

## Machine Aids to Translation: Automated Language Processing System (ALPS)

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### **MACHINE AIDS TO TRANSLATION : AUTOMATED LANGUAGE PROCESSING SYSTEM (ALPS)**

Worried about being replaced by a computer? Or are you one of those translators who feels certain that a machine could never duplicate your very own personal touch? Whatever your feelings, don't let them blind you to the technological revolution taking place in the field of translation.

Some of the initial impacts of computer science — computerized data banks, automatic word processing and restricted-language machine translation (MT) — have already been described in earlier issues of *META* (vol. 26, n° 1 ; vol. 28, n° 4). This paper will examine the Automated Language Processing System (ALPS), an MT system originally designed by Mormon linguists in Utah, U.S.A., to translate religious tracts simultaneously into several target languages. The ALPS company is now trying to market its system commercially.

Despite widespread doubts about the feasibility of machine translation, Environment Canada has been using an MT system to translate its weather reports for a number of years now. The Japanese, who are working on a fifth-generation artificial intelligence computer, predict that within ten years 80% of all technical translation will be done by machines. And several Canadian companies have put MT systems such as ALPS on their payroll, with varying degrees of success.

Chronologically, ALPS belongs to the third generation of automatic translating machines, but its ability to translate might be classed as first generation. Actually, it is designed to assist rather than to replace the human translator. ALPS is essentially a body of software aimed at raising translator productivity through word processing, automatic dictionary lookup and automatic translation functions.

ALPS meshes with computer hardware in much the same way an audio cassette fits into your home's sound system. One company linked ALPS to a Xerox 860 word processor, a disk drive from Con-

trol Data, a printer from NEC, 6 Beehive terminals and — the brains of the operation — a 1024K Eclipse mini-computer from Data General, which can communicate with other computers via a standard modem or data set.

### **SYSTEM POTENTIAL**

#### **Word Processing and Dictionary Lookup**

Picture this. It is Monday, 9 a.m. You are sitting innocently in front of your terminal when your supervisor hands you a text on hydrocarbon cracking. There is no time to enter the text into your machine. You create a numbered file for the target text, add segments of a similar text you translated for the same client last month, call up to your screen a list of specialized dictionaries and personal glossaries, choose one on gasoline production and another on the molecular structure of petroleum, and get down to work, checking with your dictionaries for terminology and using the word processor's cutting and pasting capabilities to polish your text. At five o'clock you ask the terminal for the number of the last line you have translated, jot down the number and go home.

#### **Automatic Dictionary and Lookup Mode**

Tuesday a.m. You arrive at work to find that a new text, a collective agreement complete with matching file, has been entered into your terminal during the night. The text may have been transferred from a magnetic tape, another word processor or even directly from a client's computer to your own. You turn over the hydrocarbon text to a colleague including the number of the last line you translated.

The computer serves up the first paragraph of the new text. Your screen is now split in two, the upper half containing the source text and the lower half reserved for the translated version. The computer cuts up your text, numbering each words as it goes. It does not analyze or translate the text — that is your job. But the numbered words allow you to quickly access the automatic dictionary or to correct translation errors simply by typing in the appropriate number. You move into high gear. Halfway through the morning, your client calls to say that the name of the chief negotiator has been misspelled throughout the text. You switch your terminal back to the word processing mode, make a search-and-replace request and automatically correct the error.

#### **Automatic Translation**

Tuesday afternoon. A prospective client arrives to watch you demonstrate the ALPS automatic translation function. Her business is telecommunications and you are pleased that your most complete dictionaries cover precisely this field. This time the computer actually translates, dividing up the text and looking up all the words in its dictionaries. It analyzes the grammatical structure of the sentences, turning to you for help when it runs into difficulty.

(This is why ALPS is known as an interactive system.) The demonstration goes relatively smoothly, although the computer continually stumbles over the same prepositions and articles and wastes time asking you senseless questions about grammar and sentence structure.

Your client is impressed, but is nevertheless left with the feeling that a seasoned translator with a background in telecommunications could have produced the same text just as quickly and accurately. (She's right.) Then she asks you to have the machine translate a one-page publicity folder from her company. Disaster.

#### SYSTEM LIMITATIONS (AUTOMATIC TRANSLATION FUNCTION)

Firstly, although ALPS is equipped with a general dictionary equivalent to a bilingual Harraps, it cannot handle idiomatic speech, or, for that matter, any text "in which the main content must be read between the lines"<sup>1</sup>. ALPS shares this limitation with all MT translation systems developed to date. Even TAUM-METEO, and its successor, METEO II, the universally acknowledged MT system that produces some 80% of Canadian weather reports, would be unable to translate what you are reading right now.

According to John Chandioux, who designed the METEO II system, ALPS is severely handicapped because it lacks a sophisticated linguistic model. Instead, it relies heavily on general and specialized on-line dictionaries, as opposed to linguistic analysis, to do its work. As a result, too much post-editing is required to produce a high-quality text. Mr. Chandioux points out that the post-editing problem cannot be solved by simply expanding the dictionaries, because the number of translation errors (ambiguities and word conflicts) actually increases along with the size of the dictionaries. Moreover, inputting additional terminology takes a great deal of time and money.

In fact, money is one of the main stumbling blocks facing prospective ALPS users. An in-house system costs over 250 000 \$ and independent translators can expect to pay 25 000 \$ for the micro-computer version. Since the system is best suited to technical fields that have a small, well-defined vocabulary, it only becomes profitable when a high volume of texts from a single field can be translated using the same specialized dictionary. And as one Canadian company found out, this can mean a long wait before realizing a return on the initial investment.

Another related problem is that until clients can be persuaded to invest in their own automated office equipment and furnish their texts on some sort of magnetic data carrier, it will be impossible to get full use out of the automatic dictionary and MT functions.

Finally, and most importantly, the translation community has not welcomed ALPS with open arms. Although many translators are impressed by

the system's superb word processing program and handy dictionary lookup, the very interactive features that were designated to make ALPS our ally (instead of our enemy) end up wasting time and causing frustration. Translators at the Secretary of State reportedly rejected ALPS for this reason and Mr. Chandioux believes that interactive MT is only useful as a development tool. Ultimately, of course, there are ergonomic considerations connected with any type of MT or machine-assisted translation system: sitting in front of a video display terminal all day can cause lower back pain, eye fatigue and justifiable concern over the long-term health effects of non-ionizing, low-level radiation. Back pain and eye fatigue can usually be dealt with by correct posture, proper lighting, improved display screens and regular breaks, but the jury is still out when it comes to radiation.

#### CONCLUSION

In conclusion, ALPS is a machine-assisted translation system based on word processing, automatic dictionary lookup and automatic translation. The system's word processing and dictionary lookup functions can definitely help translators to increase their output and improve the terminological consistency of their texts. But the drawbacks of ALPS' MT function clearly outweigh the benefits and Mr. Chandioux predicts that ALPS has virtually no future in machine translation per se. ALPS itself seems to have reached the same conclusion, at least as far as the Canadian market is concerned. After an initial marketing foray into Canada in the early 1980s, ALPS has withdrawn all its Canadian sales representatives and there are currently no Canadian companies using the ALPS system. However, ALPS did open a major new European office in Neuchâtel, Switzerland in October, 1984, and it has assembled a high-powered team of former executives from top U.S. computer companies to lead the attack on the European market, where demand is expected to be higher for ALPS' interactive features and its ability to translate simultaneously into several languages.

ALPS is only one of an increasing number of new machine aids to translation being considered by employers wanting to improve productivity and boost profits. And while there is no need to worry about being replaced by machines that translate, you shouldn't ignore them either, because they are definitely here to stay.

DON SUGDEN

#### Notes

<sup>1</sup> Thomas Schneider, *META*, vol. 28, n° 4.