Fractal Figures: Visualizing Development Effort for CVS Entities

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Vissoft 2005 - 3rd IEEE International Workshop on Visualizing Software for Understanding and Analysis, Budapest, September 25th, 2005

The context

Focus

Development effort and distribution among authors.

Problem

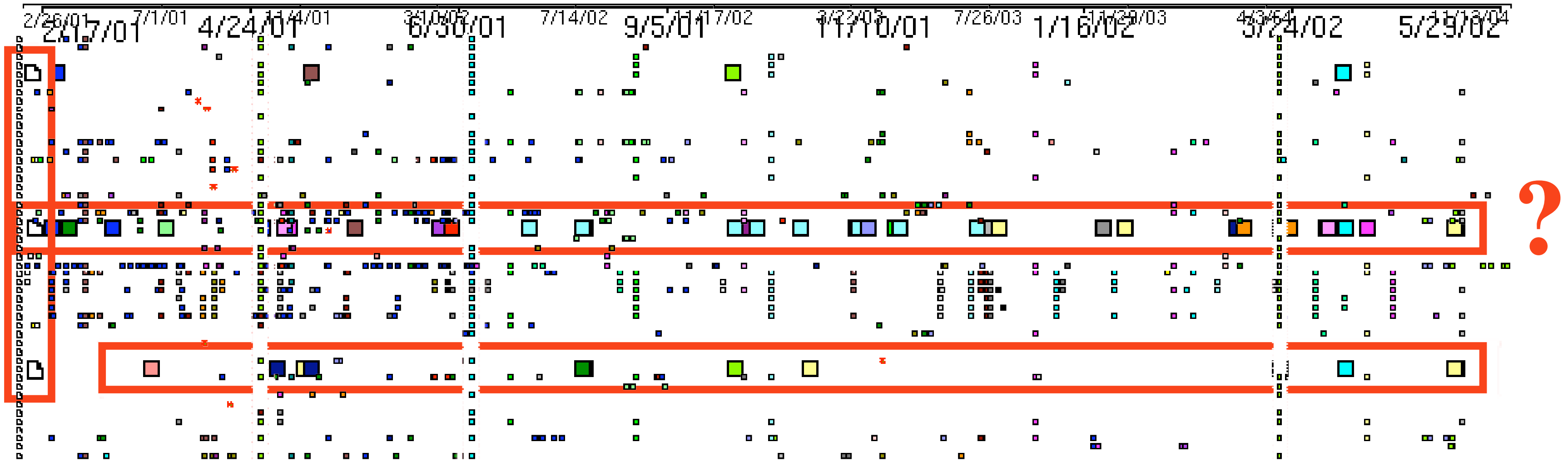
Versioning systems provide scattered information which needs to be aggregated.

Concrete goals

Considering a software entity, we want to know:

1. How much has this entity been changed.
2. By whom.
3. To which extent are certain developers responsible for its evolution.

First solution: the TimeLine View



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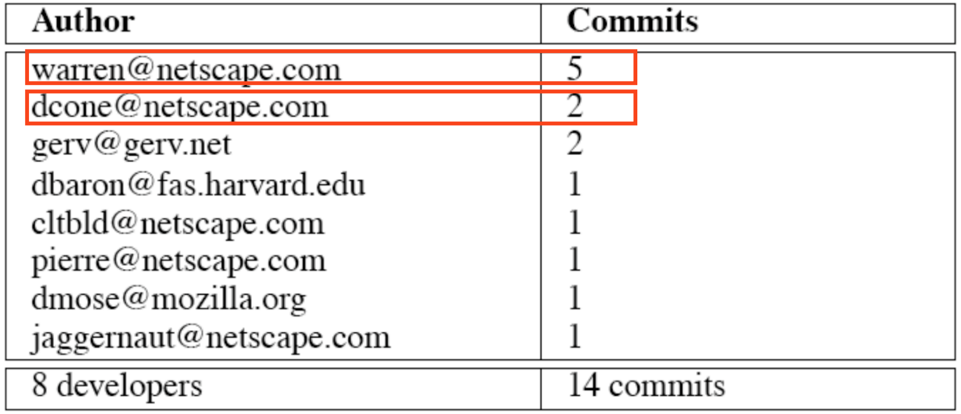
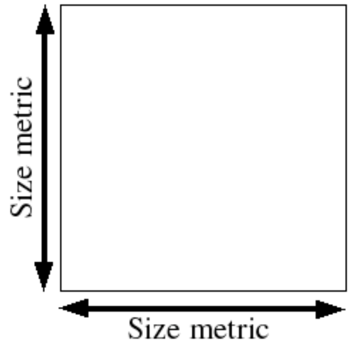
Shortcomings:

- ❑ Development effort and distribution among developers?
- ❑ Scalability?

Second solution: The Fractal Figure



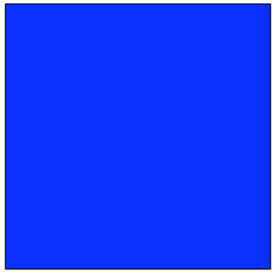
Author	Commits
warren@netscape.com	5
dcone@netscape.com	2
gerv@gerv.net	2
dbaron@fas.harvard.edu	1
cltbld@netscape.com	1
pierre@netscape.com	1
dmose@mozilla.org	1
jaggernaut@netscape.com	1
8 developers	14 commits



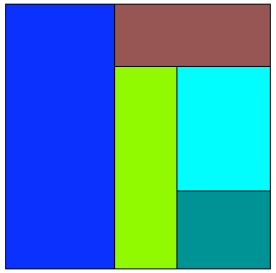
Empty Fractal Figure

Development patterns

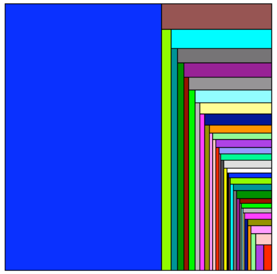
Development patterns based on *gestalt* principles



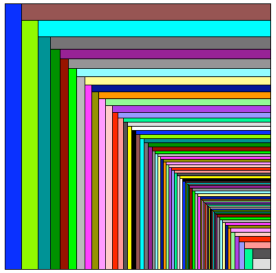
One developer



Few balanced developers



One major and many minor developers

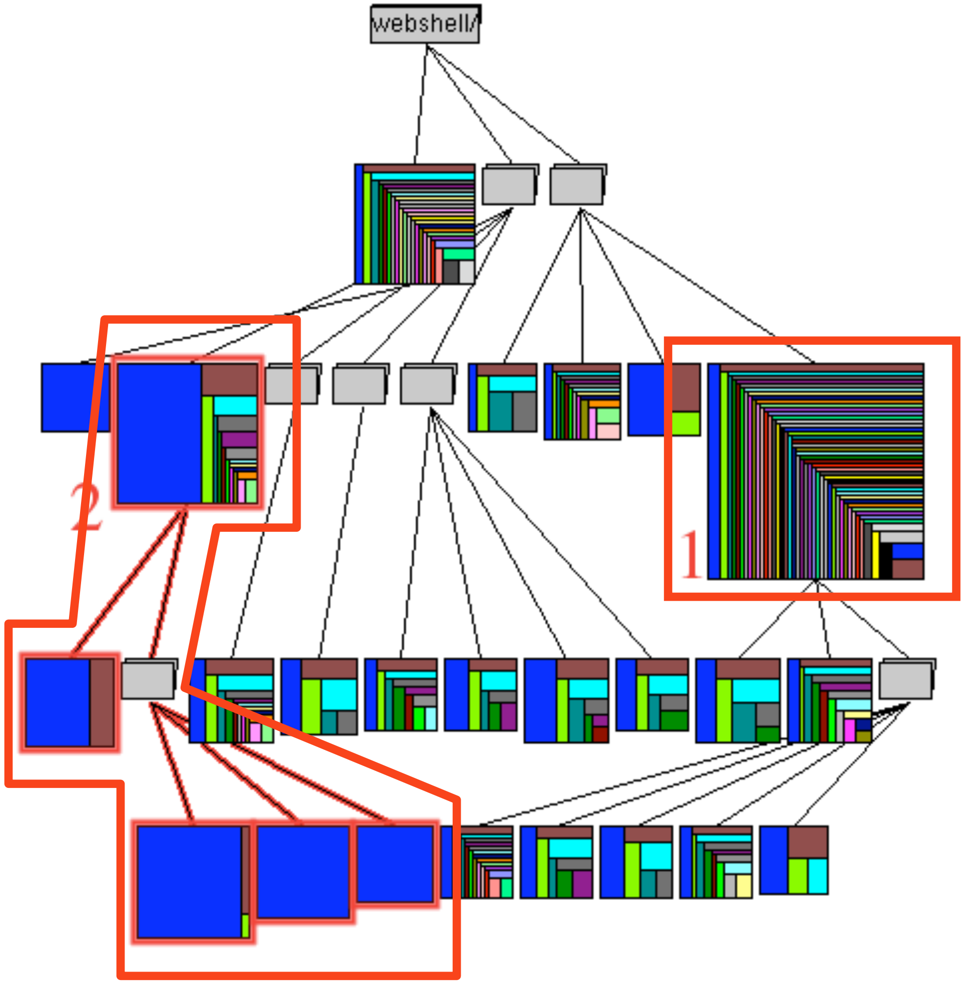


Many balanced developers

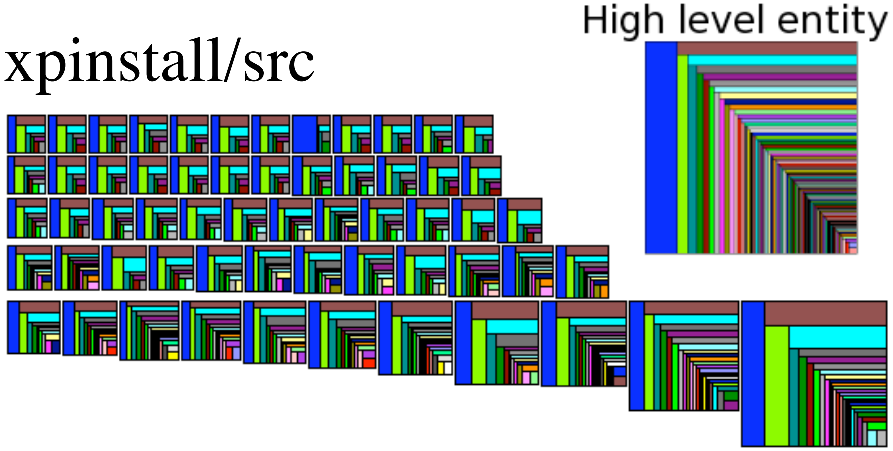
Fractal Figure in action

- Used in combination with *Polymetric View* to exploit their expressive power
- Used to represent Files, Directories and Modules
- Applied to the Mozilla system (> 2MLOC)

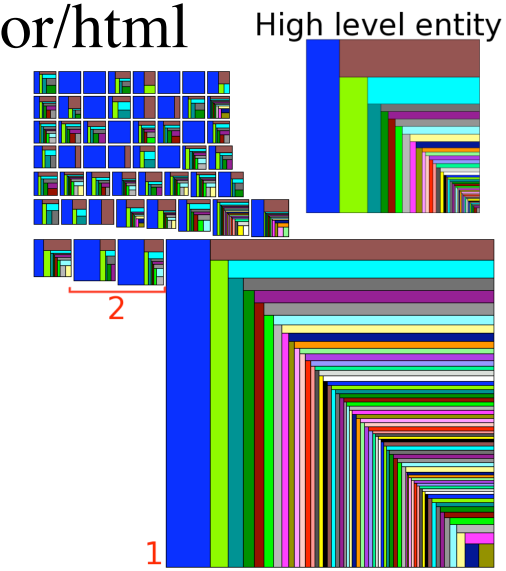
Fractal Figure examples from Mozilla



xpinstall/src



editor/libeditor/html



Conclusion

- Fractal Figures allow:
  - ❑ For *gestalt* impressions to categorize software entities.
  - ❑ The combination with software metrics.
  - ❑ A project manager to assess the current formation of the development teams.