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TUG 2002, Thiruvananthapuram

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This past spring at BachoT_EX Kaveh Bazargan made a presentation for TUG 2002 to be held this year in India; the first time a TUG conference has been held outside North America or Europe. As he spoke I smiled and conjured up images of far off Asia, but my mind said, “Impossible.” Well, as time went on, I found myself musing more and more on the upcoming conference and India, then I recalled a few lines from a book written by G.K.Chesterton entitled *Orthodoxy*:

“What could be more delightful than to have in the same few minutes all the fascinating terrors of going abroad combined with all the humane security of coming home again? . . . How can we contrive to be at once astonished at the world and yet at home in it?”

The thought of going to far off and exotic India with a group of people I know and whose company I enjoy, and to be immersed in T_EX, was becoming irresistible. I quickly succumbed to this unique opportunity and began making plans. Thankfully, I found traveling companions in Hans Hagen and Fabrice Popineau. Hans and my trip began when we flew from Amsterdam to Paris; there we met Fabrice for the long-haul flight to Comumbo Sri Lanka, and then the final leg to Trivandrum India. During the flight Both Hans and Fabrice worked on their presentations, while I was confirmed as an unrehabilitated movie addict.

After our long flight and a wait at the luggage carousel where, for a moment, we wondered whether our bags had arrived, it was a pleasure to see Kaveh’s smiling face as we left the airport. Trivandrum, or Thiruvananthapuram, is the capital of Kerala State in South India. Built on seven hills, its name means, “city of the sacred snake” named after a hydra like serpent from Hindu mythology.

We, along with nearly all the other foreign guests, stayed at the Hotel Samudra in Kovalam some 17 kilometers south of Trivandrum, a half hour drive from the airport. Kovalam consists of three small crescent shaped beaches on the Arabian sea. The hotel, run by the Kerala Tourist Development Commission, is located on a hill overlooking one of these idyllic beaches.

The Indian T_EX Users group, The Indian chapter of the Free Software Foundation, and the Kerala State Department of Information Technology organized conference, whose venue was a high tech office complex called Technopark located slightly north of Trivandrum in Koryavattom. Every detail of the conference was meticulously organized; for example, air conditioned bus was put at our disposal for the forty minute commute from our hotel to the conference venue and back everyday. For those unfamiliar with Indian traffic, each trip made us grateful we were not in the driver’s seat.

For a tourist, driving in India is a truly terrifying experience. Image a narrow two lane highway where the center line is a mere suggestion, and on which pedestrians, bicycles, bullock carts, various household pets, motorcycles, rickshaws, autos, lorries, busses, and the odd elephant all vie for position. The center line becomes a de facto passing lane, which means that passing vehicles are separated by a mere hand’s breath. As a result, automobiles have no side view mirrors, or, if they do, they are neatly folded in. To announce his presence, and his intention to pass, a driver toots his horn. I am convinced that Indians replace their horns more often than their tires. Still, for all the chaos and clamor, we never saw a traffic jam, a irate motorist, or an accident.

Tutorials

Once at Technopark, the 63 delegates from 13 countries, settled down to a program of tutorials and presentations. Four tutorials given in the two days preceding the conference proper. On Sunday C.V. Radhakrishnan, Kaveh Bazargan’s partner in Focal Image India, conducted an introduction to T_EX and L_AT_EX. Monday morning C.V. Radhakrishnan spoke again, this time describing Focal Image’s document work flow for typesetting L_AT_EX documents. Monday afternoon Hans Hagen traced METAPOST’s history and its place in the T_EX family tree and, with help from examples from his METAFUN manual, showed how METAPOST graphics can easily be included in ConT_EXt documents. Tuesday, Sebastian Rahtz and Lou Bernard presented a full day tutorial on the Text Encoding Initiative (TEI). In the morning they showed how encoding, i.e. markup, makes a text’s implicit structure and content explicit. This encoding is later used to analyze the text to

provide multiple readings. Interestingly, a TEI DTD is a hierarchy of core, base, and auxiliary modules which together comprise an encoding tailored to a specific task – see their pizza metaphor for composing a DTD at www.tei-c.org/pizza.html. In the afternoon we surveyed the XSL family of tools including: XSLT, XPATH, and XSL FO.

Day One – Wednesday

The conference proper began Wednesday morning. An elephant sporting a T_EX banner and a musical ensemble of traditional horns and drums called a *panchavadyam* greeted participants at the conference venue. Satish Babu, head of the Organizing Committee, chaired the opening session. Short addresses were given by two major conference sponsors: Ajay Shah from the Indian Ministry of Finance and Dr. K.R.Srivathsan from the International Institute for Information Technology and Management. The first keynote speaker, Ajit Ranade, a chief economist at ANB AMRO, presented an overview of economic climate in India, and a detailed look into the Indian software industry and its consequences for T_EX. He estimates that 8000 people in India currently earn their living using T_EX. S. Rajkumar from Linuxense Information Systems followed with a paper entitled, ‘Indic typesetting – Challenges and Opportunities’ where in he described the intrinsic complexity of Indic scripts, and the special processing necessary to transform them from Unicode text to font metrics T_EX can use. Of the 5000 commercial Indic fonts available, only 20 are available in T_EX. Next, Amitabh Trehan from the Mahatma Gandhi Antarrashtriya Hindi Vishwavidyalaya in Delhi presented a paper entitled ‘Typesetting in Hindi, Sanskrit and Persian.’ He suggested that the future of T_EX is bound to its ability to typeset multiple languages. As proof, he showed a book of Indian verse completely typeset in L^AT_EX using the devnag, sanskrit, and ArabT_EX packages. Continuing her work first presented at BacoT_EX earlier this year, Gyöngyi Bujdosó told delegates about her continuing work to instruct L^AT_EX in the subtleties of Hungarian typographical conventions. After lunch Satish Babu from the Computer Society of India spoke about, ‘New Horizons of Free Software.’ India’s insatiable appetite for software, her populous and well educated work force, and her relatively low per capita income combine to make Free Software an essential model for software development on the subcontinent. With ‘The Tao of Fonts’ Wlodzimierz Bzyl combined METAFONT and type 3 fonts to dazzle us with a variety of unique letter shapes – including hexagrams from the Chinese book of changes (I Ching). The first day ended with Roozbeh Pournader from the Sharif University of Technology in Tehran presenting a paper entitled, ‘Unicode, the Moving Target.’ He began by describing

the Unicode standard and several recently introduced features, he went on to enumerate several new requirements for Omega, and concluded by reiterating how important standards are.

Day Two – Thursday

The keynote speaker Thursday morning was Hans Hagen who, in his talk entitled ‘ConT_EXt XML and T_EX’, spoke about the current expectations of educational publishers and DTP. With an example from the journal of the Dutch Mathematical Society, Hans showed how ConT_EXt supports XML driven document workflows that produces high quality output to rival or exceed that produced by commercial DTP systems. In a talk entitled, ‘Revisiting WYSIWYG Paradigms for Authoring L^AT_EX’, Kavid Kastrup compared five WYSIWYG-like T_EX editing systems for ease of use and fidelity of visual feedback. Next, Ross More from Macquarie University in Sydney spoke about ‘serendiPDF with searchable math-fields in PDF documents.’ By storing the L^AT_EX source for a math environment in a hidden field inside a PDF document, Acrobat Reader can be persuaded to display the L^AT_EX source, which can be copied and pasted into other documents. Stephen Watt from the University of Western Ontario followed with his paper entitled, ‘Conserving Implicit Mathematical Semantics in Conversion between T_EX and MathML.’ High level semantics are lost in the standard translation procedure that recursively expands every macro before translation. Alternatively, translations based on an isomorphic mapping between higher order structures, e.g. T_EX macros and XLST templates, can preserve the mathematical semantics. Some may remember Karel Piská’s talk at BacoT_EX where he compared CM and EC Type 1 fonts. This afternoon Karel, from the Czech Academy of Sciences Institute of Physics, presented his work entitled, ‘A Conversion of Public Indic Fonts from METAFONT into Type 1 Format with T_EXTRACE.’ Taking the METAFONT sources for some 55 Indic fonts, he corrected and simplified the resulting outline paths to produce scalable versions for inclusion in PDF documents. Next, Behdad Esfahbod from the Sharif University of Technology in Tehran spoke about ‘FarsiT_EX and the Iranian T_EX Community.’ The advent of PDF has induced the FarsiT_EX project team to include PostScript Type 1 fonts in the newest release. The Persian character set and its inherent semantics make a special text editor an essential part of the FarsiT_EX system. However, supporting the bidirectional character of Persian in the editor remains problematic. Dennis Roegel from LORIA France presented, ‘MetaObj’: Very High-Level Objects in METAPost.’ He explained the structure and use of MetaObj’s standard object classes which includes, among other things, boxes, containers, and trees.

Karel Skoupy from ZTH in Zurich ended the day's lectures with his proposal for a, 'New Typesetting Language and System Architecture.' Besides supporting multiple input and output formats, a new 'modular' architecture should have a single model for processing both text and graphics, while separating language support from the typesetting engine.

Trivandrum Town

Friday's conference schedule was interrupted by the threat of a general strike called by local trade unions in protest of the local government's proposed doubling of energy tariffs. Since it was inadvisable to drive from the hotels to Technopark that day, the conference organizers tweaked the program schedule, leaving Friday free. Those who stayed at Hotel Samudra engaged in various T_EX related discussions, while David Kastrup gave a tutorial on the intricacies of T_EX macro expansion that he was unable to give earlier in the week.

However, at the eleventh hour the government capitulated, and the strike was called off. So, when the conference organizers decided to stick with the revised schedule, Steve Grathwol of Duke University Press and I set off for Trivandrum Town together in a three wheeled rickshaw.

This was my first visit to Asia, and though I had read about what to expect, the abstract never matches the actual when traveling. In Trivandrum the market is confined with several forts, or gates, that define the town's center. Imagine center of Amsterdam or Utrecht, not filled with shops, but with kraampjes – a perpetual Koninginnedag. In one shop someone is sewing on a single foot powered sewing machine. The next shop's display of fresh fruit and roasted nuts is a rapture for my eyes and nose. The hammering from the next shop is someone trying to repair a rickshaw's frozen brake drum. And there are people everywhere: school children in uniform, beggars, businessmen with cell phones, university students with books, housewives with groceries, manual laborers, street vendors, and loiters – a city of more than a million souls, and I had no idea where I could buy a pair of double A batteries.

Trivandrum is a bustling city where every neighborhood seems to be a self contained village. The people we met were generous to a fault. On one occasion I was invited to the home of one of the conference's audio-visual technicians. When we arrived at his home, I was warmly welcomed by he and his family. Later that evening, after a spicy dinner at a local restaurant, he refused to let me contribute a cent to the cost of the meal or the petrol he used taking me back to the hotel.

We in the west are proud of our free market economies, but in India we encountered pure price discrimination. Whether about silks or suitcases, spices or sea shells, the

familiar question, 'how much does it cost?' is there transformed into, 'how much am I willing to pay for that commodity or service?' For example, a rickshaw ride across town in the company of an Indian host cost 7 Rupees, or 3¹/₂ cents; the same trip the next day cost me 50 Rupees, a mere Euro. I was happy to pay the fare, even though it was seven times the local rate. Such encounters are inevitable when disparities in income are apparent.

Day Three – Saturday

The conference resumed Saturday morning the TUG business meeting first on the agenda. Ross Moore read the minutes from the Board of Directors meeting held in Portland Oregon in July. Kaya Christiansen from the University of Århus in Denmark then described the new T_EX Development Fund. Concern was raised over the late publication schedule for TUGBoat, and also at the revelation that TUG membership has fallen by 14% in each of the last two years. Finally, delegates were encouraged to put forward nominations for President and Board members for the upcoming election in 2003.

The technical program continued with G. Nagarjuna speaking about, 'The Semantic Web, G_NOWSYS, and Online Publishing.' He was followed by Dr. K.R. Srivathsan who described an 'Education Grid' – a system for coordinating computer and educational resources for students in higher education. Next, Hong Feng, founder and Chairman of the Chinese T_EX Users Group, described Lojban – an unambiguous artificial language used to express Chinese text encoding in readable ASCII characters. K. Anilkumar from Linuxense Information Systems in Trivandrum concluded the morning session with a presentation entitled, 'Databases, T_EX and Online Complex Report Generation' where he demonstrated how shell-escapes such as `\write15`, `\write16`, `\write18`, and `\input` can be harnessed to read databases and generate reports. John Plaice from the University of New South Wales and co-author, along with Yanis Haralambous, of Omega, described the 'Low-level Devanagari Support for Omega.' John went on to mention the improvements planned for Omega 2, e.g. better diacritics placement, and even ventured to speculate that Omega 3 would incorporate a new object oriented typographical programming language, and depart from the traditional T_EX typesetting model. Fabrice Popineau from SUP-ELEC in Metz told us all how 'T_EXLive 7 under Windows has been improved with, among other things, extensions to Kpathsea to support URL syntax. Karl Skoupy made the last technical presentation of the conference with his proposal for a 'T_EX File Server.' Multiple T_EX runs is the usual practicing for placing graphics and resolving references. A T_EX file server could save and reuse the data structures currently lost between separate runs of Kpathsea.

After an invitation by Ross Moore and Wendy McKay to join TUG 2003 in Hawaii, Dominic Wujastyk from University College London closed the conference by expressing everyone's thanks to the conference organizers for their dedicated and tireless efforts in making TUG 2002 a success.

Cuisine & Entertainment

I would be remiss if I did not mention that the conference delegates enjoyed delicious buffets for lunch at Technopark and again for dinner at Hotel Samudra. The sun shone every day, and in the evening we ate on tables set out on the lawn under a clear sky of stars. Wednesday evening we were treated to a demonstration of *kalari payattu* – the traditional Kerala martial arts form. Dominik Wujastyk told the history of the art before the performance began; which included knives, swords, clubs, flaming staffs, and a particularly terrifying weapon which looked like a cross between a sword and a whip. The official conference dinner was held on Thursday evening; followed by a dance exhibition performed by children from the Sri Chitra home for the Poor and Destitute in Trivandrum, and a flute recital of classical Carnatic music by V. C. George.

The Fourth Estate

The conference appeared prominently in print media dur-

ing our stay. The Hindu, The Economic Times, and the Business Express all ran articles reporting on the conference with titles like: 'Conference on T_EX software', 'T_EX targets large Indian user group', 'Free scientific publishing software set to hit Asia' in which Donald Knuth was described as a Info-tech guru. Later, The Hindu ran another lengthy article in their business section entitled, 'T_EX: a free tex-processing tool.' With contributions from Dominik Wujastyk, Kaveh Bazargam, C.V. Radhakrishnan, and K.G. Kamar, you may rest assured that the article was well informed.

Backwater Tours

After the conference, several delegates engaged local tour operators for a cruise on the large lake and connecting waterways north of Trivandrum near the town of Alleppey and the coastal city of Cochin. Tourists can hire old rice barges that have been refurbished as wicker houseboats – replete with bedrooms, a dining room, and a sitting-room. A crew of 3 or 4 man the boat and prepare your meals.

When our boat docked in the evening, we quickly discovered that the surrounding boats were all engaged by T_EXies. It appeared that the conference has merely taken ship. All those on our boat were part of a small group whose accommodations every step along the way were always addressed to a certain Mr. Hans. But that, my friends, is another story.