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**Semantic Development of the Utterance of the Stutterers  
at the Pre-School Age**

One of the oldest hypothesis claims that stuttering of young children is caused by discrepancy between the processes of thinking and speaking. The above assumption seems to have weak empirical foundations. In order to reinforce this hypothesis 36 stutterers and 36 nonstutterers aged 3-7 have been tested. We recorded the utterances of these children on the tape. They spoke about the cartoons they saw and the fairy-stories they heard before. Then we made an analysis of the semantic structure of those utterances on the basis of quantitative coefficient (1. the number of the basic pieces of information, 2. rearrangement, 3. discontinuance, 4. reduction, 5. information deformations and changing of the subject). Simultaneously we made the characteristics of speaking disfluency. The results of the tests allow us to formulate the following conclusions:

1. Semantic structure of the utterances of the stuttering children is poorer than semantic structure of the utterances of the nonstuttering ones ( $\chi^2 = 46,42$ ;  $p = 0.001$ ). Semantic mistakes of the stuttering children appear as a deformation and a reduction of the basic information.

2. The utterances of the nonstuttering children are less coherent semantically than the utterances of the nonstuttering ones. This results from the comparison of the coefficient of semantic compactness which was calculated according to the formula:

$$SC = \frac{A + B}{D + B},$$

where:  $SC$  — a coefficient of semantic compactness,  $A$  — a number of pieces of the basic information given by the examined children,  $B$  — a number of additional information,  $D$  — a number of all pieces of information which could be given by the examined children. This coefficient has the value of 0.41 in the stuttering children and 0.50 in the nonstuttering ones. The value of this coefficient grows in both groups together with the age of the examined children.

3. The utterances of the stuttering children are less fluent semantically than the utterances of the nonstuttering ones. It results from the comparison of the coefficient of the semantic disfluency which was calculated according to the formula:

$$SD = \frac{L}{A + B},$$

where:  $SD$  — a coefficient of semantic disfluency,  $L$  — a number of symptoms of speaking disfluency,  $A$  — a number of pieces of the basic information,  $B$  — a number of additional information. This coefficient has the value of 4.73 in the stuttering children and 1.51 in the nonstuttering ones. The value of coefficient in both groups decrease together with the age of the children.

4. If the semantic coherence of the text is lower, then the utterance becomes less fluent. This correlation appears in both groups of the children. The coefficient of the correlation between the semantic coherence and the semantic disfluency has the value of  $-0.67$  ( $p = 0.001$ ) in the stuttering children and  $-0.55$  ( $p = 0.01$ ) in the nonstuttering ones.

5. The speaking disfluency appears in a lot of points of semantic structure of the utterances. Disfluency symptoms locate most often at the beginning of the utterance or in the passage between a well-known information (datum) and a new information (novum).

We try to explain the results of the research in the light of neuro-psycholinguistic model of stuttering [1]. We think that one of the reasons of early stuttering are disorders of semantic stage programming of verbal utterances.

#### REFERENCES

- [1] Grzybowska A., Tarkowski Z., *Prz. Psychol. (Psychol. Rev.)*, 4 (1987), 863-878.