Dr. R C Tripathi explained about copyright issues in Language technology products/services. So far, copyright applications for Corpora (CIIL, Mysore), and Desika (C-DAC) have been processed. Copyright for Lila (C-DAC, Pune) are in pipeline. Applications for patent/copyrights for the following products have been filed: Web search engine, Unicode font and encoding, ISCLAP and font conversion.

Shri Vinnie Mehta at the end felt that there is need to glamourize language technology products by organizing road shows and campaign. There is need to involve State Governments to use Indian languages in e-governance and other socio economic projects/programs.

UNESCO Expert Group on "Promotion and use of Multilingualism and Universal access to Cyberspace" on April 9-10, 2001 at UENSCO Headquarter, Paris

The experts from 24 countries from Africa, Arab States, Asia Pacific, Europe-I, Europe-II and Latin America participated in the meeting. Dr Om Vikas of Ministry of Information Technology participated as Indian representative. This was a follow up to the recommendation of Info-Ethics 2000 for developing mechanism to provide affordable and equitable access of information in public domain and access to telematics in all countries. 30 recommendations were made under four broad categories.

The report is available on the UNESCO website www.unesco.org. The report contains a preamble stating the genesis of this Workshop subsequent to the general conference of UNESCO on October 22 to November 9, 2000 at its 31st session. The technical terms such as Cyberspace, Digital devide, Telematics, Universal access have been defined in the chapter on **definition**. **Basic principle**s are covered in the Chapter 2 wherein four key aspects in Cyberspace have been identified, namely:

(a) Provision of access to the telematics networks and services

(b) Promotion of multilingualism

(c) Provision of access to information in the public domain

(d) Application of exemption to copyright

Chapter 3 recommended measures : 9 recommendations have been made under category (a), 8 under category (b), 10 under category (c) and 3 under category (d). The recommendations under the category on **Promotion of multilingualism** are as follows:

M-10　Member State and intergovernmental international organizations should reaffirm and promote the respect and use of all languages in cyberspace, to contribute to the preservation of the richness and diversity of the universal human heritage and to peaceful coexistence, objectives and are enshrined in many international declarations and conventions and in many national constitutions.

M-11　Broaden language diversity in cyberspace by creating contents, and means to find, access and process them, in all widely used language as well as in other languages at the regional, national and local levels, including less used languages.

M-12　In order to prevent all forms of linguistic segregation in access to cultural and scientific information and knowledge, technical, financial and education resources should be provided by the public and private sectors at local, national regional and international levels to ensure the creation, preservation and maintenance of national and multilingual Web sites.

M-13　Member States and intergovernmental and non-governmental international organisations should adopt strategies to develop, and disseminate on-line, freely accessible language education materials.

M-14　Member States, international intergovernmental and non-governmental organisations and industries should encorage the participation of specialists in collaborative research and development on, and localisation (adaptation) of, operating systems, search engines and Web browsers with extensive multilingual capabilities, as well as the development of on-line dictionaries and terminologies, Software should preferably be developed and made available in an open source environment.

M-15　Member States and international intergovernmental and non-governmental organisations should support international cooperative efforts to develop automated translation services accessible to all, free or at a nominal charge, and to encourage the development of intelligent linguistic systems such as those performing multilingual information retrieval, summarizing/ abstracting and speech recognition.

M-16　Governments should formulate strong national policies on the crucial issue of language survival in cyberspace. International assistance to Member States in framing and implementing language policies, designed to promote mother tongues and language teaching, should be strengthened while respecting cultural diversity on the global information networks and reinforcing national and international solidarity.

M-17　International organisations, in particular UNESCO, should maintain and promote an international collaborative on-line observatory on the different existing policies and regulations relating to multilingualism and multilingual resources and applications. Such a portal

should create and make accessible free of charge, a database on current experiences, standards and technical recommendations, software products and on-going innovations bearing on computerization of languages.

Workshop on Lexical Resources for Natural Language Processing on 5-8 January 2001 at IIIT, Hyderabad

Lexical resources for Indian languages, for example, electronic dictionaries, thesauri, grammars, corpora etc. are far behind those for other languages of the world, even some smaller Asian languages. This in turn is affecting the development of applications. There is a need to make concerted and coordinated effort in building the lexical resources.

While developing a lexical resource, it is important to identify at least one application, which would benefit directly from the resource. Two important applications are: search engine for Indian languages, and machine translation. The following four LRs need to be built: (a) Transfer lexicon and grammar (between English & Indian languages), (b) Annotated corpus for each Indian language, (c) Bilingual dictionary of core meanings, (d) Word Net for Indian languages.

Details regarding how to build each of the above resources (except (d)) and a methodology was worked out. It would require a close monitoring of TIME and QUALITY. The distribution license for the LRs would be "free" software under GPL.

Symposium on Translation Support System (STRANS) on Feburary 15-17 2001 at IIT, Kanpur

The symposium STRANS2001 was first of its kind after CPAL-2 and SMATAC-96 to provide a platform for presenting and discussing all the issues related to machine aided translation focussed to Indian languages including English. Prof. R.M.K. Sinha, Program Chair for the STRANS Symposium, presented a brief review of the on-going activities in the area. The first key-note address delivered at the inaugural session was that from Prof. Harold Somers of UMIST, UK. Prof. Somers group has been working on South Asian languages, which are minority languages in United Kingdom. Prof. Somers presented his thoughts on "A corpus based approach to resource development for low density languages". Dr. Om Vikas, Ministry of Information Technology, Govt. of India, delivered another keynote address on issues related to Indian Language processing vis-a-vis the international scenario.

A special session was devoted to the presentation on TDIL VISION2010document and Standardization issues. There was a general agreement on the Vision 2010 document. It was agreed that standardization of lexical format, various romanization codings, transliteration, OCR data and speech data as contained in the document be created in a phased manner and be forwarded to BIS for making them a national standard. Some people expressed apprehension about their execution in the stipulated time frame and wanted Govt. to take initiatives to coordinate the efforts.

Some of the major recommendations of the panel discussions are summarized below: (1) Software and technology be developed to cater to all Indian Languages and scripts. However, priority be given to developing interfaces between English and Hindi, English and regional languages, and among Indian languages in that order. Funding agencies at the Central and State Govt. levels must exchange information to avoid duplication of efforts or re-inventing of wheel. (2) Lexware is a basic infrastructure for all works on language processing. Lexware work is a highly time consuming, laborious and requires a skill for which training is required. It cannot be created at a single centre or by a single group. Therefore all researchers and developers for easy sharing and portability. (3) Follow a common standard. The TDIL web site maintained by MIT should be the gateway for disseminating and exchanging ideas. All major developments and policy matters should be posted there. Industries and users including state govt. agencies should also be encouraged to post their problems, experiences and exchange solutions through this site. (4) STRANS be made a regular annual affair to provide a platform for researchers, developers, industries and users to report their work and exchange their ideas.

Universal Networking Language on April 10, 2001 at IIT, Bombay

Universal Networking Language is a recent Interlingua proposed by a group of researchers from 18 countries of the world. The United Nations University, Tokyo, leads the UNL project. The overall goal of the project is to enable natural languages on the Internet so that the access of information on the Internet can be done by a large section of humanity crossing the language barrier.

In India, the Indian Institute of Technology, Bombay, is handling the UNL project. The responsibility of IIT Bombay is to link Hindi with the rest of the languages over the Internet. Towards that goal a team of researchers led by Prof. Pushpak Bhattacharyya of the Computer Science and Engineering Department, IIT Bombay is working on conversions of English and Hindi to UNL and also the reverse problem of language generation from UNL.