Madagascar LaTeX and Web tools

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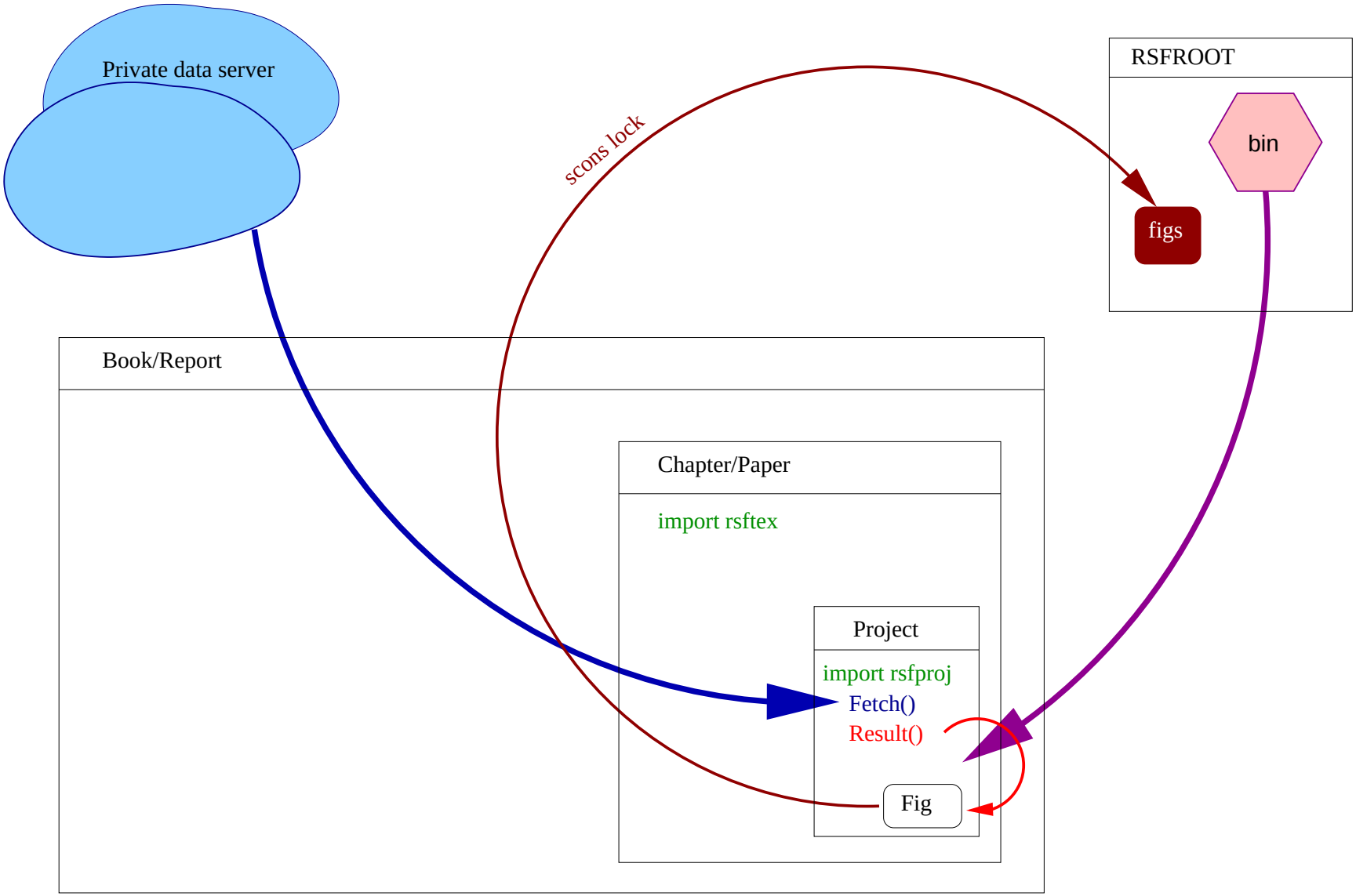
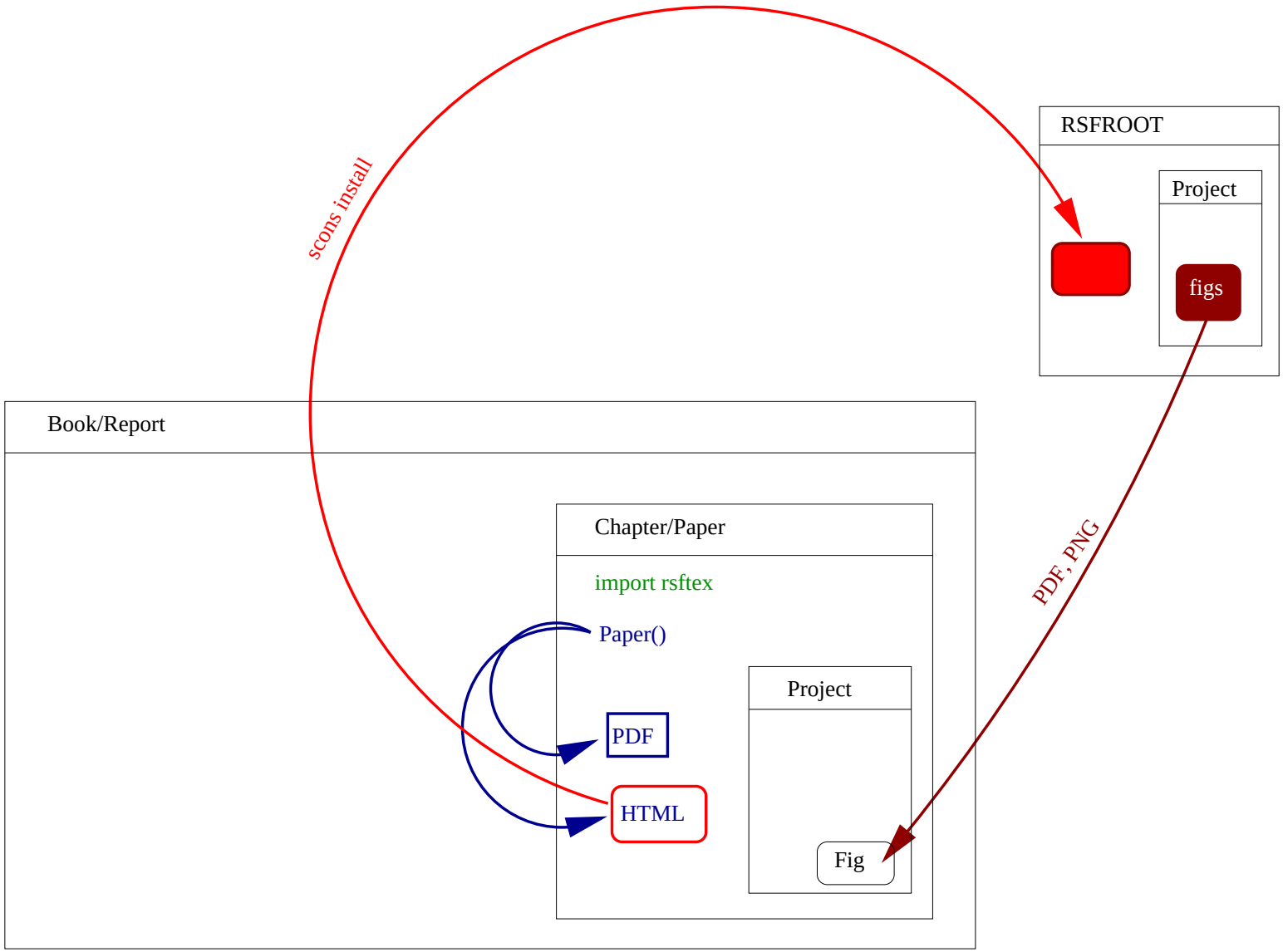
The Big Scheme of Things



The Big Scheme of Things II



Outline

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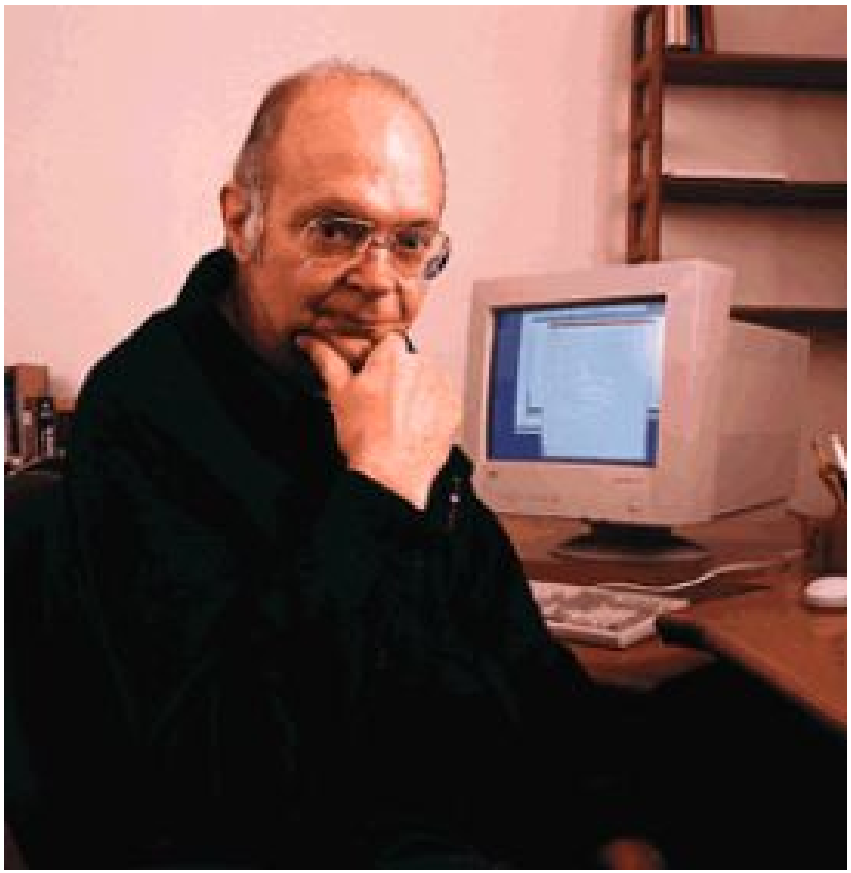

- Documentation system
- Extends TeX
  - “Open source”
  - “Reproducible”
- Descriptive language

SEGTeX

- LaTeX2e package
- In development 2001–Present
- http://segtex.sourceforge.net/
- Multiple purpose
  - *Geophysics* papers
    - Manuscript style
    - Publication style
  - SEG expanded abstracts
  - Other
    - books and reports
    - EAGE publications
    - presentations

Look Inside SEGTeX

- `texmf/`
  - `ls-R` (update with `texconfig rehash`)
  - `tex/latex/seg/`
    - `geophysics.dtx` (literate programming)
    - `geophysics.cls`
    - `seg.sty`
    - `...`
  - `bibtex/bst/seg/`
    - `seg.bst`
    - `seglike.bst` (Joerg Schleicher)
  - `bibtex/bib/seg/`
    - `SEG2005.bib`
    - `SEG.bib`
  - `latex2html/`
    - `perl/geophysics.perl`
    - `icons/`
    - `style.css`

```
%\documentclass[paper]{geophysics}
\documentclass[manuscript,revised]{geophysics}

% An example of defining macros
\newcommand{\rs}[1]{\mathstrut\mbox{\scriptsize\rm #1}}
\newcommand{\rr}[1]{\mbox{\rm #1}}

\begin{document}

\title{An example \emph{Geophysics} article, \\ with a two-line title}

\renewcommand{\thefootnote}{\fnsymbol{footnote}}

\address{
\footnotemark[1]BP UTG, \\
200 Westlake Park Blvd, \\
Houston, TX, 77079 \\
\footnotemark[2]Bureau of Economic Geology, \\
John A. and Katherine G. Jackson School of Geosciences \\
The University of Texas at Austin \\
University Station, Box X \\
Austin, TX 78713-8972}
\author{Joe Dellinger\footnotemark[1] and Sergey Fomel\footnotemark[2]}

\footer{Example}
\lefthead{Dellinger \& Fomel}
\righthead{\emph{Geophysics} example}

\maketitle

\begin{abstract}
  This is an example of using \textsf{geophysics.cls} for writing
  \emph{Geophysics} papers.
\end{abstract}
```

Outline

LaTeX to PDF with SCons

- `scons [paper_name.]ltx`
  - Add preamble and \end{document} to `paper.tex`)
  - Collect figures and convert them to PDF
    - Reproducible Vplot from Madagascar
    - Conditionally reproducible (MATLAB, Mathematica, XFig, ...)
    - Non-reproducible
- `scons [paper_name.]pdf`
  - Generate PDF with `pdflatex`
- `scons [paper_name.]read`
  - Display PDF with `acroread`, `xpdf`, etc.))

```
from rsftex import *

End()
```

SConstruct examples

```
from rsftex import *

Paper('test',options='short')

End(lclass='segabs',use='listings')
```

```
Paper('vancouver',lclass='beamer',use='helvet,hyperref,listings',
      include=r'''
      \mode<presentation>{\usetheme{Madrid}}
      \newcommand{\TEXMF}{%s/texmf}
      ''' % os.environ.get('HOME'))
```

Outline

LaTeX to HTML with SCons

- `scons [paper_name.]html`
  - Create `paper_html` using `latex2html`
  - Convert figures appropriately
  - Link reproducible figures
- `scons [paper_name.]install`
  - Install `paper_html` under `$RSFROOT/doc`
  - See Examples
- `scons [paper_name.]wiki`
  - Convert to MediaWiki format using `latex2wiki`

Outline

Communication Tools

- Mailing Lists
- Forums
- Blog
  - RSS subscription
- Wiki

Lessons

- LaTeX is an old but reliable publication system
- It integrates well with reproducible research

$$R_{j,m}(\omega) = \sum_{n=1}^{N} P_j^{(n)}(\mathbf{x}_R)\, D^{(n)}(\omega)\, P_m^{(n)}(\mathbf{x}_S) \quad . \tag{1}$$