

Le present compte-rendu a pour objet de préciser les principes généraux utilisés, la réaction des étudiants et le rendement pédagogique obtenu.

1. *Graphes morphologiques*: Les mots d'une même famille. Notion de base. La double ramification. Les graphes abstraits. Les néologismes scientifiques.
2. *Graphes syntaxiques*: La double structure d'une phrase. Multiplicité des modèles. Point de vue psychologique. Notion de fonction. Continuité et discontinuité.
3. *Les séparateurs*: La segmentation d'une phrase. Le vocabulaire prioritaire.
4. Théorie de la valence: macro et microcontexte. Qu'est-ce-que "connaître un mot"?
5. Point de vue de l'étudiant; point de vue du traducteur humain; et point de vue de l'Enseignant.

Word and Context Association by Means of Linear Networks

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This paper is concerned with the use of electrical networks for the automatic recognition of statistical associations among words and contexts present in written text. A general mathematical theory is proposed for association by means of linear transformations, and it is shown that this theory can be realized through use of passive linear electrical networks. Several small-scale experimental associative networks have been built, and are briefly described in the paper; one such device will be demonstrated in the course of the oral presentation of the paper. Some of the devices generate measures of association among index terms used to characterize a document collection, and between the index terms and the documents themselves. Another uses syntactic proximity within sentences as a criterion for the generation of word association measures. Examples are given of associations produced by these network devices. It is conjectured that the network-produced association measures reflect two distinct types of linguistic association—"synonymy" association which reflects similarity of meaning, and "contiguity" association which reflects real-world relationships among designata.

A Study of the Combinatorial Properties of Russian Nouns

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A statistical study was made of the extent to which Russian nouns enter into certain kinds of syntactic combination. The basis of the study was a corpus of 180,000 running words of Russian physics text prepared for analysis by the Automatic Language Data Processing group at The Rand Corporation; for each

sentence of text the syntactic dependency of each word had been previously coded. A data retrieval program was applied, showing for each noun in text the number of occurrences (a) with at least one genitive noun dependent, (b) with at least one adjective dependent, and (c) with either type of dependent. A listing of all nouns in text (64,026 occurrences of 2,993 nouns) was prepared, ordered by frequency, and showing counts for a, b, and c above. Separate listings were prepared, showing for each noun that occurred 50 times or more the probability P that it would be modified in each of these three ways; these listings were ordered on P.

The data suggests, among others, the following conclusions: there is statistical significance in the variability with which nouns enter into the given combinations; the partial interchangeability of adjective and genitive noun modification is supported; a general correspondence exists between combinatorial groupings of nouns and morphological or semantic groupings (concrete nouns have low P for genitive complementation, abstract nouns have high P, etc); the use of words in a given field of discourse can be determined empirically (e.g., the use of deverbative nouns either to indicate a process or the result of a process). It is suggested that the distributional approach is a useful supplement to traditional syntactic and semantic classification schemes, and that it is of direct utility in automatic parsing programs.

Connectability Calculations, Syntactic Functions, and Russian Syntax

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A program for sentence-structure determination can be divided into routines for analysis of word order and for testing the grammatical connectability of pairs of sentence members. The present paper describes a connectability-test routine that uses the technique called *code matching*. This technique requires elaborate descriptions of individual items, say the words or morphemes listed in a dictionary, but it avoids the use of large tables or complicated programs for testing connectability. Development of the technique also leads to a certain clarification of the linguistic concepts of *function*, *exocentrism*, and *homography*.

In the present paper, a format for the description of Russian items is offered and a program for testing the connectability of pairs of Russian items is sketched. This system recognizes nine dominative functions: subjective; first, second, and third complementary; first, second, and third auxiliary; modifying; and predicative.

* On leave from The RAND Corporation, 1962-63. The work reported in this paper was accomplished in part at RAND and completed at EURATOM. A fuller account of the connectability-test routine for Russian dominative functions is to appear as a EURATOM report.