MACHINE TRANSLATION: A FAST DEVELOPMENT, A SLOW INTERNALIZATION

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Some progresses in Machine Translation design are always dependent on a proper conjuncture of theory, practical know-how and experience between computational linguistics, contrastive linguistics, cognitive science, ergonomics, psychology and translation theory. The history of machine translation is characterised by the happy convergence of some of these fields of study in a particular combination of theory and applications. We can speak of decades or generations of MT design according to the nature of this combination at any one time.

The first generation of MT design consisted of computer scientists who had a conservative and in many cases naive outlook on linguistics and translation. The linguistic design of the MT systems of the fifties was structuralist and concentrated on simple models of morphology and a little morphosyntax (Bennet, 1993)[1].Translation was attempted without much syntactical description by a simple dictionary matching mechanism. Where the conventional dictionary did not provide simple answers, longer phrases were used in the manner of the conventional phrase book.

The second generation, identifiable also with the period 1955-65, recognised the need for a linguistic foundation. Syntactic analysis was considered the key to the translation process. Some 'semantic' features were also incorporated in order to reduce lexical ambiguity.

On the other hand there was little progress in computational techniques. Programs were still written in low level languages designed for numeric computing involving opaque techniques on slow machines which had to be shared with numerically-based computing tasks.

It is perhaps not surprising that this period did not produce much of lasting impact and led to a temporary stop in funding, especially in the United States of America and the United Kingdom. This period saw the creation of the first research groups exclusively dedicated to MT in France and Germany.

In the seventies MT re-started with a new generation both in terms of linguistic and computational innovation. The first goal of machine translation, formulated in the 1960s and represented by the acronym FAHQT, (Fully Automated High-Quality Translation), was not only overambitious but itself unrealistic.

Now that more is known about the capabilities of the computer and there is a better understanding of what is involved in translation, it is evident that the goal was wrongly expressed. On our view, that goal should always have been "Maximum Assistance in Text Processing, Understanding and Translating" or, to create another improbable acronym, MATPUT. This goal is open-ended and current developments are moving towards it.

Retrospectively, it can be seen that since the early times of MT research in the 1950s there has been a remarkable change away from the climate of euphoria and ignorance to realism and critical assessment. The early enthusiasm was necessary because without it, the new developments would not have been sustained; the lack of knowledge is gradually disappearing as greater insights are emerging from the complex processes involved in translation.

MT system developers and manufacturers had to learn how to introduce their products in the tele-market. The initial hard-sell techniques of inferior systems had an alienating effect on users and, in Europe at least, created a hostile climate which it has taken years to overcome (Commission of the EC, 1998)[2]. Excessive

claims by manufacturers made the less informed translators fearful about their workplace. Highly-trained sellers tried to sell without listening the translators' opinion, as if they did not need them to implement the systems. By the 1990s manufacturers have moderated their early claims of performance and applicability of MT systems in favour of more realistic assessments of benefits.

As a result the original hostility and later scepticism have been replaced by the knowledge of the limitations of MT and an appreciation of the real benefits to be emerged from the new information technology in general. Potential users can now get more reliable information about systems, rather than publicity material.

By 1991 it was discussed who should be involved in the design of MT systems, so few translators joined the ranks of computational linguists. Direct translator involvement was not the solution hoped for. Instead, MT designers started reading about theories of translation and communications and listening to translators. In the process they discovered that translation is a more complex activity than they had thought. The fact that translation systems have to be based on models of translation which themselves require a theoretical foundation is now widely accepted. It will take a few more years before this realisation is fully reflected in operational systems.

The relative slowness of translators to adopt the new technology is a result of the complexity of operating existing systems and the inability of designers to adjust to the working reality of translators. In 1986, a survey of the advances of information technology reported that, while 53% of translators used word processors, only 47% were satisfied with the existing equipment (Information Market 62, 1998)[3].

The same survey established that only a small number of translators had any actual experience of machine translation, but a relatively high 26% had a negative attitude to this type of translation aid. This can be partly explained, for example, by the fact that it is extremely difficult for translators to test systems. Short

demonstrations ale quite useless; translators need to test systems over a period of time and only large firms have been able to insist on these conditions in their negotiations with manufacturers. The batch processing mode of the early systems also proved to remote and slow and the facilities of the first on-line access systems proved to cumbersome.

The simultaneous introductions of word-processing and simple lexical database systems have, paradoxically, also had an initially adverse effect on the acceptance of MT. These two developments mark the beginning of a translator's workstation: translators can now edit text and build dictionaries for particular applications.

All these facilities contribute to the qualitative improvement of both the content and the presentation of work and to a greater economy of production, while at the same time considerably increasing translators' productivity. The paradox lies in the fact that the introduction of these tools for large-scale translation tasks, information technology delayed rather than advanced the introduction of machine translation, because human nature has at any one time only a limited capacity for absorbing new ideas and techniques.

To put it in other words, translation as a craftman work is intrinsically linked to its conventional tools and most translators are traditionalists by nature, preservers of balances, accuracies and niceties (Newmark, 1981)[4]. Some very successful professional translators, after all, still insist on using only pen and paper or dictation.

It takes a long time and probably a full generation before the profession will widely accept the new tools. The younger generation of translators, who start their career already relying on the everyday use of word-processors, have more readily accepted Machine Translation.

Notes

1. *The Translation Unit in Humans and Machines*. Manchester: CCL/UMIST.

2. *XXIII Report on the activities of the European Communities*. Brussels andLuxembourg: CEC.

3. *Commission of the European Communities*. Directorate General XIII.

4. *Approaches to Translation*. Oxford: Pergamon.