

MT Summit IV

The makers and shakers of the machine translation world converged this past July in Kobe, Japan's answer to Seattle (or was that Rotterdam?)

The tradition of a few short years dictates that the site of the biannual Machine Translation Summit rotate among Japan, Europe, and North America. This year, the circle was closed; the Summit returned to Japan, the site of the first Summit in 1989. Unlike previous Summits, notable for their diversity, this year's affair was largely a showcase for Far Eastern systems. If you weren't interested in Japanese MT or don't believe in committee-run projects, you might have been disappointed, because there wasn't much else. Many people stayed home; only sixty of the three hundred attendees came from outside of Japan.

The Japanese Ministry of Trade and Industry (MITI) picked up three-quarters of the Summit tab and we paid the piper; a significant portion of the program was dedicated to the big prestigious MITI-funded programs: the Advanced Telephone Research (ATR) program, the Electronic Dictionary Research (EDR) project, and the Multilingual Machine Translation (MMT) project. Presentations on international joint projects dominated the ceremonies, but we can't say we weren't warned: the theme of this year's summit was "International Cooperation for Global Communication."

ATR

The ATR program was launched in 1987 and, having recently moved into brand-new quarters in the Kyoto area, has commenced a seven-year project in automatic interpreting, or, if you prefer, *speech translation of spontaneous utterances*. The chosen domain is "international conference registrations." Fifty international researchers are currently involved in the project, which is funded to the tune of ¥16 billion. The ATR is also collaborating with Siemens and Karlsruhe University in Germany and the CMU in the US in CSTAR, the Consortium for Speech Translation Advanced Research. Each of the partners is responsible for the speech recognition and synthesis components for their respective languages. Lots of publicity was drummed up for cstar in January by a televised demonstration, which was widely broadcast.

EDR

The Japan Electronic Dictionary Research (EDR) project officially winds up its seven-year development trajectory this year. The deliverables include 300,000 word mono- and bilingual lexicons (Japanese and English), a concept ontology (400,000 concepts), a co-occurrence dictionary, and Japanese and English corpora (250,000 sentences each). In a gesture of laudable solidarity, eight of Japan's major MT players collectively funded thirty percent of the ¥14 billion put into the project, miti picking up the rest. However, most of the eight industrial partners have mature MT systems with large lexicons and it is not likely that in the immediate future they will rebuild their systems to take advantage of the edr.

While the designers of new systems may welcome the basic bilingual core lexicon, the usefulness of the extensive and potentially valuable semantic coding to others will largely depend on the choice of semantic items that were used and the consistency with which they were applied. As one potential customer, Koichi Takeda of IBM Japan, judiciously expressed it in a paper presented at the TMI, "the EDR provides lexical coverage for a huge number of words but not enough mapping specifications for phrasal or sentential representations." While funded by a number of them, the EDR was developed largely independently of its likely users, and hence it remains unclear how useful a

resource it will actually be to them.

MMT

The ambitious mmt project is approaching the testing and evaluation stage, according to Susumu Funaki, the general manager of the MT System Lab at the Center of the International Cooperation for Computerization (CCIC) in Tokyo, the coordinator of the project. Another multi-funded endeavor, MMT is an international collaboration between Japan, China, Indonesia, Thailand, and Malaysia to develop an interlingual MT system for the languages of these respective countries. The project is obviously a direct response to Japan's position as the economic powerhouse of the region. Funaki points out that there aren't many Japanese translators, though, who can handle those languages, fewer still with the prerequisite technical background. At the moment, much translation between these languages is done via English. The project teams have also been developing OCR systems to skirt the input problems endemic to this part of the world. Judging by the size of the dictionaries and rule bases, it is highly unlikely that the project will produce a broad-coverage MT system by the end of 1994, but it is at least a start and there are no alternatives available yet.

Verbmobil

Yet another big international project spotlighted in Kobe was Verbmobil, a long-term, spoken language project similar to ATR that is being coordinated by the German Institute of AI (DFKI). Verbmobil is being funded by the German Ministry for Research and Technology (BFMT) for the amount of dm 60 million for the initial, four-year phase; project leader Wolfgang Wahlster of the DFKI was on hand to detail its aspirations. Wary of past failures, the consortium and its backers have set modest goals and have budgeted ample time (ten years) to accomplish them. The involvement of various industrial and academic research groups as well as the appointment of an illustrious advisory board would appear to serve as additional surety that this won't go the way of Eurotra.

According to Wahlster, the long-term goal of the project is to build a portable translation device which two speakers of different languages could use to communicate with at meetings. English will be used for the system's internal dialog. The first two-year phase of Verbmobil is to result in a demonstration system with which a German speaker and a Japanese speaker, both with a reasonable passive knowledge of English, can make an appointment. Verbmobil is to track the conversation in English, and where the speakers lapse into their respective mother tongues it will spring to the rescue. There are obvious parallels with the work going on at the ATR and, indeed, the two institutions will be collaborating. Dialog interpretation is probably the most difficult language processing task of all it makes text-based MT look easy and the Verbmobil project has met with some scepticism. It is appealing from a popular point of view it is easy for layfolk to visualize but raises expectations that linguists and engineers will have a difficult time satisfying. Stir into this mixture the additional complications of managing an international consortium and you have the potential for a grand disaster. However, from a commercial perspective, Wahlster suggests that industry is keenly interested in such interpersonal communication tools, more so than in such information assistance applications as ARPA's flight information project ATIS, and there is consequently a strong economic impetus to go in this direction.

Retreating back from the future to the present, John Hutchins provided a worthy review of the major trends and directions in MT over the past few years. As the author of a definitive history of early MT and editor of *MT News International*, John Hutchins is the field's unofficial chronicler and one of the most well-informed observers on the scene. He noted the beginning of a new era in MT at the end of the 1980s, with the approaches of the 70s being replaced by the unification and lexicalist formalisms of the 90s. The presentation of Yorick Wilks (now at Sheffield) segued neatly after that of Hutchins's; Wilks took one important research direction, corpus-based statistical MT in particular the work at IBM's Yorktown labs and discussed its lasting implications on MT as a whole. You might not believe in trigrams, warned Wilks, but don't be dogmatic. Gather your successes where you can find them. As a

cautionary tale, he pointed out that certain distinguished personages in the linguistics world did very badly in ARPA's TIPSTER conferences, while those participants shameless enough to cast theoretical allegiances to the wind did much better.

Muriel Vasconcellos supplied a welcome air of timeliness to the proceedings with her survey of MT use. Vasconcellos had nearly eighty respondents to a survey of major users of MT in North America, Europe, and Japan. They provided some useful information, including systems being used, volume, and materials translated. Yes, the bulk of the material is technical manuals. Vasconcellos totalled the annual translation volumes her respondents supplied; this amounted to 680,000 pages a year, and she estimated that the total annual volume of MT might be in the vicinity of 1.2 million pages. The question that everyone now wants to ask is almost impossible to answer: what proportion is this of the total translation volume? Probably less than five percent, but just how much no one knows for sure. In any case, whatever your personal opinion of MT, you can't argue that it is not being used or does not exist.

If you came to Kobe from Mars with the hope of discovering for yourself the state of MT on planet Earth, you would probably think that MT was a Japanese invention, but something that Americans like to talk about, and something Europeans like to dream about. Granted, there weren't many Martians in Kobe, but there were people who didn't attend the last Summit and did come to Kobe hoping for an overview of what was going on in this field. You can argue about what an MT Summit is or should be, but if it isn't the right forum for learning more MT here and now, what is? However, glaringly absent from the program was attention to any of the new systems now going into operation or shortly to be deployed. The panel discussion "International Cooperation" was ninety minutes that could have been better spent detailing practical issues concerning such new systems as cmu's Caterpillar system, which should be in operation by the beginning of next year, Kielekone Oy's Finnish-English system, likewise ripe for deployment, or even EuroLang, whose begetters may lack finished goods at the moment but offer manifold compensation in terms of *chutzpah*. While the technical basis of IBM's lmt was detailed at earlier Summits (as, for that matter, was CMU's KANT and the Kielekone Oy system), IBM has been using the system extensively in-house in Europe, and it might have been interesting to hear more about that. Margaret King's panel on evaluation would likewise have immensely gained in relevance had CompuServe's Mary Flanagan, present at the conference, been included in the proceedings. Flanagan has just been through an extensive evaluation process to select an MT system for online use, a potentially important breakthrough for this industry. With a paucity of here-and-now, this year's Summit was more ceremonial than substantial.