Abstracts

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DANIEL FLIPO, Éditorial : le document au XXIe siècle [Editorial: The document in the 21st century]; pp. 5–6

These are the conference proceedings (although not all papers are included here) from GUTenberg's 2001 annual meeting, held in Metz, France, 14–17 May, 2001. The editor begins by recalling Michel Goossens' closing words to his editorial introducing the proceedings from EuroTEX'98 in Saint Malo:

> To conclude, I would like to stress how the enthusiasm of the participants ... has transformed EuroTEX'98 into a real TEX fiesta, proving once more that the Lion and Friends are well-prepared and ready to enter the next millenium with confidence and limitless energy! [*Cahiers* 28/29 March 1998, p. vii]

Flipo then lists the many avenues of ongoing steady progress since that time: pdfTEX, Ω, the annual TEX Live CDs, even a successor to TEX itself.

The remainder of the editorial focuses on the conference and its contributions to that same steady progress. There were three main themes: new TEX developments, electronic documents in education, and back-and-forth conversion between LATEX and XML/MathML. The volume concludes with an article by Hans Hagen regarding the lessons to be learned from the NTS experience.[1]

FRÉDÉRIC BOULANGER, LATEX au pays des tableurs [LATEX in the land of spreadsheets]; pp. 7–16

We show that some spreadsheet-like documents can be handled efficiently with LATEX. The main advantage of this approach is the ability to design separately the computations and the layout of the document.

We begin with a flight log for private pilots, the layout of which is fixed and normalised. Then, we present a document class for paysheets, where some commands are used to define the structure of a paysheet, and a command allows us to edit it according to an already defined structure.

[Author's abstract (edited)]

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[1] Originally appeared in *Die TEXnische Komödie*, no. 1 (2001), pp. 36–53. Also appeared in *TUGboat*, 22 (1/2), March/June 2001, pp. 58–66.

DANIEL TAUPIN, Les polices TTF converties en METAFONT [Converting TTF fonts into METAFONT]; pp. 17–21

Using the `ttf2mf` program by Oleg Motygin, TTF (TrueType) fonts usually available under Windows 9x/NT were converted to METAFONT. Thus, they are now usable under any environment and any TEX/LATEX 2_ε distribution, provided that the METAFONT generator is available, which is usually the case.

In addition, the availability of a symbolic source makes it possible to correct imperfections and to eventually create some missing characters.

[Author's abstract (edited)]

JEAN-MICHEL HUFFLEN, Vers une extension multilingue de BIBTEX [Towards a multilingual BIBTEX extension]; pp. 23–38

This paper describes a multilingual extension to BIBTEX, and how it was implemented. We aimed to meet such user requirements as having the language used for the bibliographical references of a printed work to be in the work's language, as well as the option of having the language of each reference to be that of the reference. Our tool will be able to work with any multilingual LATEX 2_ε package. In addition, our extension allows both existing bibliographical files (`.bib` files) and bibliography style files (`.bst` files) to be processed compatibly.

[Author's abstract (edited)]

JORIS VAN DER HOEVEN, GNU TEXMACS: A free, structured WYSIWYG and technical text editor; pp. 39–50

There is a common belief that WYSIWYG technical editors are not suited for editing structured texts and generating documents of high typographic quality. In this paper, we analyze the reasons behind this belief. We next discuss the program GNU TEXMACS and some of its innovations in relation to the difficulties of structured, WYSIWYG, technical text editing.   [Author's abstract (edited)]

AZZEDDINE LAZREK, Aspects de la problématique de la confection d'une fonte pour les mathématiques arabes [Aspects to creating a font for mathematics in Arabic texts]; pp. 51–62

A good deal of Arabic mathematics texts contain formulas composed with specific symbols set in a text that runs from right to left. Up till now, as far as we know, there has been no system that makes the typesetting of such documents possible. Millions of scholars throughout Arabic countries use handbooks where symbols are still written in by hand.

The system presented in this paper is an attempt to provide the possibility of typesetting such

documents. The capabilities of both TeX and Arab-TeX will be extended to suit this situation.

The Arabic font Naskh designed by K. Lagally for his package ArabTeX and the Computer Modern family designed by D. E. Knuth in METAFONT ... serve as the basic fonts. In math mode, Naskh is adapted to various sizes according to the different positions (normal, super- or subscript, etc.). This font is used to design new signs in different shapes and for abbreviations. The Computer Modern family, especially the Math Symbols and Math Extension fonts, will help build some special symbols via glyph inversion. Many difficulties arise afterwards: heterogeneity of size, bold face level, the position of symbols with respect to the baseline ... shape changes in Arabic characters when passing from text to math mode, to name a few. These difficulties attest to the limits of systems composed for the needs of typesetting mathematica in a Latin language whenever these systems are to be adapted to foreign language contexts.

[Author's abstract (edited)]

JEAN-MICHEL SARLAT and JEAN-PAUL VIGNAULT, TeX dans l'enseignment secondaire, une expérience [TeX in secondary education: An experiment]; pp. 63–69

We present some issues — established facts, thoughts, wishes — with respect to our efforts to introduce TeX to secondary school teachers, as well as providing a server to consolidate various initiatives.

[Translation of French résumé]

YOLAINE BOURDA, Objets pédagogiques, vous avez dit objects pédagogiques ? [Learning objects ... you said 'learning objects'?]; pp. 71–79

Learning objects are currently the subject of numerous standardization projects. Unfortunately, the definition itself of 'learning objects' is still quite fluid.

This article attempts to look at what is meant by learning objects and to ask questions about their level of granularity and structuring.

[Translation of French résumé]

LAURENT ROMARY, Un modèle abstrait pour la représentation de terminologies multilingues informatisées TMF — Terminological Mark-up Framework [An abstract model for representing computerized TMF (Terminological Mark-up Framework) multilingual terminology]; pp. 81–88

We introduce an abstract model for representing computerized multilingual terminologies. This model was developed in XML by Technical Committee 37 of ISO. It relies on a methodology which makes an essential distinction between the general structure of a terminological database and the information units (data categories) that are used to describe the various levels of this structure.

[Author's abstract (edited)]

ÉRIC-OLIVIER LOCHARD and DOMINIQUE TAURISSON, "Le monde selon Arcane" : un paradigme instrumental pour l'édition électronique ["The world according to Arcane": An instrumental paradigm for electronic editing]; pp. 89–105

The World According to Arcane is an operating instrumental paradigm for electronic editing of scientifically established texts and knowledge, currently being used in several scholarly edition projects. The world of knowledge is edited in a database, the architecture of which is both generic (so as to be applicable to numerous domains) and simple (any information is a subject of interest): a multimedia document, a relation between subjects or an enrichment. Internal or external documents are enriched with the editing module, independently of the media and the final publication. The reading module offers very powerful procedures to investigate and browse electronic work: typified links inferred by the architecture, sophisticated indexation, dynamic composition of virtual documents, naturally formulated requests, formal treatments, and reading itineraries. The publishing module allows one to export information in various formats (HTML, XML, TeX), to compose paper books, and to produce electronic books in the form of autonomous applications distributed on CD-ROM, DVD-ROM, web site, or database system.

[Author's abstract (edited)]

DENIS ROEGEL, La géométrie dans l'espace avec METAPOST [Geometry in space with METAPOST]; pp. 107–138

METAPOST is a tool especially well suited for the inclusion of technical drawings in a document. In this article, we show how METAPOST can be used to represent objects in space and especially how it can be used for drawing geometric constructions involving lines, planes, as well as their intersections, orthogonal planes, etc. All the features belong to a new METAPOST package aimed at all those who teach and study geometry.   [Author's abstract]

YANNIS HARALAMBOUS and JOHN PLAICE, Traitement automatique des langues et composition sous Omega [Natural language processing and composition under Omega]; pp. 139–166

While Ω continues to evolve and its functionality expand and diversify, one notices that the

methods used to make it possible to typeset Oriental languages can also be used to resolve problems left unanswered in Occidental languages. The same types of tools that break Thai phrases down into words and then syllables can also be used to determine whether a letter 's' in a German word written in Gothic ought to be long or short. In these two cases, the tool in question is a *morphological analyzer*, often used in a field of study known as Natural Language Processing (*traitement automatique des langues* in French). Thanks to Ω's external OTP (Omega Translation Process), we can integrate such tools into Ω and use them in real time during composition.

In this article we will study six instances where such tools or linguistic methods are used, each varying in complexity and covering a broad range of languages: English, German, Greek, Arabic, Thai and Japanese.

[Translation of text drawn from opening paragraphs]

JEAN-PAUL JORDA, MARIE-LOUISE CHAIX and AHMED MAHBOUB, LaTeX et XML dans la chaîne éditoriale d'EDP Sciences [LaTeX and XML in the production process at EDP Sciences]; pp. 167–179

Recent developments in the use of LaTeX and related tools at EDP Sciences are presented. The production process of the journal *Astronomy and Astrophysics* is described, along with the production and use of XML files generated from LaTeX file headers. [Author's abstract]

ANDRÉ VIOLANTE, Une solution de conversion RTF vers XML/MathML avec publication Web dynamique en XML/MathML [RTF-to-XML/MathML conversion with dynamic Web publication also in XML/MathML]; pp. 181–200

There are several ways to generate HTML web pages containing mathematical material. For this purpose, one almost always needs to statically translate mathematical equations into images, applets or even plug-in data. However, updating the website then becomes an onerous task, while clients will often need special navigation environments.

A rather different approach is to publish "dynamically", directly with XML/MathML — this is possible by using "server-side" technology.

In this presentation, we will present a solution that makes simple XML/MathML generation from RTF files possible, along with quick publication over the Internet (or other) without constraints on the client side. This can be achieved with Cocoon, XSLT and TeX. [Author's abstract (edited)]

CHRIS ROWLEY, XSL FOs and TeX: Some data; pp. 201–204

The XSL FO (Formatting Objects) specification is a noble and inventive project that is maturing into a cornucopia of useful insights and intellectual treats. How can it fail to delight when it formally describes basic properties, such as *visibility*, as 'magic'!

It is therefore a timely, fascinating and pragmatic exercise to analyse the assumptions made by XSL about the process and results of document formatting. This article provids a small amount of the data needed for this analysis by comparing some aspects of the XSL model with that provided by TeX/LaTeX. [Author's abstract]

HANS HAGEN, The status quo of the NTS project; pp. 205–220

A report on the NTS project was presented by Phil Taylor at the previous GUTenberg annual meeting in Toulouse [May 2000; report in *Cahier* 35–36, pp. 53–78]. Hans Hagen, who had been charged by Dante with making an independent audit report on the project, herein presents his views — fairly critical — on the manner in which the project had been conducted; he then proposes to regroup the efforts ot the NTS, Ω and pdfTeX developers to give TeX the successor it deserves.

[Translation of Editor's Note]

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[Compiled by Christina Thiele]