XXI.   MECHANICAL TRANSLATION*

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RESEARCH OBJECTIVES

The primary objective of our research program is to find out how languages can be meaningfully manipulated and translated by machine, and to evaluate the quality that can be achieved with different approaches, the usefulness of the results and their costs.   A further objective is to achieve a basic understanding of human communication and language use,   and to add to the general knowledge of noncomputational uses of digital computing machinery.

We have always stressed a basic, long-range approach to the problems of mechanical translation.   We are placing emphasis on completeness, when completeness is possible, and on finding out how to do a complete job if one is not now possible.   This emphasis has led us into the study of many of the fundamental questions of language and translation. We are not looking for short-cut methods that might yield partially adequate translations at an early date — an important goal that is being pursued by other groups.   We are seeking definitive solutions that will be permanent advances in the field, rather than ad hoc or temporary solutions that may eventually have to be discarded because they are not compatible with improved systems.

A broad and basic program of research is being carried out.   In linguistic theory, a computer model of linguistic behavior is being studied which has already provided insight into the reasons why human languages are complex.   Linguistic descriptions are being prepared for English, German, French, and Arabic.   An experimental Arabic to English translation program is under development.   In the area of semantics, work is proceeding along several avenues in an attempt to program a machine to understand English.   Language is also being studied from a logical point of view to clarify the semantic significance of certain difficult and crucial words.   The nature of the translation relation is being given special emphasis. Computer programming languages are being studied.   The group has developed and is improving COMIT, a convenient large-scale computer programming system which greatly reduces the effort required to write programs related to the research.

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