

SOME REFLECTIONS ON THE PRESENT OUTLOOK  
FOR HIGH-QUALITY MACHINE TRANSLATION

by

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I shall take off from Josselson's recent report<sup>1</sup> on the progress of MT research in the 60's. By starting there, I shall be able to restrict myself to pointing out certain issues that seem to me not to have been adequately treated in the MT literature, including the most recent one.

For high-quality MT it is now probably generally recognized that reliance on the best available linguistic theories is a necessary but by no means sufficient condition. But for reasons I have discussed elsewhere at length, even the best modern linguistic theories do not treat adequately the pragmatic aspects of communication in natural languages. As a matter of fact, these aspects are simply not yet sufficiently well understood to receive a satisfactory explicit formulation, not even to the degree that the so-called semantic aspects have already received.

Applied linguistics, or the theory of linguistic performance, of which the theory of translation is a part, works with utterances and sequences of such as basic units. What a translation program is meant to provide a translation for is primarily utterances (written, printed or spoken), and only secondarily, if at all, sentences (or sequences of such); though, in some sense, translation of utterances may still be based on translation of sentences.

It is now almost generally agreed upon that high-quality MT is possible only when the text to be translated has been understood, in an appropriate sense, by the translating mechanism. A full understanding requires taking into account the pragmatic aspects of the text, such as by whom the text was produced, for which kind of audience it was meant, which kind of background knowledge the producer of the text assumed to be available to the audience, the time, the place, and other parameters of the situation in which the text was produced, etc.

In view of the present non-existence of an adequate theory of the pragmatics of communication in natural languages and the small likelihood that such a theory will be produced in the near future, the question arises to what degree disregarding the pragmatic aspects of the production of a given text will diminish the quality of its translation. There exists a good amount of published material on this matter, with regard to human translation, but so far we have little systematic insight and still less experimental evidence.

In principle, understanding a given text means, for instance, being able to tell which, if any, statements the producer of this text intended to make, which, if any, questions he intended to ask, which, if any, commands he intended to give, etc. In order to manipulate these statements, questions, commands, etc., e.g. in order to produce another text in a different language, by which the same statements can be made, the same questions asked, etc., it seems, in general, to be necessary to reformulate these statements, questions, commands, etc., in some constructed, non-pragmatic language, the so-called intermediate or pivot language. This issue has been adequately covered in the literature, and I have no new comments to make, except to state that in view of the enormous difficulties that stand in the way of such a language, any attempt for MT research to wait for the completion of this task would just mean the end of this research.

I am in no position to estimate to what degree a lowering of this aim would enable MT research to continue; a clarification of this issue would be vital. It is not inconceivable that a certain amount of experimentation could be performed with human translators who would be instructed to deliberately disregard some or all of the pragmatic aspects they

would usually take into consideration and to compare these outputs as to their degree of satisfactoriness for a variety of users in a variety of conditions.

In other words, it now seems more than ever that the ideal of obtaining MT of a general quality comparable to that of a good human translator has led to a dead end. It seems therefore to be mandatory to investigate, more thoroughly than before, the various possible substitutes: (1) Machine-aided human translation, (2) man-aided machine translation, (3) low-quality autonomous machine translation. These are all eminently practical matters that still have to be based, in some form, on linguistic theory, particularly on psycholinguistics, but will have to rely to a much higher degree on investigations of man-machine interactive systems and on the psychology of the behavior of humans in such conditions.

It seems, then, that we have turned full circle in MT research and are now approximately back where we started some 19 years ago. MT will probably have to rely on language-dependent strategies rather than on some highly developed theory, but it is quite clear that the detour has enormously helped clarify the issue, has dispelled any Utopian hopes so that we are now in a much better position to attack this problem afresh.

Let me make a side remark. When I started using the term "high quality" a number of years ago, I was using it in a much too absolute sense which cannot be seriously justified. "High quality" has to be relativized with regard to users and with regard to situations. A translation which is of good quality for a certain user in a certain situation might be of lesser quality for the same user in a different situation or for a different user,

whether in the same or in a different situation. What is satisfactory for one need not be satisfactory for another. This remark, of course, is trivial as such, but its implications for MT might not have been always fully realized. It is therefore, for instance, not inconceivable that a translation program with an unsatisfactory output for a certain user under given conditions might turn out to be more satisfactory if the conditions are changed, for instance, if the user is allowed to ask back certain questions and the computer is programmed to answer these questions upon request. Again, clearly, much experimentation is needed to get more light on this issue.

Altogether, I am rather doubtful whether at this stage any further research on the possibilities of normalization, canonization, or other types of regimentation of the input to MT will prove to be useful. At any rate, this type of research, if at all, should not be undertaken by MT research groups but by linguists at large. The results, if any, of their research will have a much broader application than to the problem of MT alone. MT research should restrict itself, in my opinion, to the development of language-dependent strategies and follow the general linguistic research only to such a degree as is necessary without losing oneself in Utopian hopes. Every program for machine translation should be immediately tested as to its effects on the human user. He is the first and final judge, and it is he who will have to tell whether he is ready to trade quality for speed, and to what degree.

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<sup>1</sup> Josselson, Harry H. 'A Linguistic Interpretation of MT in the Sixties.' Eleventh Annual Progress Report, Research in Computer-Aided Translation, Wayne State University, August 31, 1969, pp. 1-72.