

Order of Subject and Predicate in Scientific Russian†

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A study by Kenneth E. Harper indicates that word order in Russian scientific writing is sufficiently similar to that of English to permit word-for-word translation from Russian to English. Further study of Russian texts shows that word order in scientific Russian is sufficiently different to require analysis, for translation purposes, based on form and function rather than on word-for-word correspondence.

IN HIS "A Preliminary Study of Russian",¹ Kenneth E. Harper states that a "word-for-word translation of Russian is adequate for understanding," since "in the field of scientific writing, Russian sentence structure is definitely close to English — much closer than is normal for other forms of Russian prose."

In support of this statement, Harper quotes certain figures:

"From a sample of 1,528 sentences containing a subject and verb:

Subject before verb: 81% of all occurrences
Verb before subject: 19% of all occurrences

(195 additional sentences contained an impersonal, or understood, subject; 24 sentences contained no verb.) The position of subject before verb (normal English word order) thus appears to prevail approximately four-fifths of the time."

Proceeding from these assumptions, Harper builds his system of mechanical translation of Russian upon word-for-word translation, stripping the Russian words of their endings to identify them by their stems, which are listed in the dictionary.

The purpose of this paper is to verify to what extent these assumptions are valid, i.e. to determine in what measure word order is predictable in scientific Russian.

One hundred twenty-eight pages of continuous text² were analyzed for the relative positions of the subject and the predicate. The predicate spot was determined syntactically, by its function, and the following types of fillers were found in the predicate spot: verb, adjective, noun, prepositional phrase, and various types of impersonal expressions.³ Sentences containing no predicate (so-called "nominal sentences") were not analyzed; their number was found to be relatively insignificant (headings, titles, bibliography lists, etc.). Main clauses and dependent clauses were not separated in the analysis.

Out of a total of 2914 clauses thus analyzed, the word order was as follows:

Subject — Predicate in 1915 instances, or
65.71% of the total;

Predicate — Subject in 342 instances, or
11.74% of the total.

† This study was conducted at the University of Michigan with research funds provided by the Engineering Research Institute.

1. Machine Translation of Languages, edited by W. N. Locke and A. D. Booth, John Wiley and Sons, Inc., New York, 1955, pp.66-85.

2. Zhurnal eksperimental'noy i teoreticheskoy fiziki, Tom 28, 1955, vyip. 1.

3. The classification is based on the Grammatika russkogo jazyka of the Academy of Sciences of the U.S. S.R., Moscow, 1954, Vol. II, 1, p.387ff.

The clause contained no subject in 657 instances, or 22.55% of the total.

1. The predicate slot was filled by a verb in 1527 instances, or 52.40% of the total. Of these the word order was Subject — Predicate in 1282 instances, 43.99% of the total; the word order was Predicate — Subject in 245 instances, 8.41% of the total, the ratio being 1282/245, or approximately 5/1.

2. The predicate slot was filled by a noun in 232 instances, or 7.96% of the total. The word order was Subject - Predicate in all instances without exception.

3. The predicate slot was filled by an adjective in 496 instances, or 17.02% of the total. Of these, the word order was Subject — Predicate in 399 instances, 13.69% of the total; the word order was Predicate — Subject in 97 instances, 3.33% of the total, the ratio being 399/97, or approximately 4/1.

The adjective filler was subdivided into adjective proper and past participle. The data are as follows:

Predicate slot filled by adjective proper:

Subject - Predicate, 267 instances or 9.16% of the total;
 Predicate — Subject, 25 instances or 0.86% of the total.

Ratio 267/25, or approximately 10/1.

The total number of instances when the predicate slot was filled by adjective proper was 292, or 10.02% of the total.

4. The predicate slot filled by past participle:

Subject — Predicate, 132 instances or 4.53% of the total;
 Predicate — Subject, 72 instances or 2.47% of the total.

The ratio was 132/72, or approximately 2/1. The total number of instances when the predicate slot was filled by past participle was 204, or 7.00% of the total.

5. The clauses contained no subject in 657 instances, or 22.55% of the total. Of that number, the predicate slot was filled by an impersonal expression (such as можно, следует, необходимо) in 383 instances, or 13.14%; the predicate slot was filled by a verb with included subject (such as получаем, выражаю) in 226 instances, or 7.76%.

6. The clause contained no other predicative element except an infinitive (strictly speaking, infinitive phrases, introduced by если or чтобы) in 48 instances, or 1.65% of the total.

7. The predicate slot was filled by a prepositional phrase in 2 instances, or 0.07% of the total.

These figures differ considerably from those obtained by Harper. Only approximately 50% of the sentences contain both a subject and a verb. The so-called "normal English word order" occurs in only approximately 44% of actual sentences, as compared to the 81% suggested by Harper. The predicate spot can be filled by a variety of classes of words. Almost 1/4 of the clauses contain no subject. The results of the above study indicate that the word order in scientific Russian is sufficiently different from that of English to make it imperative that the analysis be based on a consideration of form and function rather than word-for-word correspondence.