The Language Professional's Guide to...

The ABC of Machine Translation — N-Z

by John W. Hutchins and Geoffrey Kingscott

The ABC of Machine Translation Guide has caused considerable interest since the first part appeared in Language International 2:3 *and the second part in* Language International 2:6. *It must be emphasised, however, that it is only an indicative guide, for initial information only, not a detailed study of each system mentioned.*

The directory contains entries for systems and projects (usually under their acronyms) and for organisations and institutions involved in machine translation development. It concentrates on current systems, disregarding systems no longer being researched or developed.

Further information can be found in John Hutchins's *1986 book* Machine translation: past, present, future, *published by Ellis Horwood, the nearest thing we have to a definitive history of machine translation up to that date (referred to in the text as* MT-ppf, *and in his 1988 updating paper, "Recent Developments in Machine Translation", published in* New Directions in Machine Translation *by Foris, Dordrecht (referred to in the text as* ND-MT, *and in Geoffrey Kingscott's 1989 report,* Applications of Machine Translation, *written for the Commission of the European Communities, and available from Mr* Ian Pigott, *DG XIII, Commission of the European Communities, Centre Jean Monnet, L-2020 Luxembourg (referred to in the text as* AMT. *For developments subsequent to these publications, the appropriate reference in* Language International *is given.*

N

NARA A system for translation from Korean to Japanese and Japanese to Korean being developed at the University of Tokyo.
(*ND-MT*, page 44)

NASEV ('Neue Analyse- und Syntheseverfahren zur maschinellen Übersetzung'), a name given to the coordination organisation of the German Ministry for Research and Technology (Bundesministerium für Forschung und Technologie) covering theoretical research on behalf of *Eurotra* being carried out by groups in Berlin, Bielefeld and Stuttgart.
(*ND-MT*, page 38)

NEC Japanese industrial corporation which is developing the *Pivot* system.

NERPA (Nemetsko-Russkii Perevod). System for German-Russian translation developed at the All-Union Center for Translation (Moscow), later integrated in *ANRAP* and now forming part of the *SPRINT* complex of systems.
(*MT-ppf*, pages 310-311)

NLU Abbreviation for 'Natural Language Understanding'.

NTRAN An experimental English to Japanese system at the University of Manchester Institute of Science and Technology (UMIST).

O

ODA (Overseas Development Agency, Japan). Supporters of a major Japanese project, designed to develop a multilingual system for translation between Japanese and other languages of South-east Asia, particularly Malay, Indonesian, Thai and Chinese. The project benefits from Japanese government funding channelled through the Center for International Cooperation for Computerisation (CICC). In the ambitiousness of its scale it has been compared to the Eurotra project as originally envisaged.
(*AMT*, 7.17)

Oki Electric Industry Co. Developers of the *PENSEE* system.

Overcoming the Language Barrier. A conference organised in 1977 by the Commission of the European Communities in Luxembourg which was the first major MT conference since the appearance of the *ALPAC* report.

P

PACE ('Perkins Approved Clear English'). A controlled language used at Perkins Engines Limited, Peterborough, UK, for writing technical documentation for translation with the *Weidner* system.

PAHO (Pan American Health Organisation). An international organisation in Washington, D.C. which has developed the *ENGSPAN* and *SPANAM* systems.
(*MT-ppf*, pages 220-222)

Pannenborg Report A report produced for the Commission of the European Communities into the progress and continued feasibility of the *Eurotra* project. The report, named after its chairman, appeared in 1987. The Eurotra team was criticised for excessive research and for not concentrating sufficiently on the practicalities of creating an opera-

tional system, but supported the continuation of the project, recommending closer links with industry in further developments.
(*ND-MT*, page 33) (See also interview with *Serge Perschke* in *Language International* 2:5; also an article on the Danzin report, a follow-up assessment to the Pannenborg report, which appeared in *Language International* 2:4.

PAROLE An experimental Japanese to English system being developed at the Matsushita corporation in Japan.

PARS (Perevod Angliiskikh Referatov i Statei). System developed in Kharkov (U.S.S.R.) for translating technical abstracts and patent titles (from INSPEC and INPADOC) from English into Russian. A microcomputer-based system for English-Russian translation is also under development.

PC-Translator A low price system produced by Linguistic Products Inc. of Texas. Language pairs available include English to Spanish, Danish and Swedish, Spanish, French, Danish and Swedish to English
(See *Language International* 1:4, pages 30-31)

PENSEE A system for Japanese to English and English to Japanese machine translation developed by the Oki computer company in Japan. The Japanese to English version has been commercially available since the autumn of 1986.
(*ND-MT*, page 47-48)

Philips Research Laboratories Developers of the *Rosetta* system.

PIVOT A system for translation from English to Japanese and Japanese to English, produced by the NEC corporation in Japan, and commercially available there since 1986. It is claimed to be based on the interlingua approach, with a view to its future extension to other languages.
(*ND-MT*, page 48)

PLAST (Polifunktsional'nyi lingvisticheskii avtomat stratifikatsionnogo tipa). System at Kishnev Polytechnic Institute (USSR) for translating and abstracting English technical texts into Russian.

POJARAP see YaRAP
(*ND-MT*, page 80)

Projet national A government-sponsored French initiative to promote the use of machine translation using systems developed by *GETA*. After a period of marking time, the project was relaunched at the beginning of 1990.

R

RAREAS. An experimental system at Montreal for the automatic composition and production of weather forecasts in English and French simultaneously. The approach is regarded as an alternative to machine translation and may perhaps eventually supersede *METEO*.
(See R. Kittredge in the proceedings of the ATA conference 1989.)

Ricoh This Japanese electrical and electronic equipment manufacturer is developing the *RMT* system.

RMT ('Ricoh Machine Translation'), a system for the machine translation of English to Japanese, understood about to be made commercially available.
(*ND-MT*, page 48)

Rosetta A system based on Montague grammar, and being developed by a team at Philips Research Laboratories at Eindhoven in the Netherlands. It is an attempt to build a multilingual system based on an interlingua approach. The project under the leadership of *Jan Landsbergen* began in 1980, and research has started on the development of an operational system. The main languages are Dutch, English and Spanish.
(*MT-ppf*, pages 286-287; *ND-MT*, page 38-39; *AMT*, 8.3.)

Routier, Le A restricted language system developed by Canadian translator Victor Loewen to translate delivery itineraries from English into French and vice versa. The only full description in print is given in "Society in Transition", proceedings of the 1990 conference of the Canadian Information Processing Society (ISSN 0825-5407).

RUSLAN A system at the Charles University Prague for translating Czech computer technology texts into Russian, based on methods originally developed by *TAUM*

S

Saar, University of the (Saarbrücken) A major centre of MT research in Germany since the mid-1960s, developers of the *ASCOF, SUSY* and *MARIS* systems and closely involved with the German research on *Eurotra*.

Saarbrücken University See Saar, University of the.

Sanyo Japanese company which has produced a computer-based dictionary system for aiding Japanese-English translation. The system is marketed as the Translators Word Processor.
(*ND-MT*, page 49)

SEMSYN ('Semantische Synthese') A project at the University of Stuttgart to generate German titles of Japanese articles from intermediary representations produced by the *ATLAS* Japanese-English system.
(*ND-MT*, page 38)

SHALT (System for Human-Assisted Language Translation). An experimental system for English to Japanese under development at IBM Japan for translating computer manuals.

Sharp A system (DUET), produced by the Japanese Sharp corporation, for English to Japanese translation appeared on the market some two years ago. Some 300 of their systems are said to have been sold already. A Japanese to English system is due to appear in June 1991.
(*ND-MT*, page 48)

SILOD A computer-aided translation system developed at the Leningrad State pedagogical institute providing tentative automatic translation from English, French and Spanish into Russian and vice versa. A version for personal computers has been developed as MULTIS.

SIMPAR System in USSR for translating the English headlines of INPADOC patents into Russian. A wide range of scientific and technical subjects is covered.

SITE ('Sonovision ITEP Technologies'), France's largest technical documentation firm, which under the French *Projet national* is currently looking at ways of integrating the *GETA Ariane* machine translation system into the production chain for documentation.
(See *Language International* 2:2, pages 3-6)

SLUNT Acronym for Spoken Languages Universal Numeric Translation, a small-scale system proposed by Walter Goshawke, a British computer scientist, for translation using a numerical interlingua.
(*MT-ppf*, page 295)

SMART John Smart, through his own company based in New York,

has developed systems for writing simplified English (the Smart Expert Editor) which can be linked to translation systems tailored to each application (mainly English to French). The biggest client to date is the Canadian Department of Employment and Immigration, which uses a Smart system to translate job descriptions from English to French.
(*MT-ppf*, page 294; *AMT* 7.8)

Socatra ('Société) canadienne de traduction assistée'), a Montreal company founded by Claude Richard, which provides a translation service based on its *XLT* system.

SPANAM A system for Spanish to English translation developed for and by the Pan American Health Organisation and in use since 1976. Development has been primarily the responsibility of Muriel Vasconcellos.
(*MT-ppf*, pages 220-222; *AMT* 7.3)

SPAS (Sistem perevoda s pomoshchuyu avtomaticheskogo slovarya). Facility developed at the All-Union Centre for Translation (Moscow) for consulting automatic dictionaries (English and Russian).

SPRINT (Sistem perevoda s redaktirovanniem inoyazychnykh nauchno-tekhnicheskikh tekstov). A complex of compatible translation systems developed by the All-Union Centre for Translation (Moscow), for translating scientific and technical texts from English, German and Japanese into Russian. The system incorporates and supersedes the earlier *AMPAR*, *NERPA*, *ANRAP* and *YaRAP* systems.

SUSANNAH Acronym for SUSY ANwenderNAH (= SUSY user-oriented), a project for a translator's workstation based on *SUSY*. No longer under development.
(*MT-ppf*, page 238)

SUSY Acronym for Saarbrücker Übersetzungssystem, the transfer-based system developed at the University of the Saar at Saarbrücken. It was designed as a multilingual system, with major programs written for Russian, German, English, and French. Research on this MT system had considerable influence on the *Eurotra* project.
(*MT-ppf*, pages 233-239; *ND-MT*, page 36)

SWETRA An experimental system for translation between Swedish, English and other languages being studied at Lund University.
(See the article by Sigurd in *ND-MT*, pages 205-218)

SYSTRAN ('System Translation'), usually considered to be the "market leader" in commercially marketed MT systems, was developed during the 1960s by Dr *Peter Toma*, who had worked on the early Georgetown University experiments, and who disagreed with the conclusions of the *ALPAC report*. After developing two systems, Autotran and Technotran, which were forerunners of Systran, Dr Toma founded his own company, Latsec Inc., in La Jolla, California, in 1968, and in early 1969 he had delivered a test Systran system to the Wright Patterson Air Force Base in Dayton, Ohio, where there is a considerable military research programme, involving the translation or scanning of scientific literature in Russian. An operational system was installed the following year, and is still working there today, more than 20 years later. The current throughput is approximately 100,000 pages a year. In the mid-1970s the European Commission, looking for a MT system, concluded a contract with Dr Toma enabling them to develop versions for translation between EC official languages, starting with an English to French version on which work had already been well advanced. Language pairs already available or under development include English into French, Italian, German, Dutch, Spanish and Portuguese; French into English, German, Dutch and Italian; and German into English and French. The European Communities' Systran programme is centred in Luxembourg, and is headed by *Ian Pigott*. In February 1986 a World Systran conference was held in Luxembourg, bringing together users in both the public and private sectors. World rights to the Systran system in the commercial sphere (the European Commission retains certain user rights over the system in connection with its use by organisations in the public sector in the EC member states) were sold by Peter Toma during the late 1980s to the French *Gachot* company, except for the Systran Corporation of Japan. The language pairs offered by Gachot from its central computer at Soisy-sous-Montmorency, near Paris, include English to Arabic, French, German, Italian, Spanish and Dutch; French to English, Dutch and German; German to English and French; and Russian to English. A new five-year contract with the *Xerox Corporation*, who already use Systran for translation of service and user manuals from English into French, Spanish, German, Italian, Portuguese and Dutch (see *Language International* 2:3, page 5), specifies development of translation from English into Swedish, Danish, Norwegian and Finnish.
(*MT-ppf*, pages 209-218; *ND-MT*, pages 22-24; *AMT* 7.2)

T

TAO Abbreviation for Traduction Assistée par Ordinateur (Computer-aided translation).

TAO International A major user of machine translation, especially of the Weidner system, for which they acted as marketing representative in France for many years.

TAUM ('Traduction Automatique de l'Université de Montréal'), a group set up in 1970 to develop an English to French automatic translation system. Its greatest success was the development of TAUM-METEO (see under *METEO*). Another project, TAUM-AVIATION, was not brought to a successful conclusion, and with the withdrawal of outside funding the group ceased its activities in 1981, although METEO continued its separate, successful existence.
(*MT-ppf*, pages 224-225)

TAURUS (Toshiba Automatic Translation System Reinforced by Semantics). Name of the research prototype at Toshiba of the *ASTRANSAC* system for English to Japanese translation.

TGV ('Traduction Grande Vitesse'), a deliberate allusion to the French high speed train TGV (train de grande vitesse), the TGV is a form of marketing of *Systran* used by the *Gachot* company. It brings together the Minitel telecommunications system, widespread in France, and access to the Systran central computer. It claims to operate at less than a page a minute. The TGV is also available to subscribers in Switzerland and Germany.

THAMUS A development of the *Logos* MT systems by a company based in Salerno, Italy, which is offering translation from German into English, Italian and French, and from English into German, French and Spanish. The company is developing a new Logos-based English-Italian system.
(See *Language International* 2:4, pages 26-27)

TITRAN A restricted-language system developed at Kyoto University designed to translate English titles of articles in the field of metallurgy into Japanese, later extended to the titles of scientific and technical papers generally, and to translation from Japanese into English and from Japanese into French.
(*MT-ppf*, pages 238-239; *ND-MT*, page 44)

TITUS A system developed by the Institut Textile de France for the translation of abstracts concerning the textile industry. Abstracts are

entered in a constrained language and translated automatically in four languages: English, French, German and Spanish. The latest version is TITUS 4.
(*MT-ppf*, pages 293-294)

TOLTRAN A low price system developed by *Bruce Tolin* for English to Spanish and Spanish to English translation, operating in personal computers (IBM PC compatibles) and at up to 20 words per second. Under development is software for other languages: French, Italian, Russian, German, Chinese and Japanese.

Toshiba Japanese company which has developed the *AS-Transac* system. The company is also closely involved in the *ATTP*) research project.

Tovna A recent comer to the translation scene, Israeli producers of a commercial system. It was launched at the *Translating and the Computer* conference in London in November 1988 for translation from English to French, and for the past two years has been under test at the World Bank in Washington. Its developer was software expert Dr *Daniel Cohen*. The language pairs English to Russian and French to English are under development. One of its innovations was that it remembers modifications made to its original suggested translation by the operator and implements them for future texts. It is available for DEC, Sun and Wang machines.
(*AMT* 7.15; *Language Internation* 1:6, page 29)

Translate A low-price translation tool, producing automatic translation from English to Spanish, which appeared on the market in 1990, distributed by the Finalsoft Corporation of Miami.

Translating and the Computer conferences, organised by *Aslib* in conjunction with the Institute of Translation and Interpreting, have been held annually in November, in London, since 1978.

TRANSLATOR An experimental project at Colgate University, later transferred to *Carnegie-Mellon University*.
(*MT-ppf*, pages 282-283; *ND-MT* page 29)

TRANSTAR A system developed at the Military Academy of Sciences in China for translation from English into Chinese, and subsequently taken over by the China Software Technique Group. Some 500 systems are said to have been sold in China. A demonstration model was shown at the Hanover Cebit trade fair in 1989.
(*ND-MT*, page 50)

TSS ('Translation Support System'), one of the stages at which the *ALPS* computer-assisted translation system can operate.

TWP/70 Early version of the *Globalink* translation system.
(*ND-MT*, page 28)

U

ULTRA. A project at New Mexico State University on an experimental multilingual system.

UNITRAN (Universal Translator). A project at the Massachusetts Institute of Technology for a knowledge-based multilingual system, being developed initially for translating between Spanish, English and German.

The MIT project should not be confused with the translation division of Antares Electronics, Canada, also called Unitran, which has given the same name to a computerised terminology scanning and memorising system for translation purposes.

V

VALANTINE A prototype machine translation being developed for internal use at the Japanese corporation KDD.
(*ND-MT*, page 49)

W

Weidner One of the first MT systems to be commercially marketed, the Weidner system was sold in the MacroCAT (mainframe) and MicroCAT (PC) versions, with a wide range of languages. Ownership of the system has changed hands several times. The company was established in 1977 in the United States by *Bruce Weidner*, who took over some of the work which had been carried out at Brigham Young University, Utah. By the beginning of 1988 the control of Worldwide Communications Corporation, by which name the company marketing Weidner was then known, had been fully acquired by the Bravis International corporation of Japan. In 1990 rights to the source codes in North America had been acquired by Intergraph. Language pairs available include English to French, Spanish, German, Portuguese, Italian and Arabic; French to English; Spanish to English; and German to English.
(*MT-ppf*, pages 303-305; *AMT* 7.5)

Winger 92 A system for machine translation from English into Danish produced by Winger Holdings A/S company of Virum, Denmark, based on its database system, Reduced Information Datastructure.
(*AMT*, 7.16; *Language International* 1:6, page 29)

Wright Patterson Air Force Base. This base houses the US Air Force's Foreign Technology Division, which studies foreign scientific literature, particularly in the military field. It can probably claim to be the longest continuous user of machine translation, since it first installed an IBM Mark II system in 1964. This system was replaced by a Systran system in 1970.

X

Xerox. One of the largest companies using MT systems: *ALPS* for commercial documentation and *Systran* for translating equipment manuals into five languages: French, German, Italian, Spanish and Portuguese. The manuals are written in a controlled English vocabulary and syntax and the MT output requires little or no revision. Xerox is also developing Systran for translation into Scandinavian languages.

XLT A system developed by the Canadian company *Socatra* for machine translation from English into French. Work is proceeding on French to English and other languages. The name XLT derives from an assembly programming code meaning "translate". The system is primarily available as a service facility from Socatra, but later it may be sold on microchip cards.
(See *Language International* 2:6)

XTRA An experimental English to Chinese machine translation system, which has been researched at Essex University and the New Mexico State University in the United States.

Y

YaRAP A system for Japanese-Russian translation developed at the All-Union Centre for Translation (Moscow). Now included in *SPRINT*.