XML Workflows and the EuroTeX 2005 Proceedings

Volker RW Schaa

DANTE e.V.
Heidelberg, Germany

TUG 2005
Wuhan
China P.R.
August, 2005
In 2002 I was appointed as Proceedings Editor for two conferences

Responsibility for preparation of abstract and paper submissions, web presentations, the conference volume (Proceedings), and CD-ROM

When I found that the scale of work for these conferences was too large for manual production:

- **DIPAC2003** 85 papers, 300 pages, 290 authors
- **LINAC2004** 280 papers, 1000 pages, ~1000 authors

and that even bigger conferences like

- **EPAC** 1200 papers, 4000 pages, 3500 authors
- **PAC** 1400 papers, 4800 pages, 4300 authors

were using inadequate tools,

I decided to write scripts which could do the job
the idea

- typesetting: \texttt{PDF\TeX}
- scripting: \texttt{PERL}
- data: \texttt{XML}

the method

- database export in \texttt{XML}
- interpretation of \texttt{XML} by \texttt{PERL} scripts
- transformation to <\texttt{html}> and \texttt{pdf\TeX}

\approx 3\text{ years later:}

- the scripts have been used on 5 conferences,
- they have been extended,
- they are now integral part of the conference software under \texttt{GPL},
- I given several talks about the software (i.e. Practical\TeX\,2004)
- \textbf{but}, I never thought of using it for a \TeX\,conference...
GUTenberg and DANTE organized EuroTeX 2005 in Pont-à-Mousson/France (March, 7–11)

2 weeks before the conference the organizers (we) hadn’t make up their mind about preprints

I volunteered to do it (having my scripts in mind),
then I realized I had to simplify them (sigh).

So what are the differences between particle physics and TeX conferences in input and output?
XML Definition for Particle Physics Conferences

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      <chair person’s data, .../>
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</conference>
New XML Definition for TeX Conferences

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XML Definition for a single paper Particle Physics Conferences

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      <fName>John</fName>
      - <institutions>
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          + <department>AB Department</department>
          + <URL>http://www.cern.ch</URL>
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          + <zip_code>23</zip_code>
          + <country_code abbrev="CH">Switzerland</country_code>
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    + <contributor type="Speaker"></contributor>
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XML Definition for a single paper in \TeX\ Conferences

- `<paper code="MOT02" abstract="yes" pages="12">`  
  `<title>Omega Becomes a Sign Processor</title>`
  `- `<author main="yes">`  
    - `<name>`
      `<initials>Yannis</initials>`
      `<lastname>Haralambous</lastname>`
    `<name>`
  `<author>`
- `<author>`
  - `<name>`
    `<initials>Gábor</initials>`
    `<lastname>Bella</lastname>`
  `<name>`
`</author>`
`</paper>`
Particle Physics Conferences

- Abstracts only – Abstract booklet before conference
- Proceedings after conference
  - 1–3 years using old methods (Word, Quark, VB scripts, . . . )
  - now: 1 week on the web
  - <9 months on paper (mostly due to waiting for special authors)
- CD-ROM (due to the size of proceedings the trend is CD only)

\(\text{T}_{\text{E}}\text{X} \) Conferences

- Abstract (always)
- Papers (>60%) before conference (⇒ Preprints)
- Proceedings volume with all paper up to now only by TUGboat
- no CD-ROM
Contents setup in \LaTeX\ terms

\texttt{\textbackslash frontmatter}

- Conference details
- Committees
- Time table
- Table of contents

\texttt{\textbackslash mainmatter}

- Papers (generated automatically)

\texttt{\textbackslash backmatter}

- Authors
- Participants
- Sponsors, vendors, exhibitors, . . .
- Production notes
What is the script doing?

1. It reads a configuration files with specifications, what to do and where to put files,
2. reads XML and generates `<html>` for
   - Session list,
   - Authors list,
3. generates \pdfTeX wrappers
   - for each single (raw) pdf-file,
   - for proceedings file,
4. writes command files for
   - generating pdf-files with author and title information,
   - building of proceedings file(s).
\documentclass[twoside]{book}
\usepackage[papersize={595pt,792pt}, body={483pt, 680pt},
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\pagestyle{fancy}
\usepackage{pdfpages}

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  /Author (Yannis Haralambous, Gábor Bella)
  /Subject (Preprints Euro\TeX\ 2005 -- Pont-à-Mousson, France)
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\fancyfoot[RE,LO]{\large\sffamily Omega Becomes a Sign Processor\Yannis Haralambous, Gábor Bella}

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  \centering\textsf{\textbf{PAPER NOT YET RECEIVED}}
  \vfill
\end{document}
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}{%
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    \centering\textsf{\textbf{PAPER NOT YET RECEIVED}}
    \vfill
}\end{document}
scaling« is determined by maximum of crop/media-box sizes
Built-in features:

1. Web pages and proceedings honor special characters,
2. Web pages are in Unicode (UTF8),
3. All names get proper accented characters and umlauts,
4. Proper math characters (in abstracts) on web pages,
5. Rule based sorting of names (accented letters, umlauts, …)
Hàn Thế, Thành

**Paper Title**

**TUT07** Experiences with Micro-Typographic Extensions of pdfTEX in Practice

- Thành Hàn Thế

**pdfTEX** provides two micro-typographic extensions: margin kerning (also known as character protrusion) and font expansion. Those extensions have been available for a while, however they are not used much yet, probably due to their complicated setup and not that visible benefits they bring. In this article I want to share some experiences, either good or bad, in using those extensions in practice, the tricky parts of them and how to get the best from what **pdfTEX** offers without having to know all the low-level details and messy font issues.
<table>
<thead>
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<th>Paper</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM01</td>
<td><strong>Use of Optical Transition Radiation Interferometry for Energy Spread And Divergence Measurements</strong></td>
<td>89</td>
</tr>
</tbody>
</table>

- **R.B. Fiorito**, A.G. Shkvarunets  
  IREAP, Institute for Research in Electronics and Applied Physics, University of Maryland, College Park, MD, USA

OTR interferometry (OTRI) has been shown to be an excellent diagnostic for measuring the rms divergence and emittance of relativistic electron beams when the energy spread Δγ/γ is less than the normalized rms divergence σ = γθrms. This is the case for most beams previously diagnosed with OTRI. To extend this diagnostic capability to beams with larger energy spreads, we have calculated the effects of all the parameters effecting the visibility of OTR interferences, V; i.e. energy spread, angular divergence, the ratio of foil separation to wavelength ratio, d/λ and filter bandpass. We have shown that:

1. for a given Δγ/γ, the sensitivity of V to σ is proportional to the observation angle θ₀, the fringe order n and the ratio d/λ;
2. the sensitivity of V to Δγ/γ is independent of θ₀ and n but is proportional to d/λ.

Thus, by adjusting d/λ, and choosing the appropriate fringe order, one can separate out and measure both the energy spread and divergence. However, the filter bandpass must decrease with θ₀ and n. Results of our calculations will be given for various beams of interest.
Click on an author to display a list of papers.
Namespaces for \TeX

Gerd Neugebauer

Namespaces for TeX are a long awaited extension. In this talk the requirements for such an extension are described. Namespaces primarily restrict the visibility of macros and active characters. Thus the probability of name clashes is reduced. As addition one can imagine to apply namespaces to other entities like registers, catcodes etc as well.

\TeX is an attempt to reimplement TeX. The major goals behind the reimplemention are a modular and configurable structure tailored towards experiments and extensibility.

Fortunately the integration of namespaces can be located at very few places in the \TeX architecture. As a consequence an implementation idea for \TeX can be sketched and the experimental implementation in \TeX is shown.

contextgarden.net: The ConTeXt Wiki

Patrick Gundlach

The goal of the contextgarden.net project is to enhance the documentation of ConTeXt. It consists of several web services that together provide the technical framework behind the documentation. A large (and growing) percentage of the supplied content is actually provided by the visitors of the interconnected web sites.

Experiences with Micro-Typographic Extensions of pdfTeX in Practice

Thành Hân Thé

PDF\TeX{ offers two micro-typographic extensions: margin kerning (also known as character protrusion) and font expansion. Those extensions have been available for a while, however they are not used much yet, probably due to their complicated setup and not that visible benefits they bring. In this article I want to share some experiences, either good or bad, in using those extensions in practice, the tricky parts of them and how to get the best from what PDF\TeX offers without having to know all the low-level details and messy font issues.

NewMath and Unicode

Johannes Küster

The “Newmath” project aims at defining and implementing new standard encodings for math fonts, and at the development of accompanying tools and packages. Switching math fonts should be made as easy as switching text fonts. The project stopped in 1998, as efforts were concentrated on the definition of Unicode codepoints.
Hagen, Hans

**Paper**

**TUT03** The 16 Faces of a Dutch Math Journal

- Hans Hagen

Much of what ConTeXt originally provided originated from our daily needs, at that time dictated by educational consultancy and course development. However, the last couple of years most features find their origin in the demands of publishers, users as well as an occasional “Let’s see (prove) if TeX can do it (better)”. One of those is the Dutch Math Society (NAW).

Quite a while ago the Dutch Math Society decided to restyle their journal and the decision was made to use ConTeXt as typesetting engine, one reason being its ability to typeset on a grid and place graphic in columns. Since it happened in the early days of ConTeXt, some of the demands resulted in rather complex and often weird macros.[1]

Advanced mixed font support, magazine-like column features, tight integration with MetaPost, flexible placement of elements etc. are nowadays supported in the kernel in a more natural way, if only because the core of ConTeXt has become more flexible and mature. And so the moment has come to let the editors switch to the reimplemented journal style.

In this talk I will illustrate how needs by demanding users like the Dutch Math Society’s Journal have brought ConTeXt to where it stands today and is heading tomorrow.

[1] These were written by Taco Hoekwater, who did a pretty good job, as proven by the fact that up to date these macros are still in use.

**Page**

89

**XML Workflows and the EuroTeX 2005 Proceedings**
Built-in features:

1. printing of header and footer information,
2. transfer of all meta-information into pdf-file,
3. (down)scaling depending on size of crop/media-box,
4. setting of page numbers after counting of all pages,
5. the author index has links to articles,
6. inclusion of paper or "missing" note,
7. config file with settings for directories, sort-rules, dependencies etc.
### Thursday, March 8

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<tr>
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<td>The 16 Faces of a Dutch Math Journal</td>
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<td>TUT04</td>
<td>Adam Twardoch</td>
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<td></td>
<td>Typographic Perfection with OpenType?</td>
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<tr>
<td>12:30</td>
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<td>14:00</td>
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<td>Gerd Neugebauer</td>
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<td>Namespaces for $\varepsilon \LaTeX$</td>
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<td>14:30</td>
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<td>Patrick Gundlach</td>
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<td>Experiences with Micro-Typographic Extensions of pdf\TeX in Practice</td>
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<td>Coffee Break</td>
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<td>16:00</td>
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<td>Johannes Küster</td>
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<td>NewMath and Unicode</td>
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<td>TUT09</td>
<td>Bogusław Jackowski, Janusz M. Nowacki</td>
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<td>Latin Modern fonts: how less means more</td>
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<tr>
<td>17:00</td>
<td>TUT10</td>
<td>Panel discussion with Hermann Zapf and Donald Knuth</td>
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<td></td>
<td>‘With a little help from the wizards’</td>
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### Wednesday, March 9

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<td>Pro\TeXt, a new \TeX-Collection for Beginners</td>
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<td>WET02</td>
<td>Jean-Michel Hufflen</td>
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<td></td>
<td>Bibliography Styles Easier with MiBib\TeX</td>
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<td>9:30</td>
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<td>Anticipating</td>
</tr>
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</table>
Preprints EuroTeX2005 – Pont-à-Mousson, France

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volker@schaa.de  

Volker RW Schaa  

XML Workflows and the Euro\TeX 2005 Proceedings
One question which arises is, how the macro `\import` interacts with the grouping. The answer to this question is that the import should influence the current group only. Similar to the definition of `\let` the prefix command `\global` can be used to indicate that the imports should be applied globally instead of locally in the current group:

```
\global\import{tex1a.tex, dx2}
```

The macro `\import` has to take into account the `\global` prefix.

Another inference of namespaces and groups can be seen in the following example:

```
\begingroup
  \namespace{one}
  \global\export{\x}
  \edef\x{1}\edef\y{-1}\edef\z{one}
\endgroup
```

Note that the `\export` declaration is preceded by a `\global` modifier. Consider the case that this modifier would not be there. Then the end of the group would revert the meaning of `\export` the previous binding. In general this would destroy the intended meaning. The `\general` modifier ensures that the intended meaning of `\export` survives the end of the group and can be used in subsequent imports.

7 Namespaces and Expansion

Let us consider the following example where a macro with an argument is exported:

```
\begingroup
  \namespace{one}
  \begingroup
    \namespace{two}
    \global\export{\x}
    \edef\x{1}\edef\y{-1}\edef\z{one}
    \global\y{in one}
  \endgroup
  \import{one}
  \def{\y{two}}
\endgroup
```

The intuitive meaning of the last expression `\x\y` is that `\y` is taken from the namespace `two` and `\x` is taken from the outer namespace `one`. Now we follow the expansion carefully:
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<thead>
<tr>
<th>Author</th>
<th>Code</th>
<th>Preprints EuroTeX2005 — Pont-à-Mousson, France</th>
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### Participants List

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<th>Name</th>
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### Preprints EuroTeX2005 – Pont-à-Mousson, France

- **XML Workflows and the EuroTeX 2005 Proceedings**
- **Volker RW Schaa**
The whole exercise was to show that with pdfTeX and the help of Perl we have all means to put proceedings and preprints together in an easy way with a convincing quality in print.

What’s left to do:
- translation of special characters to Unicode has to be extended
- actually there are 65 accented characters,
- 117 special characters,
- 113 math symbols, and
- 39 Greek letters.
- at least one Vietnamese :-(
Thank you!
XML Workflows and the EuroTeX 2005 Proceedings

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DANTE e.V.
Heidelberg, Germany

TUG 2005
Wuhan
China P.R.
August, 2005