FORUM ON MACHINE TRANSLATION

Machine Translation already does Work

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PANELIST STATEMENT

The first difficulty in answering a question like "Does machine translation work is that the question itself is ill-posed. It takes for granted that there is one single thing called machine translation and that everyone is agreed about what it is. But in fact, even a cursory glance at the systems already around, either in regular operational use or under development, will reveal a wide range of different types of systems.

If we take first the dimension determined by who/what does most of the work, the machine or the translator or revisor, at one end of the scale are systems where the human does not intervene at all during the process of translation - "batch" systems for convenience here. Even amongst the batch systems there is considerable variety: the degree of pre-editing permitted or required varies greatly, as does the amount of post-editing foreseen. Some systems insist that anything translated by the machine should require no post-editing, and thus (sometimes) reject as unsuitable for machine treatment a part of the text. Others take it for granted that machine translation will normaly be post-edited, just as human translation is normally revised. Some systems aim at giving nothing more than a very rough raw translation, to be used by the human translator only as a starting point for producing his own translation. Some systems require that the document to be translated conform to a restricted syntax, others leave the author relatively free.

Next comes a class of systems that one might style "interactive" systems, where the bulk of the work is still done by the machine, but where the system interacts with a human to a greater or lesser degree. Such systems may ask the human, for example, to resolve an ambiguity in the source text, to choose between a set of target language terms, to decide on correct use of prepositions, or any combination of these and other similar tasks.

Shifting towards the end of the scale where the bulk of the work is done by a human translator aided by a computer system, there are systems which will automatically insert identified technical terms, or replace a phrase occurring repeatedly in the text by its translation wherever it appears, leaving the rest of the translation to be done by the human translator, systems where the translator as he produces the translation can consult specialist or general dictionaries, either constructed by the translator himself for the particular needs of the text, or supplied by the system manufacturer. Many -indeed most- such systems are allied with clever text-processing systems specially designed for use by translators.

Finally, although perhaps not strictly machine translation systems, but certainly of potentially great practical utility to the working translator, are independent packages, not necessarily integrated into a translator's work station type of environment. These include automated terminology banks, dictionary look-up facilities, and general tools such as spelling or grammar checkers.

In all this, I have quite deliberately omitted consideration of machine translation systems conceived of as primarily research tools, intended to test the validity of a particular theory or to experiment with some new proposal, since I take it that the worry lying behind the original question -and behind the moderator's statement- concerns systems which are in some way subject to external evaluation, and which can therefore lead to dissatisfaction. The status of research and experimental systems as valuable research tools seems quite uncontentious.

Now, just as machine translation is not a single indivisible whole, but rather a range of systems sharing only the common characteristic that they are used in one way or another in performing the task of translation, so the need for machine translation is different, depending on the particular characteristics of individual situations.

Here, so many factors come into determining what the real need is that I shall not even attempt to give an exhaustive list, limiting myself instead to a handful of indicative, but necessarily over-simplified, examples. Take first the example of a large translation service, translating documents essentially very similar to one another, but in great volume and frequently at very short notice. This is the typical situation in which what is needed is a batch service, producing reasonable quality translation which can if necessary be revised, where the degree of revision to be done depends on the use to which the translated document is to be put. (If the point of the document is to inform its readers in very general terms of what was discussed in a particuler meeeting, perhaps no revision at all is necessary, if it is to serve as the basis of discussion in a subsequent meeting, it may require quite a lot of revision, if it is to serve as the basis of a treaty or an agreement, it should never have been allowed near a machine translation system in the first place, and the translation should be thrown away). In such a situation, an interactive system, on the other hand, is likely to be unsuitable, since the main problem is the bulk of work to be done, and the translator or revisor is better occupied dealing with those documents unsuitable for machine treatment or revising where necessary than in sitting in front of a screen watching the machine at work.

In a different situation, however, where what is required is very high quality translation, and where the volume of translation to be done is a less pressing problem, so that the main concern is in rationalising the translator's work whilst contingently increasing his productivity, an interactive system may prove to be the ideal choice, especially if the text type is a mixture of repetitive material which it is boring (and time-wasting) to translate manually each time it appears and quite delicate text requiring great care.

In yet another situation the major problem may be the typical length of documents, combined with a need for speed and a need for terminological accuracy, so that a single document is split over a number of translators working independently, but all must use the same translation for certain terms. Here, the ideal system might well be simply to provide all the translators with access to a clever text-processor from within which they could access easily a common term bank, with all the rest being left to the translator.

There is no need to labour the point: different set-ups have different problems to solve, and therefore, whether they know it or not, need different kinds of machine translation systems.

Now we can return to the original question: machine translation works when the machine translation system is able to resolve in a significant measure the particuler trans-

lation problems in a particular situation. To put this more crudely, no-one should try to persuade the translator of Faust that a batch translation system will do him any good at all, and no-one should try to persuade the translation service that churns out several hundred invitations to meetings every day that an automated dictionary look-up facility will solve their problems.

Once this is realized, the puzzle contained in people asking questions like whether it is a good idea to work on machine translation in a world where it is demonstrably the case that machine translation systems exist and are counted satisfactory by their users begins to go away. The succesful systems are those where what is provided by the system matches what is required to solve the real problem, where the system developers realistically assessed what they could offer, went ahead and provided that, and where those who commissioned the construction or purchase of a system had expectations matched by what was actually delivered.

A final question to those who claim that it is somehow dangerous or irresponsible to promise to produce a machine translation system. If one promises and fails (apart of course from the general principle that one should always try to fulfil one's promises and not to promise what one cannot deliver), why is that more damaging to the field than working on speech-recognition and failing?