

# A short overview of T<sub>E</sub>X and its children . . .

Arno Trautmann\*

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This paper tries to give a short overview of the development of T<sub>E</sub>X. The base frame is taken from the article *A brief history of T<sub>E</sub>X*, volume II by Arthur Reutenauer in the proceedings of EuroBachTeX2007 and his talk there (see references). Additional information is taken from original documentations (see references on page 6) and some review articles. For old, historic information, the *historic archive* maintained by Ulrik Vieth and hosted on ftp.tug.org (see refs) was very useful. Many thanks for that great archive!

All information is up to the date of the generated pdf. Everything here is without guarantee – this is just to get an overview. Consult the references for further (and/or correct) information!

In the tree views (page 3), every node has a tooltip that shows up when you hover the mouse over it. If your pdf viewer does not support this, go to the end of the document, where every tooltip is written in normal text (page 7). I tried to make the graph more readable by using colors:

**normal** (whatever that means)

**important** developments (only in my opinion) – i. e. engines or distributions that had or have a great impact on (everyday) typesetting for a large community

**experimental** developments that might still be under construction or were never used by a large community. Nevertheless, these might be very important to the development of other engines or for use of special typesetting.

**other** programs that are not directly connected to T<sub>E</sub>X but are interesting in the overview, are given in black.

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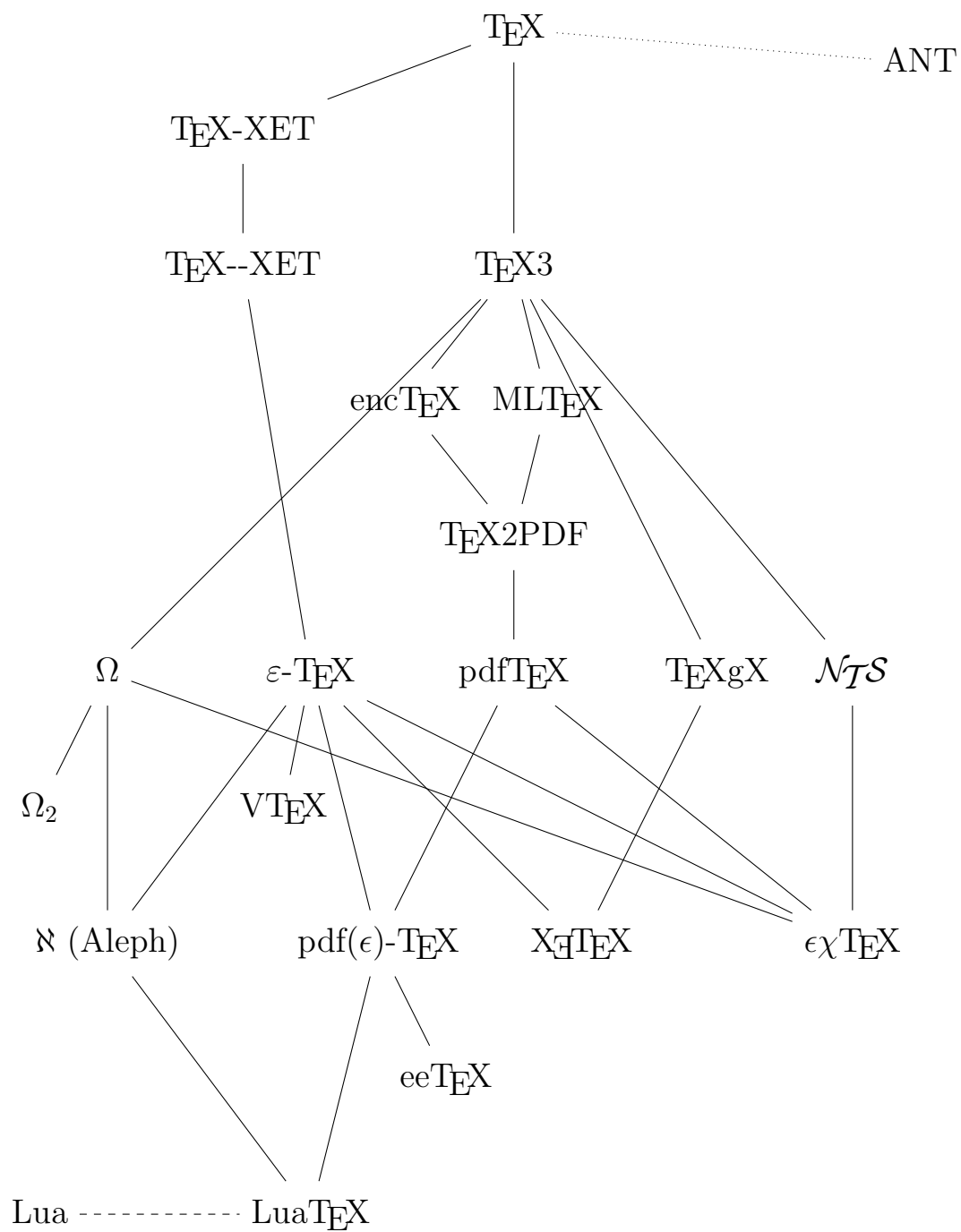
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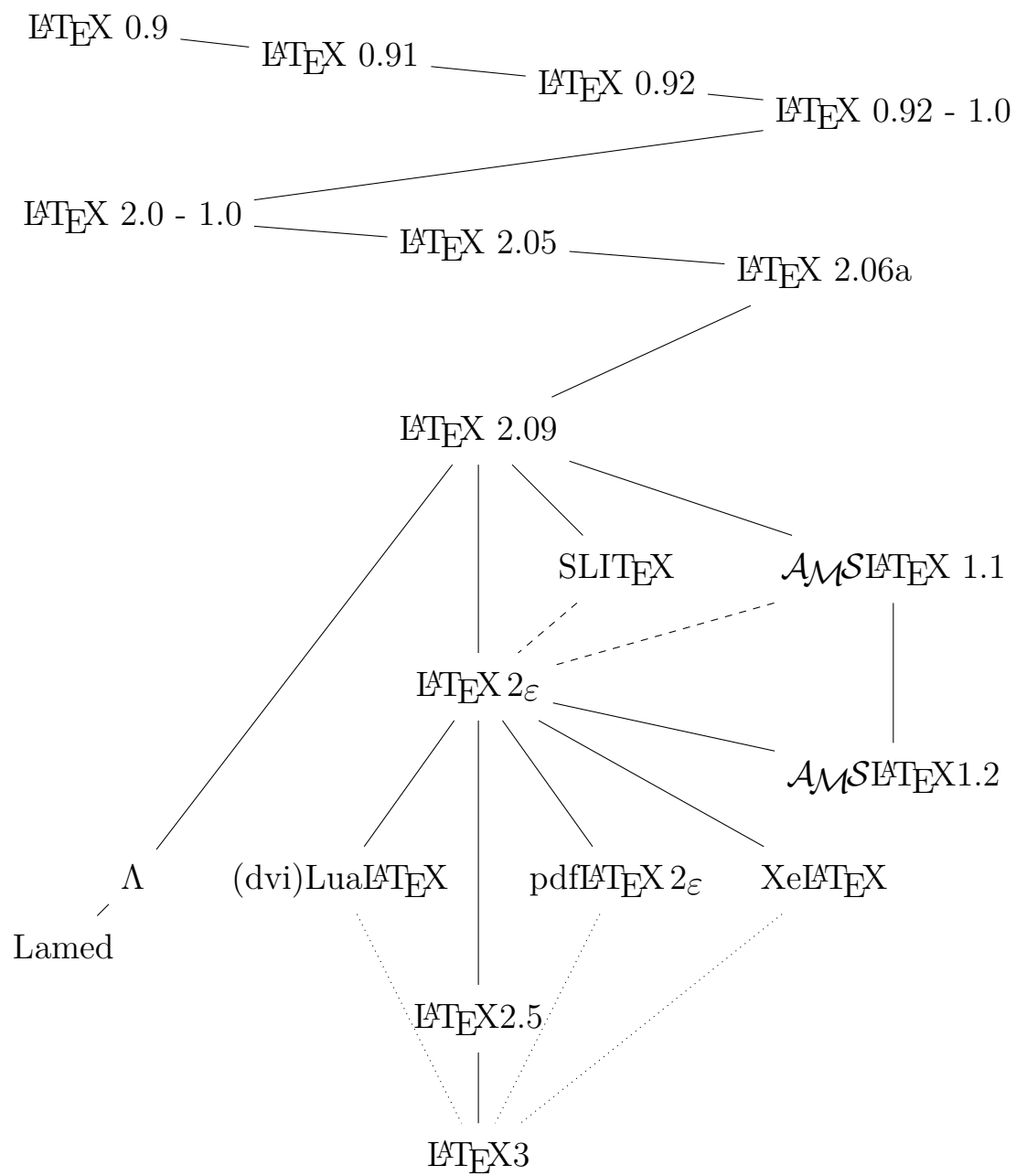
\*arno.trautmann@gmx.de – Please feel free to mail me any suggestions and comments!

## 1 Tree View

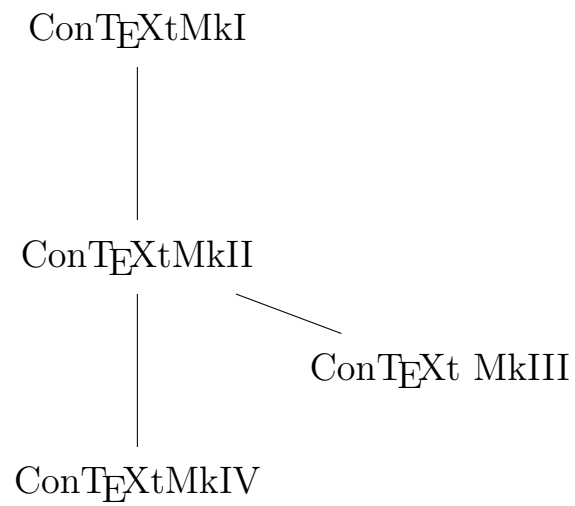
## 1.1 T<sub>E</sub>X – the program, and extensions/derivatives



## 1.2 $\LaTeX$ (Lamport's $\TeX$ ) – a format and large macro package for $\TeX$



### 1.3 ConT<sub>E</sub>Xt (Context = con tex t – text with tex; formerly pragmatex) – the other major format and T<sub>E</sub>X macro package



## References

The references are in order of occurrence in the above document. I.e. if you want information about LuaTeX, it will be below e.g.  $\epsilon$ TeX.

## Books

D.E. Knuth, D. Bibby, and I. Makai. *The TeXbook*. Addison-Wesley Reading, MA, 1986.

F. Mittelbach, M. Goossens, J. Braams, D. Carlisle, C. Rowley, C. Detig, and J. Schrod. *The L<sup>A</sup>T<sub>E</sub>X companion*. Addison-Wesley, 2004.

## Web Sources

### Original Documentation – Engines

ANT project page <http://ant.berlios.de>

MLTeX source (CH file) <http://www.tex.ac.uk/tex-archive/systems/generic/mltex/mltex.ch>

encTeX page <http://www.olsak.net/enctex.html>

$\mathcal{N}\mathcal{T}\mathcal{S}$  project page <http://nts.tug.org>

VT<sub>E</sub>X – official homepage of micropress-inc <http://www.micropress-inc.com/>

$\epsilon\chi$ TeX project page <http://www.extex.org>

eeTeX project page <http://tex.aanhet.net/eetex>

LuaTeX project page <http://www.luatex.org>

### Original Documentation – Makro Packages/Formats

ConTeXt wiki <http://wiki.contextgarden.net>

L<sup>A</sup>TeX project page <http://www.latex-project.org>

L<sup>A</sup>TeX3 project <http://www.latex-project.org/latex3.html>

### Overview Articles

Arthur Reutenauer. A Brief History of TeX. Talk at EuroBachTeX 2007.

<http://www.gust.org.pl/bachotex/EuroBachTeX2007/presentations/bhot.pdf/view>

A Brief History of L<sup>A</sup>TeX <http://www.xent.com/FoRK-archive/feb98/0307.html>

Short Article About Omega And Aleph <http://www.tex.ac.uk/cgi-bin/texfaq2html?label=omegaleph>

Interviews with Will Robertson, Hans Hagen et. al. <http://www.tug.org/interviews>

## Web Archives

Comprehensive TeX Archive Network <http://www.ctan.org>

Historic Archive of TeX Distributions <ftp://ftp.tug.org/historic>

## 2 Text View

## 2.1 $\text{\TeX}$ – the program, and extensions/derivatives

### $\text{\TeX}$

born in 1978

### ANT

Ant is Not  $\text{\TeX}$ . A typesetting system inspired by  $\text{\TeX}$ . Only \*inspired\*, so it has nothing to do with  $\text{\TeX}$  in terms of common code.

### $\text{\TeX-XET}$

The first extension to  $\text{\TeX}$ , 1987. It was able to typeset in two directions, but only with a mark in the dvi to change the direction.

### $\text{\TeX--XET}$

$\text{\TeX-XeT}$  was able to really put the glyphs on the right place in the dvi.

### $\text{\TeX3}$

Ability to handle 8-bit input. 1989.  $\text{\TeX}$  development was frozen in 1991.

### enc $\text{\TeX}$

A small extension to  $\text{\TeX}$ , started 1997. Adds 10 new primitives relating input re-encoding

### ML $\text{\TeX}$

Extension (started 1990) to  $\text{\TeX}$  that allows hyphenation of words with accented letters. (Therefore the name: MultiLInual  $\text{\TeX}$ .) Distributed as a change file to the original WEB sources of  $\text{\TeX}$ .

### $\text{\TeX2PDF}$

Early name for pdf $\text{\TeX}$ .

### $\Omega$

Support for 16bit-unicode-input. Still constrained on the output

### $\varepsilon\text{-}\text{\TeX}$

\*the\* extension to  $\text{\TeX}$ .

### pdf $\text{\TeX}$

A new engine to directly produce pdf-files from  $\text{\TeX}$ , without the need of dvi-ps-pdf. This allows to use microtypographic extensions and many other features of the pdf format.

### $\text{\TeXgX}$

?

### $\mathcal{N}_{TS}$

A project to completely reimplement  $\text{\TeX}$  in Java. Now NTS is officially declared dead.

### $\Omega_2$

A short-time try to pick up the development of Omega again in 2006. Seemed more like a good plan and is now regarded as obsolete. Lua $\text{\TeX}$  is kind of a successor.



## VTeX

VTeX (VisualTeX) can produce pdf, html, svg, dvi or ps output directly from input. In contrast to pdfTeX, it includes a full PostScript interpreter, thus capable to include EPS figures, PStricks etc. First official version I found: February 15, 1999: VTeX 6.3; last official version seems to be from Oct 1, 2005: VTeX 8.61. Commercial product.

## ⋈ (Aleph)

originally named epsilon-Omega, an attempt to stabilize Omega while merging epsilon extensions.

## X<sub>3</sub>TeX

This extension enables full multilingual support for left-to-right typesetting, right-to-left and almost any other possible direction. XeTeX also features support for OpenType and AAT-fonts.

## εXTeX

Planned implementation of a high-quality typesetting system, written in Java. Based on experiences in NTS, eTeX, pdfTeX and Omega. Started in 2003, current version in repository is 0.0. (i. e. not very far ...)

## pdf(ε)-TeX

Merging the pdfTeX engine with the eTeX-extensions. This engine can produce dvi (with or without the eTeX-extensions) as well as pdf (again, with or without extensions).

## eeTeX

Experimental extension to pdfTeX by Taco Hoekwater, created 2000. Distributed as change file.

## Lua

Script language; has nothing to do with TeX!

## LuaTeX

Still in heavy active development, LuaTeX will support unicode, OpenType and totally everything. It features an embedded scripting language, lua, making it easy to extend.

## 2.2 $\LaTeX$ (Lamport's $\TeX$ ) – a format and large macro package for $\TeX$

### $\LaTeX$ 0.9

First version still on web (historic archive, see refs) is 0.9, for use with TeX 0.95. No installation help found. Apparently one needs the files lplain.tex and latex.tex to create the format.

### $\LaTeX$ 0.91

Version 0.91 for use with TeX 0.97 (C) 1983 by Leslie Lamport. Most changes to previous version are in the file lplain.tex.

### $\LaTeX$ 0.92

First version with the @ as letter for internal names. Seemingly first version with a manual. For use with TeX Version 0.999999. (no joke, that's the version number given in the latex.tex file!) (C) 1983 by Leslie Lamport, conversion to 0.92 from 0.91 by Arthur Keller.

### $\LaTeX$ 0.92 - 1.0

Adaption of 0.92 for TeX version 1.0. (C) 1983 by Leslie Lamport, conversion to 0.92 from 0.91 by Arthur Keller.

### $\LaTeX$ 2.0 - 1.0

Seemingly heavy changes compared to 0.92. Version for TeX 1.0. Release of 11 Dec 1983. There were never official versions 1.x

## **L<sup>A</sup>T<sub>E</sub>X 2.05**

No sure information found so far.

## **L<sup>A</sup>T<sub>E</sub>X 2.06a**

Release of version 2.06a of the L<sup>A</sup>T<sub>E</sub>X macros. September 1984.

## **L<sup>A</sup>T<sub>E</sub>X 2.09**

The first official version by Leslie Lamport, 1985.

## **SLI<sub>T</sub>E<sub>X</sub>**

A variation of L<sup>A</sup>T<sub>E</sub>X 2.09 to provide an easy way for producing presentations. In L<sup>A</sup>T<sub>E</sub>X 2e absorbed as a documentclass (slides).

## **A<sub>M</sub>S<sub>L</sub><sup>A</sup>T<sub>E</sub>X 1.1**

A port of Spivak's AMS-<sub>T</sub>E<sub>X</sub> to L<sup>A</sup>T<sub>E</sub>X 2.09, released 1990

## **L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>**

June 1994: New release of L<sup>A</sup>T<sub>E</sub>X to avoid incompatible dialects of L<sup>A</sup>T<sub>E</sub>X 2.09. Introduced by the L<sup>A</sup>T<sub>E</sub>X 3-Team.

## **A<sub>M</sub>S<sub>L</sub><sup>A</sup>T<sub>E</sub>X 1.2**

A port of version 1.1 to L<sup>A</sup>T<sub>E</sub>X 2e by Downes and Jones.

## **pdf<sub>L</sub><sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>**

The standard L<sup>A</sup>T<sub>E</sub>X. If anyone talks about "L<sup>A</sup>T<sub>E</sub>X" it is nearly shure to be this package. pdfL<sup>A</sup>T<sub>E</sub>X 2e produces pdf or dvi output.

## **Xe<sub>L</sub><sup>A</sup>T<sub>E</sub>X**

Using the Xe<sub>T</sub>E<sub>X</sub> engine. There are some special packages that provide easy access to the modern features of Xe<sub>T</sub>E<sub>X</sub>.

## **(dvi)Lua<sub>L</sub><sup>A</sup>T<sub>E</sub>X**

L<sup>A</sup>T<sub>E</sub>X based on Lua<sub>T</sub>E<sub>X</sub> with pdf (standard) or dvi (dviLua<sub>L</sub><sup>A</sup>T<sub>E</sub>X) output. So far, L<sup>A</sup>T<sub>E</sub>X support for Lua<sub>T</sub>E<sub>X</sub> is not very elaborate.

## **Λ**

A L<sup>A</sup>T<sub>E</sub>X-package for the omega-engine.

## **Lamed**

A L<sup>A</sup>T<sub>E</sub>X-package for the aleph-engine.

## **L<sup>A</sup>T<sub>E</sub>X 2.5**

Will Robertson suggested in an interview (see refs) an interim unstable version on the way to L<sup>A</sup>T<sub>E</sub>X 3 with version number 2.5 that should bring package authors towards using L<sup>A</sup>T<sub>E</sub>X 3 syntax. This version should be backwards incompatible to L<sup>A</sup>T<sub>E</sub>X 2e. (This version does not exist in any official plannings, but I liked the idea, so it is mentioned here :) )

## **L<sup>A</sup>T<sub>E</sub>X 3**

The planned successor of L<sup>A</sup>T<sub>E</sub>X 2e. It is planned to implement a very elaborate low-level programming language. The expl3-package provides a test-implementantation that can be used in L<sup>A</sup>T<sub>E</sub>X 2e.

## 2.3 ConT<sub>E</sub>Xt (Context = con tex t – text with tex; formerly pragmatex) – the other major format and T<sub>E</sub>X macro package

### ConT<sub>E</sub>XtMkI

Original ConT<sub>E</sub>Xt with Dutch low level interface.

### ConT<sub>E</sub>XtMkII

ConT<sub>E</sub>Xt with English low level interface. Works with any T<sub>E</sub>X-engine, like LaTeX: T<sub>E</sub>X, e-T<sub>E</sub>X, pdfT<sub>E</sub>X, Aleph, XeT<sub>E</sub>X, ...

### ConT<sub>E</sub>Xt MkIII

Reserved for future use for files supporting XeT<sub>E</sub>X. Was "skipped" for "practical reasons" (Hans Hagen)

### ConT<sub>E</sub>XtMkIV

Specially designed for LuaT<sub>E</sub>X.