Zpravodaj Československého sdružení uživatelů TeXu

CSTUG editorial board
Selected Abstracts from TeXperience

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4th ConTEXt meeting

Czech Republic, Brejlov (13. - 18. 9. 2010)

1. Hraban Ramm Henning
2. Piotr Strzelczyk
3. Nino Bašić
4. Michael Guravage
5. Mari Voipio
6. Lubor Homolka
7. Wolfgang Schuster
8. Steffen Wolfrum
9. Jano Kula
10. Patrick Gundlach
11. Ulrik Vieth
12. Mojca Miklavec
13. Arthur Reutenauer
14. Willi Egger
15. Hans Hagen
16. Luigi Scarso
17. Taco Hoekwater
18. Alan Braslau
19. Lukáš Procházka
20. Pavneet Arora
21. Milan Stříž
22. Harald König
23. Jaroslav Hajtmar
24. Karel Píška
25. Eva Van Deventer

The remaining participants were invisible ☺

Photo by Frans Goddijn

Programme of ConTEXt meeting and TEXperience

Brejlov 13. – 19. 9. 2010

Monday 13.9.

18:30	**Dinner**			90	
20:00	Taco Hoekwater / Hans Hagen / Mojca Miklavec	ConTeXt installation clinic	workshop	120	

Tuesday 14.9.

8:00	**Breakfast**			60	
09:00		Conference opening		15	
09:15	Arthur Reutenauer	Keynote talk	talk	15	
09:30	Taco Hoekwater	Reference manual update	talk	15	
09:45	Patrick Gundlach	Wiki context reference	talk	15	
10:00	Taco Hoekwater / Hans Hagen	Other documentation news	talk	15	
10:15	Peter Münster (presented by Taco)	Reference syntax in lua	talk	15	
10:30	**Coffee**			30	
11:00	Hans Hagen	Why structure matters	talk	30	
11:30	Wolfgang Schuster	Module documentation	talk	30	
12:00	Hans Hagen	A Context Scoop	talk	30	
12:30	**Lunch**			90	
14:00	Mari Voipio	A Different Philosophy I Thoughts on teaching ConTeXt to non-techies	discussion	30	
14:30	Mari Voipio	Observations on approaches to learning ConTeXt and writing documentation to match	discussion	60	
15:30	**Coffee**			30	
16:00	Wolfgang Schuster	xml interface files and internal module doku (%D, %M etc.)	talk	30	
16:30	Hans Hagen	Requirements For Documentation	talk	30	
17:00	Hans Hagen	My Slowly Growing Test Suite	talk	30	
17:30		Documentation discussion	discussion	60	
18:30	**Dinner**			90	
20:00	Taco Hoekwater	tlcontrib.metatex.org	talk	30	
20:30	Mojca Miklavec	ConTeXt minimals, "Server edition"	talk+discussion	30	
21:00	Patrick Gundlach	contextgarden.net	q&a	30	

Wednesday 15.9.

8:00	**Breakfast**			60	
09:00	Mari Voipio	Uses for ConTeXt in a standard office environment	talk	30	
09:30	Hans Hagen / Mojca Miklavec	The database module, MkIV version	talk	30	
10:00	Hans Hagen	XML processing news	talk+workshop	60	
11:00	**Coffee**			30	
11:30	Alan Braslau	Plotting data with Metafun/Metapost	talk+discussion	45	

12:15	Alan Braslau	Drawing diagrams using the chart module	talk+discussion	45	
13:00	**Lunch**			90	
14:30	Hans Hagen	Font Goodies	talk	30	
15:00	Mojca Miklavec	Some thoughts on typescripts	talk+discussion	60	
16:00	**Coffee**			30	
16:30	Aditya Mahajan (presented by Luigi)	Beg, borrow, and steal – running external filters in ConTeXt	talk	30	
17:00	Alan Braslau	Drawing chemical structures using ppchTeX	talk	30	
17:30	Wolfgang Schuster	The letter module	talk+workshop	90	
19:00	**Dinner**			90	
20:30	Luigi Scarso	modules_mkiv	talk	30	
21:00	Hans Hagen	Document workflow	tutorial	30	
21:30	Hans Hagen	Whatever You Want To Know	q&a	90	

Thursday 16.9.

8:00	**Breakfast**			60	
09:00	Luigi Scarso	Souvenir d'Italie	talk	30	
09:30	Hans Hagen	Context Lua Documents	talk	30	
10:00	**Coffee**			30	
10:30	Taco Hoekwater	Escrito	talk	30	
11:00	Patrick Gundlach	LuaTeX without TeX – or: the hidden beauty of TeX	talk	45	
11:45	Aditya Mahajan (presented by Taco)	Math wishlist	discussion	30	
12:15	**Lunch**			75	
13:30		Relax time to be announced (trip, walk, excursion)			

Friday 17.9.

8:00	**Breakfast**			90	
09:30	Hans Hagen	How Luatex and Context Proceed	talk	30	
10:00	Taco Hoekwater	The current state of LuaTeX	talk	30	
10:30	Taco Hoekwater	Metapost developments	talk	30	
11:00	**Coffee**			30	
11:30	Arthur Reutenauer	The ever-regenerating hydra: hyphenation patterns in Unicode, and beyond	talk	30	
12:00	David Březina	General issues in multi-script typography	talk	45	
12:45	Ulrik Vieth	Experiences typesetting OpenType math with LuaLaTeX and XeLaTeX	talk	30	
13:15	**Lunch**			90	
14:45	Karel Píška	Fonts with complex OpenType tables	talk	30	
15:15	David Březina	Skolar – Designing a Typeface for Academic Publications: `http://www.type-together.com/Skolar`	talk	30	
15:45	Piotr Strzelczyk	Short info about new release of Antykwa Półtawskiego font	talk	30	
16:15	**Coffee**			30	
16:45	Luigi Scarso	Playing with Flash in ConTeXt-mkiv	talk	30	
17:15	Karel Horák	Do it better ...	talk	30	

17:45	Taco Hoekwater	Lua for Beginners	workshop	60	
18:45		Conference close		15	
19:00	**Dinner**			90	
20:30	Taco Hoekwater	Lua for Beginners	workshop	30	
21:00	Taco Hoekwater	Metapost details	demo	30	

Saturday 18.9.

8:00	**Breakfast**			60	
09:00	Taco Hoekwater	Lua for font lovers	workshop	90	
10:30	**Coffee**			30	
11:00	Willi Egger	Arranging Pages for Printing + Creating a Flyer	talk+workshop	90	
12:30	**Lunch**			90	
14:00	John Haltiwanger	Subtext: A Proposed Processual Grammar for a Multi-Output Pre-Format	talk	30	
14:30	Idris Samawi Hamid (presented by Taco)	Oriental TeX crosses the Rubicon. Advanced Qur?anic Typesetting in MkIV.	talk	30	English
15:00	Hans Hagen	Arabic paragraphs	talk	15	English
15:15	**Coffee**			30	
15:45		Opening TeXperience 2010		10	
15:55	Jaroslav Hajtmar	The ScanCSV.lua Library: `http://public.hajtmar.com/files/tex/scancsv.lua/demo-scancsv.lua.zip`	talk	45	Czech/English
16:40	Tomáš Hála	Marking of Proof-sheets in Publishing Practice and Its Implementation in TeX System	talk	20	Czech
17:00	Roman Trušník	Typesetting Bibliography of American Literature in Czech Translation: 2000 & 2010	talk	30	English
17:30	Jan Přichystal	TeX Typesetting on Web: `http://tex.mendelu.cz/en`	talk	30	English
18:00	**Dinner**			90	
19:30	Zdeněk Wagner / Anshuman Pandey / Jaya Saraswati	Xindy Sort and Merge Rules for Indic languages: `http://icebearsoft.euweb.cz/xindy-devanagari`	talk	60	English
20:30	**Late tea**			15	
20:45		TeXperience 2010 Book Contest		30	Czech
21:15	Milan Štourač	Introducing New Traveler's Book		15	Czech
21:30	Milan Štourač	Wanderer's Notebook: Iran and Azerbaijan		90	Czech

Sunday 19.9.

8:00	**Breakfast**			60	
09:00	Petr Olšák	Typesetting Math: Internal Algorithms in TeX	tutorial	90	Czech
10:30	**Tea**			15	
10:45	Jan Štěpnicka / Jan Šustek	Using TeX for Organizing International Mathematical Competition	talk	45	Czech
11:30	Mirek Olšák	CerTeXicate – Online Printing of High School Certificates	talk	15	Czech
11:45	Jan Šustek	Macros Which Handle Arithmetics with Big Numbers	talk	15	English/Czech
12:00	Jan Štěpnička	LaTeX2rtf – TeX in Building Industry	talk	15	Czech
12:15	Miloš Brejcha	Pilsen – Venue for TeXperience 2011: `http://www.plzen.eu`	talk	15	Czech
12:30		Viva TeXperience 2011!			
12:30	**Lunch**			90	

Selected Abstracts from TEXperience

Jan Štěpnička, Jan Šustek:
Using TEX for Organizing Vojtěch Jarník International Mathematical Competition

The University of Ostrava organizes Vojtěch Jarník International Mathematical Competition every year. Organization of the competition contains of many tasks. A large part of them is done by TEX. On the lecture we briefly present the whole process from registration of participants to putting the results on the Internet. We describe several parts which can be useful for other TEX users:

- during generation of the printing before the competition: simple loading of data from database, writing Unicode characters to a file or generating pseudorandom numbers,
- during procession of problems proposed for the competition: using a single source file for six different outputs or simple ignoring of macros and environments,
- during procession of results of the competition: loading results from spreadsheet or generation of diplomas.

It is likely that some of these parts are already implemented somewhere in the set of LATEX packages. In this case the lecture shows an alternative approach.

Zdeněk Wagner, Anshuman Pandey and Jaya Saraswati:
Development of xindy Sort and Merge Rules for Indic languages

An index is an important part of a book or a longer document. Normally in the past the index was prepared using the MakeIndex program which offered sorting according to English and German rules. A derived program called CsIndex allowed for the preparation of indices in the Czech and Slovak languages. Sorting in other languages was difficult because the algorithm was hard coded in the C program. The situation was changed in MakeIndex 3.x which is now superseded by xindy. The sorting algorithm is now defined in tables that are present in standalone modules.

This contribution shows how xindy features can be deployed in sorting Indic languages where complex scripts are used. Since the original TEX was unaware of Unicode, transliteration schemes were introduced in the past. XETEX is quite popular mainly among new users and the transliteration systems are still in current use. Xindy is able to handle the input in the transliteration as well as the UTF-8 encoded text. The algorithm is demonstrated in the Hindi and Marathi languages. It also shows how xindy integrates with different TEX engines.

David Březina:
Skolar – Designing a Typeface for Academic Publications
Skolar is a text serif, originally designed with scholarly and multilingual publications in mind. The typeface maintains its credibility while incorporating a subtle personal style, neither neutral nor conspicuous.

Prominent serifs and low-contrast modulation add to its robustness, and, together with a relatively large x-height, improve the typeface's readability in small sizes. This family of three weights with their respective italics and large character set is flexible enough for complex text settings and editorial work. It also becomes distinctive in bigger sizes, fitting the demands of corporate design.

There have been many practical solutions introduced in the typeface; the capitals are rather low in comparison to the ascenders. This gives the typeface even texture and more space for capital diacritical marks. The italic has a shallow angle and large counters for better readability in small print. It is easily recognized but not ostentatious, blending well with the uprights. Semibold is weighted to emphasize text blocks, where Bold is intended for word clusters. The family includes a complex set of smart arrows which can be easily keyed and infinitely combined using OpenType features. It was released with TypeTogether and it is available for web using Typekit as well.

Roman Trušník:
Typesetting *Bibliography of American Literature in Czech Translation: 2000 & 2010*
After the experience with data processing and typesetting the first part of *Bibliography of American Literature in Czech Translation* (Olomouc: Votobia 2000, 3 volumes, 1882 pages) in the late 1990s in Aldus PageMaker 5.0, new possibilities were explored before the preparation of the second part (to be published in 2010). The paper deals with the issues that had to be addressed as requirements included seamless processing of large multi-language multi-alphabet multi-font structured documents. After extensive testing (several monographs and volumes of conference proceedings, *Moravian Journal of Literature and Film*), XeLaTeX was adopted as the typesetting platform for the project.

Jan Přichystal: TeX Typesetting on Web: tex.mendelu.cz/en
This talk introduces web application TeXonWeb. This interface helps beginners to start with typesetting system TeX offering them easy to access and easy to use editor, TeX compiler, code wizards and document templates. Application could also be helpful in situations when user wants to produce high-quality document but no computer with TeX is available. Introduction to used technologies, features and future visions will also be included.

Jaroslav Hajtmar: The ScanCSV.lua Library
In computerised data processing, data stored in CSV files (Comma Separated Values) are used frequently. The presentation describes the author's library ScanCSV.lua and the method of its creation. The practical examples of its use in ConTeXt MkIV will also be demonstrated. The author shows how easy and swift is to create reports, letters, forms, certificates, invitations, business cards, double-sided cards, tables, animations, etc. using external CSV databases. Users of ConTeXt MkIV (but LuaLaTeX and LuaTeX too) can practically use data from external CSV tables in own documents through the TeX macros built by this library on-the-fly. It also means that we have this data available in an attractive, simple and natural way.

Jan Šustek: Macros That Handle Arithmetics with Big Numbers
In procedural programming languages a program calls functions with their arguments and the functions return their result. To avoid collisions, functions have their local variables. Result of a function is one of the local variables, but one can see it "nonlocally" immediately after the function call.

On the contrary, programming in TeX is based on expansions. Sequence of tokens is repeatedly expanded and when a particular token cannot be expanded, the main processor does the corresponing activity. The concept of result of a function does not make sense in TeX. If a definition, counter etc. is not local, then it is global.

We will show how it is possible, using expansions in TeX, to simulate function calls similarly as in procedural programming languages. The problem of (non)-local variables arises when one function calls another function. In this situation one can bypass the problem by a neat choice of macro names. But this is a nonnatural procedure and in the case when a function calls recursively itself it is not possible.

When one works with big numbers on computer, array is the most suitable data structure. Usual procedural programming languages know arrays. TeX primarily does not know arrays. We show one of possilble implementations of arrays in TeX. This implementation, however, is not good for sending the values between function. Hence we show another data structure and functions for conversion between different data structures. It is senseless to write that decadic expansion is not suitable.

As a demonstration of the mentioned function calls we implemented functions from number theory. The following short programs allows us to decide whether c is composite.

$$c = (2^{107} - 1)(2^{127} - 1) =$$

$$= 2760698538716225514973902344910793166845871614262060116995480300080332 9$$

```
\SET\a\POWER(2)(107)
\SET\a\SUBTRACT[\a](1)
\SET\b\POWER(2)(127)
\SET\b\SUBTRACT[\b](1)
\SET\c\ULTIPLY[\a][\b]
\ArrayToPrint\c\c
\SHOW c
\SET\r\ISCOMPOSITE(\c)
\SHOW r
\bye
```

Function `\ISCOMPOSITE` performs Fermat test calling function `\FERMAT`, which computes power in modular arithmetic calling function `\POWERMOD`, which multiples its arguments calling function `\SQUAREMOD`, which, when looking for remainder, uses division calling function `\DIVIDE`, which uses subtraction calling function `\SUBTRACT`.