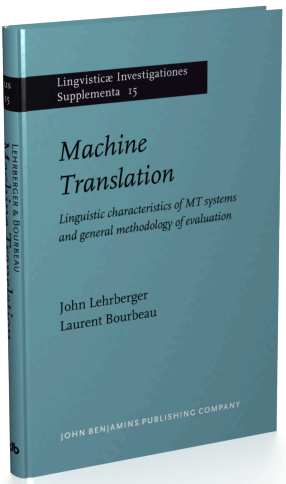
Lingvisticæ Investigationes Supplementa 15

Preface

https://doi.org/10.1075/lis.15.02pre



Pages xi–xiii of
Machine Translation: Linguistic characteristics of MT systems and general methodology of evaluation
John Lehrberger and Laurent Bourbeau
[Lingvisticæ Investigationes Supplementa, 15]
1988. viii, 240 pp.

PREFACE

Mechanical translation is perhaps the first attempt to apply computors to the simulation of a (nonnumerical) human activity. The amount of interest and support for this idea, which was developed in the 1950s has varied according to times and countries, but it has always been closely tied to political interests. The Cold War was the motivation for Russian to English translation in the early sixties; Canada had linguistic problems in the seventies; the Japanese language is a linguistic barrier to communication with America; and the European Economic Community has placed its different languages on the same footing for the communication of reports.

All these national or international patterns have caused a surge in the amounts of translation felt to be necessary by governments. In each cited case, mechanical translation has been seen as providing a solution, regardless of the state of advancement of the various scientific and technological domains involved.

Early research on machine translation suffered from a structural ambiguity. On the one hand, there were many basic problems that should have been studied:

- the construction of electronic dictionaries,
- the construction of electronic grammars.

It was then assumed, in many research centers, that the nonformalized dictionaries (monolingual and bilingual) and grammars available in bookstores and libraries were sufficient for computer applications, provided that they were transferred to some magnetic support in the proper format. A lot of superficial studies were then produced, mainly on the morphology of words. No serious effort was then brought to bear on the deeper linguistic aspects of the problems, and this aroused criticism from the community of theoreticians (e.g. Y. Bar-Hillel 1960: The Present Status of Automatic Translation of Languages, in F.L. Alt ed.: *Advances in Computers*, Vol. 1, New York: Academic Press, pp. 1-163).

From the viewpoint of computer technology, many fundamental problems were approached:
- construction of large memories (G. King's photoscopic disk), access to large data bases by hash-code like techniques (T. Ziehe at the Rand Corporation),
- a variety of models of natural language flourished, and parsing algorithms were developed for them.

On the other hand, the amount of support given to these research projects was motivated by the production of a final program which was to be evaluated on some economical basis. In 1966, the Peirce report (John R. Peirce ed. *Language and Machines*, Washington D.C.: National Academy of Sciences, National Research Council, publication 1416, 124p.) provided this evaluation of the field, which resulted in the ending of massive financial support in the United States, and in some other countries.

In the past five years, mechanical translation has once more raised the interest of potential users, mainly in Europe and Japan. As already mentioned, the wave of the 1960s covered a variety of research topics which were aimed at high-quality translation. As such, they involved many fundamental aspects of linguistics and computer science. Today, these questions are no longer seen as prerequisites, and on the contrary, the present movement is concerned with building cost effective systems that make no claim about quality, but that stress the increase of productivity (1) that organizations or individuals willing to use them would benefit from.

Whereas aspects of early experiments and of their failures seem to be remembered, the Canadian experiment is only rarely referred to. The Canadian Government supported the TAUM project at the University of Montreal consistently for about 8 years. A large amount of work on English and on French has been accomplished, both fundamental and practical, aimed at the translation of texts of a particular technical domain. When in

(1) Productivity appears to be due more to the improvement of text processing systems, including desk top printing, than to the linguistic tools.

1981 the project came to an end, the results obtained went through a remarkable process of evaluation, both from the Government and from private interests.

I think that there is a lot to learn from this experience for both ongoing and future projects, and I am particularly happy to preface this book by John Lehrberger and Laurent Bourbeau which goes systematically into the theoretical steps and the economics of the main approaches to machine translation.

Few specialists are in the position of having made substantial contributions to a project and of being able to follow it up to the end, through an assessment of its merits and deficiencies. Thus, the two authors present us with the first handbook of the field. They describe all the basic components of MT systems, and they review the main approaches from a user's point of view, not from the naive buyer's point of view who would only be interested in the return provided by his investment. They do this from the view point of specialists who will have to improve a system by extending both its vocabulary and grammar, and by customizing and maintaining them. Above all, the authors never forget the finality of MT systems: their ergonomy. This book should be read carefully.

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