TEX Issues and Reviews

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TEX

Per TEX creator, Donald E. Knuth:

*"(TEX is a) typesetting system intended for the **creation of beautiful books** – and especially for books that contain a lot of mathematics."*

(from Preface to "The TEXbook")

Typesetting in TEX

- Create text document, TeX file, with content and formating statements;
- Process TeX source to device independent, dvi, file; may fail and need debugging due to inconsistent formating statements, etc.;
- Convert dvi file to Postscript and further to PDF;

Allows programming in terms of TeX macros
(e.g. LaTeX package)

TEX in PDG

- Main tool in RPP production process;
- Basically plain TeX;
- Some usage of TeXsis (TeX for physicists) package;
- Elaborate PDG TeX macros that allow to produce book, booklet, and web edition formats from the same source file;

Physicists mostly familiar with LaTeX,
much less with plain TeX, and even less with TeXsis;

Main RPP production parts

- Listings:
  - TeX source produced from database by printr RPP program;
  - Data driven reviews inserted from stand alone TeX files;
- Reviews:
  - Decoupled from database;
  - Processed individually;

Listings

- TeX source snippet

```
\hbox to0.1900\Hsize{#\hss}&\hbox to0.0350\Hsize{#\hss}\hskip0.0150\Hsize&%
\hbox to0.0700\Hsize{#\hss}\hskip0.0200\Hsize&\hbox to0.2200\Hsize{\vtop{%
\HalignFill{0.2200} #}\hss}\cr
\noalign{\Cbar}
\NP{10000}%%41 no break, RowPos:  3  1  1
\copy\PropB $-\TK0.13{\displaystyle \TS\pm\TK0.10}{\displaystyle \TS\pm%
\TK0.03}$&$200\TS\pm\TK15$&{\setbox0=\hbox{$^{116}$}\ht0=0pt\box0}&LAI&05%
\ChangeSize{-1}B\ChangeSize{0}&NA48&\cr
```

- Postscript output

β_{CP} from $K^0_L \to e^+e^-e^+e^-$

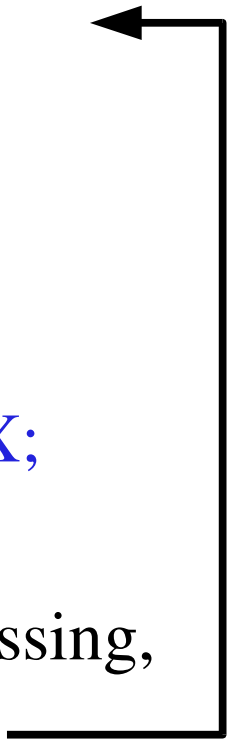
VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
−0.19±0.07 OUR AVERAGE					
−0.13±0.10±0.03	200 ± 15	[116] LAI	05B	NA48	
−0.23±0.09±0.02	441	ALAVI-HARATI	01D	KTEV	M_{ee} >8 MeV/c^2

[116] LAI 05B obtains $\beta_{CP} = -0.13 \pm 0.10$ (stat) if $\gamma_{CP} = 0$ is asumed.

Need frequent TeX-ing during encoding

Reviews

- About 150 to handle;
- Manual, centralized production cycle process. Editor tasks:
  - reviews adopted to individual plain TeX processing;
  - posted as tar archives for download;
  - modified and new reviews processed and posted for referring;
  - new or heavily revised reviews in LaTeX or RevTeX; need translation to TeXsis;
  - iterating adoption, posting for download, RPP processing, posting for verification to implement corrections;



- Manual monitoring process of the reviews status;

Why review authors avoid RPP TeX?

Plain TeX much lower level typesetting than LaTeX:

- Typical elements much harder to construct in TeX:
  - table;
  - equation array;
  - graphics array;

LaTeX

```
\begin{tabular}{ccc}
\hline\hline
Nucleus  & ft\ (sec)  &  $V_{ud}$          \\
\hline
$^{10}C$ & 3039.5(47) & 0.97381(77)(15)(19) \\
$^{14}O$ & 3043.3(19) & 0.97368(39)(15)(19) \\
```

TeX

```
\centerline{
\vbox{
\hsize=0.8\hsize
\halign to \hsize{\strut#&
        \tabskip=.5em plus 1em minus 0.5em
\centertab{#}&
\centertab{#}&
\centertab{#}\tabskip=0pt\cr
\tableheaddoublerule
        &
        \omit\hfill Nucleus \hfill&
        \omit\hfill {\it ft}\ ({\rm sec}) \hfill&
        \omit\hfill $V_{ud}$ \hfill\cr
\tableheadsinglerule
& $^{10}C$ & 3039.5(47) & 0.97381(77)(15)(19)\cr
& $^{14}O$ & 3043.3(19) & 0.97368(39)(15)(19)\cr
```

Other Reviews and TEX Issues

- Manual RPP authors list maintenance and production;
- Manual tables of content;
- Manual indexing;
- Lack of intimate knowledge of RPP TeX macros;

Summary

Need for:

- Deeper familiarity with RPP TeX macros;
- Integration of reviews into database system:
  - status monitoring;
  - decentralized update, posting, refereeing process;
  - authors list maintenance;
- Automation of index, tables of content creation;
- Design of TeX macros convenient for reviews authors to receive new/revised reviews in RPP production format;