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Canadian Workplace Automation Research Centre

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- REVISITED

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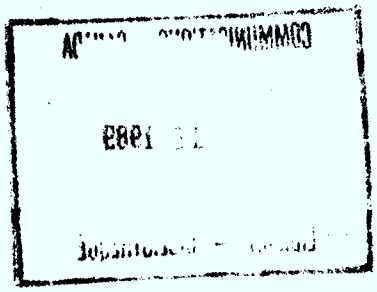


"History provides no better example of the improper use of computers than machine translation."

THE TRANSLATOR'S AMANUENSIS

In 1980, the eminent computational linguist, Martin Kay, published a remarkable article entitled "The Proper Place of Man and Machines in Language Translation." In it, he advanced the controversial position that machine translation (MT) of the fully automatic variety has very little to offer in the way of practical solutions for the growing demands being placed on professional translators. The reason, according to Kay, is quite simple: we cannot successfully mechanize what we do not fully understand. MT system developers have attempted to automate the operation of translation at a time when linguistic science cannot provide an adequate explanation of how language works.

As an alternative to fully automatic MT, Kay advocates machine-aided human translation and concretizes his proposals in a device he calls the translator's amanuensis -- more commonly referred to these days as a translator's workstation. At the core of his workstation is a sophisticated text editor, complete with mouse and split-screen display, one window being for the source text and the other for the target text. Selecting a term in the source text window causes it to be reduced to citation form and looked up in a dictionary, with the contents of the entry being displayed in a smaller, temporary window that pops up over the text. This dictionary is not simply an electronic version of a standard bilingual word book, but a multi-level compendium of the translator's own making. Furthermore, the translator may amend or create new dictionary entries from within his text editor, with the same commands he uses for word processing.

Kay's amanuensis includes a number of other utilities, among them a program that counts the frequency of each term in a text: those forms that reoccur often are copied into a special file which the translator may consult before embarking upon his translation. With another utility, the translator can display all the occurences of a given word, phrase or string of characters, each in its context. The workstation also allows the translator to retrieve past texts that contain similar material, though Kay gives few details on how such an archiving function would actually be implemented.

Some of these proposals for a translator's amanuensis have been partially realized in several commercial products. There are, as well, a number of major workstation development projects currently underway. Thus far, however, no one has been able to deliver on Kay's promise of substantial productivity gains; and no product has yet seized a significant portion of the translator market. Why is this so? One reason has to do with the fact that all of Kay's text analysis functions presuppose the availability of the source text in machine-readable form. While more and

more texts are undoubtedly being drafted on word processors, most translators continue to receive hard copy only -- perhaps because the bewildering variety of word processors create such compatibility problems that translators and clients continue to find it simpler to deal in printouts.

As for the workstation's dictionnary, one should not underestimate the amount of work required to build it up to a level where it will begin to pay back on its investment. What's more, competent translators who have mastered the domain of the texts they translate are not in need of constant terminological support and may therefore see no point in investing in dictionary building. Which leaves the word processing component. Here, it is worth noting that the many translators who dictate may not necessarily consider it progress to have to type in their own texts. After all, is the workstation not intented to relieve the translator of what is routine and mechanical?

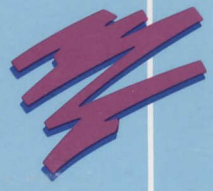
MT at the CWARC

At the Canadian Workplace Automation Research Centre (CWARC), we concur with Martin Kay's assessment of the history of MT. Our program in machine-aided translation attempts to balance short-term practical concerns with a long-term commitment to basic research. Our short-term goal is to design a workstation for a specific client, the Translation Bureau of the federal department of the Secretary of State. As the discussion in the previous section indicates, we have our work cut out for us. Following Kay, our approach will be modest and incremental: at each stage, we will mechanize only that which can be done reliably.

Our mid-term objective is to identify one or more restricted sublanguages for which specialized MT systems could be developed, on the model of the well-known METEO system. METEO has shown that for restricted types of texts, fully automatic MT can render enormous service by relieving the translator of work that is highly monotonous without burdening him with stupefying post-editing. We know what current MT technology can do and do well: the challenge is to find it other applications.

There is no point in deluding ourselves, however: applications like METEO are few and far between. In the face of the growing demand for computer translation, this would seem to leave us with only two alternatives: either resign ourselves to the task of revising sub-standard machine output; or develop more intelligent MT systems, capable of achieving a fuller understanding or the source text. This is precisely our long-term objective at the CWARC: to advance the state of the art in MT by appropriating and adapting techniques that have proven successful in other areas of artificial intelligence.

This program is extremely ambitious for a group that has been in existence for less than two years and is as small as ours. However, we believe that every component of the program is necessary. For while we agree with Kay's negative evaluation of past efforts at fully automatic, general purpose MT, we also share his view that the computer -- if properly applied to the job of translation -- represents the profession's only hope for the future.



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