a lock.

Locks considered harmful – Problems:

- a lock holder went to Hawaii,
- non-overlapping edits of the same file,
- edits of separate yet dependent file.



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5 Client-Server Models

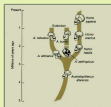
- Lock-Modify-Unlock
- Copy-Modify-Merge

Snapshot of central repository → Personal working copy

Problems:

- disturbing **out-of-dates**,
- most **conflicts** have to be resolved manually,
- **merging hell** when many dependencies.

In practice enables **more smooth** collaboration.



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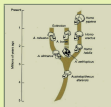
Marek
Kochańczyk,
2007

6 Subversion

Superiority over CVS

- support for binary files,
- designed with networking in mind (delta compression, inetd/apache/svn+ssh),
- atomic commits,
- pre-/post-commit hooks.

Also plethora of GUI frontends and IDE plugins.



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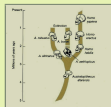
Subversion

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→ Command Line



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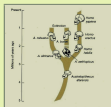
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2007

7 Subversion – cont'd

Good practices

- sane repository layout,
- frequent commits,
- svn commands instead of system commands,
- eventual post-commit hooks.



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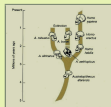
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8 References

- SVN DOCUMENTATION
<http://svnbook.red-bean.com>



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