WHEN IS THE NEXT ALPAC REPORT DUE ?

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Machine translation has a somewhat chequered history. There were already proposals for automatic translation systems in the 30's, but it was not until after the second world war that real enthusiasm led to heavy funding and unrealistic expectations. Traditionally, the start of intensive work on machine translation is taken as being a memorandum of Warren Weaver, then Director of the Natural Sciences Division of the Rockefeller Foundation, in 1949. In this memorandum, called 'Translation', Weaver took stock of earlier work done by Booth and Richens. He likened the problem of machine translation to the problem of code breaking, for which digital computers had been used with considerable success : "It is very tempting to say that a book written in Chinese is simply a book written in English which was coded into the 'Chinese code'. If we have useful methods for solving almost any cryptographic problem, may it not be that with proper interpretation we already have useful methods for translation?" (Weaver, 1949).

Weaver's memorandum led to a great deal of activity in research on machine translation, and eventually to the first conference on the topic, organised by Bar-Hillel in 1952. At this conference, optimism reigned. Afterwards, teams in a number of American universities pursued research along the general lines agreed at the conference to be fruitful. At Georgetown University, L.E. Dostert started up a machine translation project with the declared aim of building a pilot system to convince potential funding agencies of the feasibility and the practicability of machine translation. This led in 1954 to the famous Georgetown experiment, a pilot system translating from Russian to English, which was hailed as an unqualified success: during the next ten years over 20 million dollars were invested in machine translation by various US government agencies.

An idea of the amount of research between 1956 and 1959 can be gained by considering that in those years no fewer than twelve research groups were established in the US, a number of groups in the USSR came into existence, most within the Academy of Sciences in Moscow, and two British Universities were carrying on research.

Most of the systems developed were based on what Buchmann (1984) has called a 'brute force' approach: Syntactic analysis was only done at a local word-centred level, both so-called syntax and dictionary compilation were very narrowly corpus based, and thus almost totally empirical. Indeed, the problem of machine translation was perceived as being an engineering problem requiring clever programming rather than linguistic insight.

By the late 1960's, workers in machine translation themselves had begun to see that the empirical approach was unsatisfactory. The European projects begun in the early 1960's at Grenoble and Milan reflect this, as does the work of the group set up in Montreal in 1962. These groups based their work from the start on clear theoretical foundations (dependency theory in Grenoble, correlational grammar in Milan, transformational theory in Montreal).

However, the growing perception that brute force was not enough came too late to save research in the US. In 1964, the US National Academy of Sciences set up an investigatory committee, the Automatic Language Processing Advisory Committee (ALPAC), with the task of investigating the results so far obtained and advising on further funding. The committee, in setting up a framework for assessing machine translation, considered such questions as quality and effectiveness of human translation, the time and money required for scientists to learn Russian, amounts spent for translation within the US government and the need for translations and translators. Based on such criteria, the committee came to a strong negative conclusion '... we do not have useful machine translation. Further, there is no immediate or predictable prospect of useful machine translation'.

The ALPAC report effectively killed machine translation research in the States, although some European projects survived.

In the years since the ALPAC report, a number of commercial systems has been developed, some of them, ironically, based on the very system so roundly condemned by the ALPAC committee. Two trends can be distinguished: systems, such as SYSTRAN, which still aim at no significant human intervention during the translation process, but accept pre- and/or post-editing, and interactive systems which aim primarily at being translators' aids, such as Weidner or Alps.

In recent years, partially because the development of commercial systems renewed faith in the feasibility of machine translation, partially because of the results achieved by the surviving research projects, above all because of the growing and pressing need for translation, research in machine translation has begun to revive. At the moment, the European Community is sponsoring a large research and development programme, France has a National Project on machine translation, a very large number of projects are being funded in Japan and a German Corporation is proposing commercial development of a system developed at the University of Texas.

There are people who see strong parallels between the present situation and that immediately before the publication of the ALPAC report, foreseeing a second 'failure' for machine translation as a discipline. Others believe that advances in linguistics and in computer science, together with the results of the last twenty years, justify a cautious optimism, especially when the more realistic expectations of today's research workers (and of their funding authorities) are taken into account.

The panel discussion will aim at clarifying similarities and differences in the two states of the world, weighing both scientific considerations and other relevant factors.

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