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AUTOMATIC TRANSLATION IN THE USSR

by

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I have been asked to say a few words about the present state of automatic translation in the Soviet Union. I am in rather a difficult position. I must admit that I am only a dilettante in this field, so it is rather difficult for me to talk about it. I can just talk about some of our organizations that are working on automatic translation, about some of the people involved and about some of the main outstanding features that have happened recently in automatic translation in the Soviet Union. I apologise if I say anything that is technically wrong in this field.

The following organisations are actively working on mechanical translation at the moment in the Soviet Union: the Mathematics Institute of the Academy of Sciences of USSR, the Institute of Precision Mechanics and Computation Technology, the Linguistic Institute - these all belong to the Academy of Sciences. There is also work being done in the Laboratory on electro-modelling. Also the Leningrad University has special work being carried out in the Experimental Laboratory on machine translation. In other organisations, also, there are other people who are interested in this particular problem. The Moscow Pedagogic Institute of Foreign Languages is interested in this, and they are doing experiments in this field. A special society for machine translation has been formed: it has regular sessions and publishes proceedings now.

There are two different lines along which automatic translation is being pursued. The Institute of Precision Mechanics was the first in the field, and is following the first line. They have a purely experimental approach to the translation problem, and are more interested in the actual process of translation than in the language itself: so that they are really more interested in getting practical results quickly. In actual fact this particular institute was the first to show experimental results in translation from English. The Mathematics Institute was also experimenting in the same way. There they were actually doing French

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translations, finding formal methods of getting French translations into Russian. This work has been done by Dr. Olga Kulagina.

So far as the other Institutes that are concerned who are studying this problem of translation, they are following a different approach, which is more theoretical. They are studying the purely formal problems of the language itself, the language structure; then, by doing these formal studies of a language, one can formulate definite rules for translation.

Attention is being paid to the problem of an intermediate language. I am sorry I cannot really say anything more about the detailed side of the problem. I have been more concerned with programming the language translation machine, i. e., the machinery for programming the programmes to put into the machine which automates the construction of the input to the translator.

The Mathematics Institute does work on the large compiler, which automatically constructs the programme for translation. This compiler also has been constructed by Dr. Olga Kulagina. In order to use a compiler like this, you have to get the algorithm of the translation; you have to represent the algorithm as a sequence of specific statements that will characterise the translation. The compiler can make use of 12 to 15 of these different statements. This is already being used for making a programme. Automation of Programming is also done in the Institute of Precise Mechanics. Dr. Razumovskij has done some work in this field.

In Moscow there are quite a lot of seminaries now on machine translation. In Moscow University there is a regular one on mathematical linguistics. Dr. Uspenskij is in charge of the seminary.

The Pedagogic Institute of Foreign Languages also organised a conference which was held in May, 1958 in Moscow. There were about 300 people at this conference and 80 papers were read about machine translation. In the recent international conference of Slavic languages there were several lectures about machine translation. I would like to mention specially a general lecture by Dr. Rozenveig. He made a general survey of the linguistic problems in mechanical translation. The value of this is that it has a very good list of references.

Now there are already very specific articles appearing in the Soviet Press about machine translation. I have two special books I would like to show you about machine translation. The first is - "Problems of Cybernetics" (*ref.1*). It contains three articles on machine translation. There is an article about a mathematical model of language, another about a translation from Hungarian into Russian, the third about translation from English into Russian. The other book is the second edition of Panov's book on translation (*ref.2*). There are quite a lot of modifications from the first issue. It is bigger and has been altered to a large extent.

Next year there is going to be a large book by Mrs. Belskaja, which will describe the various work which has been done on automatic translation at

the Institute of Precision Mechanics and Computation Technology. Two next issues of "Problems of Cybernetics" are being prepared for this year. I can say that every copy of this contains three or four articles on linguistic translation.

I will just say a few words about the present tendencies in automatic translation. There had not been anything published in the Soviet Union recently about new experimental translations. That is because they are mainly occupied at the moment with theoretical problems.

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2. PANOV, D. Yu. Automatic Translation. *Academy of Sciences of the USSR, Moscow* (1958).