# Organisation and Method in Mechanical Translation Work

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Certain postulates are posited as a basis for the orientation and organization of research in mechanical translation. They are the following:

1. The essential problem of mechanical translation is the establishment of acceptable correlation between the signs of one system (the source language) and those of another (the target language).

2. The signs of natural language, unlike the symbols of such systems as mathematics or chemistry, may be incomplete and multivalent.

3. The basic problem is the establishment of codes of systematic affixes to confer completeness and fixity in order to achieve acceptable correlation.

4. These systems of affixes must be such as to reflect the operations of translation and be programmable.

Based on these postulates, a group research program calls for certain organization and methods. Those in the Georgetown research project are as follows:

1. The recognition that at this phase of the research the primary problem is one of linguistic and translation analysis.

2. The essential direction of the research is placed in the hands of a group of scientific linguists of diverse competences.

3. The linguists meet regularly in a seminar in which specific problems are presented by a member of the group for discussion, review, and comments by the other members. As a result of the examination of specific problems, certain conclusions are formulated, some of them preliminary in character.

4. Under the guidance of the committee of linguists a group of research assistants with at least Master's standing in linguistics, who participate in the seminar, carry out the detailed research based on such conclusions, in conjunction with a group of bilingual translation analysts.

5. The translation analysis is focused on material already translated in the field of chemistry. From this corpus, the material is analyzed systematically for eventual coding on three broad levels conjointly: 1) lexical, 2) morphological, and 3) syntactic.

6. The lexical material is culled from the actual translated text. The decision items within a given context are identified. The contextual cue or cues to the choice decision are indicated.

7. In addition to establishing solutions for lexical multivalence, procedures are being developed to handle problems in morphology and syntax as they arise in the material. At this stage in the research only preliminary formulations exist.

8. In carding the lexical and grammatical data, an attempt is made to symbolize the categorization by a code as follows:

| | | |
|---|---|---|
| 1. | ○  l = l | One-for-one equivalence and identical linear sequence |
| 2. | ⊖ | Deletion of source item(s) in output material |
| 3. | ⊕ | Insertion of items in output |
| 4. | ⎯⎯⎯⌐ | Choice of multivalent situation, based on item(s) following decision item |
| 5. | ⌐⎯⎯⎯ | Choice in multivalent situation, based on item(s) preceding decision item |
| 6. | ⌐⎯⎯⌐ | Combination of 4. and 5. |
| 7. | ⌐⎯⎯⌐ | Inversion or change in sequential order of items at output |
| 8. | ⊤↓ | Choice in multivalent situation based on partial item in decision item |

The seminar will work as required by emerging experience with the assistance of consultants in the fields of coding techniques, computational techniques, symbolic logic, and mathematics.