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Some aspects of realisation of speech units in stuttering in the light of own researches

ABSTRACT: The author in his paper attempts at answering a question concerning the relationship between dysfluent realisation of speech units (sound, open and closed syllable, word, phrase and sentence) and disordered symptoms occurring beyond the language (e.g. the speed of speech, symptoms of logophobia/anxiety, muscle comovements) and the age of the stutterers. The significant quantitative and qualitative differences, being prototypes for the age groups are also discussed. It will be in three age groups (A – 7–11 yrs.; B – 12–16; C – 17 yrs. and more) at the number of 250 stutterers discussed.

The findings of the study suggest the assumption that frequency of occurrence of dysfluent realisation of speech units among stutterers in three groups is very similar. The units that are most commonly blocked occur in initial sound, alike in all groups and stop-explosive consonants and vowels belong to the most frequently blocked ones. The highest ratio of frequency in stuttering in percentage is slight level of stuttering for all groups. Significant differences between groups in case of logophobia/anxiety level have been observed, but this is not discussed in this paper.

KEY WORDS: stuttering, dysfluency of speech, prototypical realisation of speech units, clonus and tonus blocking

Introduction

Experiences were gained during many years' logopedic practice, supported by knowledge derived from cognitive linguistics, resulted in slightly different look at the phenomenon of speech fluency disorders. Despite the lack of previous and more accurate research, regarding frequency of occurrence of certain categories and subcategories of stuttering symptoms among the stutterers of various age, it aimed at, undertaking research, global presentation of the problem of dysfluent speech as well as pathological symptoms occurring beyond the language in three age groups examined. From clinical experience, the occurrence of stuttering characteristics is similar in all age groups.

Comparing the stutterers groups (A – children: 7 –11 yrs.; B – adolescent: 12 –16 yrs.; C – adults: 17 yrs. and more, altogether two hundred and fifty people) could have been carried out basing on cognitive linguistics knowledge, including prototype theory and prototypical category organisation¹. The prototypical theory is based on linguistic research and connected with cognitive linguistics². Thus, not only the innovative nature of dysfluent realisation of speech units, that is, sound, syllable, word, phrase and sentence among the people from the separate age groups will be presented, but also the pathological symptoms beyond the language, accompanying stuttering (among other things the speed of speech, logophobia symptoms, but it will not be in this paper presented). Since the prototypes can also concern extralinguistic reality and then first observed specimen of a species (in this case: subcategories) become the prototypes for them.

It's very important to say that on the field of measurement of stuttering behaviour their research by Johnson's group³, Yairi research group⁴ and Bloodstein⁵ were published. Bloodstein⁶ said that "any measure of severity of stuttering is based upon an evaluative process subject to such troublesome uncontrolled variables as the standards, definitions, or criteria of the person who is doing the identifying". Johnson⁷ devised a system of classification of dysfluent types of speech behaviour consisting a few categories, e.g. interjections, part-word repetitions, word repetitions, phrase repetitions etc. The study presented in this paper refers to the above-mentioned research.

The main aim of the research and empiric hypotheses

The main aim of the research was establishing the relationship between not prototypical realisation of speech units (language prototypes) as well as symptoms

¹ I. NOWAKOWSKA-KEMPNA: *Jednostki językowe w analizie prototypowej*. Katowice, Międzyuczelniane Towarzystwo Naukowe im. R. Ajdukiewicza 2000, pp. 98–156; M. CHĘCIEK: *Jąkanie – diagnoza, terapia, program*. Kraków, Oficyna Wydawnicza „Impuls” 2007, pp. 127–132.

² R. LANGECKER: *A View of Linguistic Semantics*. In: *Topics in Cognitive Linguistics*. Ed. B. RUDZKA-OSTYN. Amsterdam, Benjamins 1988, pp. 3–48.

³ W. JOHNSON, F.L. DORLEY, D.C. SPRIESTERSBACH: *Diagnostic Methods in Speech Pathology*. New York, Harpes & Row 1963.

⁴ E. YAIRI, B. LEWIS: *Disfluencies at the Onset of Stuttering*. "Journal of Speech and Hearing Research" 1984, No. 35, pp. 782–788.

⁵ O. BLOODSTEIN: *A Handbook on Stuttering*. Chicago, National Easter Seal Society for Crippled Children and Adults 1969.

⁶ Ibidem, pp. 4–5.

⁷ W. JOHNSON: *The Onset of Stuttering*. Minneapolis, Univ. Minn. Press 1959.

occurring beyond the language (beyond the language prototypes) concerning stutterers, and their age.

Research carried out were used to frame the following research problem:

Is there a relationship, if so what relationship, between the dysfluent realisation of speech units and disordered symptoms occurring beyond the language, and the age of stutterers. What is more, are there significant quantitative and qualitative differences which are the prototypes for these groups?

Assuming that dysfluent realisation of speech units and disordered extralinguistics symptoms in both groups of stutterers A and B, as well as from the oldest group C, is the similar phenomenon in the scope of dysfluent realisation of speech unit; and a bit different in case of disordered symptoms occurring beyond the language alongside some forms of therapy, it was constructed the following empirical hypotheses:

- **Hypothesis 1.** Frequency of occurrence of dysfluent realisation of speech units among stutterers, in group A (children), B (adolescent) and C (adults), is similar. That means the lack of innovative nature of some phenomena of phonological-phonetic system connected with stammering of every group discussed.
- **Hypothesis 2.** Speech units, on the level of sounds and syllables, are more often dysfluently realised than those on the level of words, phrases and sentences. Moreover, they are most commonly blocked once or twice in their initial sound in all examined groups and are characterized by the lack of significant differences, that means prototypes concerning quantity, quality and position (in word, phrase, sentence, monologue⁸).

Methods and the research procedure

An analysis of records (on tape, video cassettes or DVD) and filled reports of diagnosis by Cooper & Cooper⁹ together with interviews allowed for classification of PWS as study cases in this research. The case with 4 and more average percentage of stuttering frequency and with *clonus* and *tonus blocking* (not with normal dysfluency of speech) were qualified to the present study. The frequency of stuttering in reciting, repeating, reading, responding, speaking spontaneously and *clonus* and *tonus blocking* was valued. 80 children, 100 teenagers and 70 adults were qualified to this study. It's named the *clonus blocking* as a repeating a syllables, part words, words, phrases and sentences without a bigger muscle tensions.

⁸ M. CHĘCIEK: *Jąkanie – diagnoza, terapia, program...*, pp. 119–126.

⁹ E.B. COOPER, C.S. COOPER: *Cooper Personalized Fluency Control Therapy – Revised*. Allen, Texas, DLM Teaching Resources 1985; M. CHĘCIEK: *Kwestionariusz Cooperow do Oceny Jąkania. Zarys terapii. Podręcznik*. Lublin, Fundacja Orator 2001.

It's the repeating of sounds without a bigger muscle tensions to *clonus blocking* included too. By the *tonus blocking* it's the repeating of the sounds with a very big muscle tensions named. To this category of blocking there are eg. a tense interruptions / pauses, a tense prolongation of sounds... particularly with the visible muscle tensions numbered too. We can speak on the *clonus-tonus / mixed blocking* too, with mostly of *clonus* or *tonus blocks*¹⁰.

In order to verify phrased hypotheses was conducted quasi-experimental research¹¹ observing one operand which was stuttering, that is not fluent speaking of pathological type, as well as extralinguistic factors accompanying the stuttering. It was also introduced the dependent variables, recognized as three age groups (A – 7–11 yrs.; B – 12–16 yrs.; C – 17 yrs. and more). The intention of the research was to show the influence of the operands on a dependent variable. In this paper, among the signs of stuttering was singled out among other things¹²:

- *tonus blocks* occurrence on the sound level on account of its kind (vowel, consonant and vowel parallel/or to consonant) place (initial sound and parallel initial sound, middle sound and final sound) and the number of repetitions (1–2 and 1–3 > means that some of the cases are repeated only 1–2 times and some, one, two, three and more times),
- *clonus blocks* occurrence on the level of sound because of its kind (vowel, consonant along with a vowel parallel/or to a consonant, *that means both vowel and consonant / simultaneously / in the same time, it will be in the text as "parallel" used*), position of occurrence in the word (the initial sound along with parallel initial, middle and final sounds), as well as the number of repetitions (1–2 and 1–3 >),
- *clonus blocks* occurrence on the level of syllable because of its kind (open, close and open parallel to close), place of occurrence (the initial sound in addition to parallel: initial, middle and final sound), and the number of repetitions (1–2 and 1–3 >),
- *clonus blocks* occurrence on the level of the word because of place of the word in the sentence (first word as well as the first, second one and the next word), phonetic consituation (among other things the kind of initial sound of the following word) and the number of the word repetition (1–2 and 1–3 >).

¹⁰ B. BRYNGELSON: *A method of stuttering*. "Journal of Abnormal Psychology" 1935, No. 30, pp. 194–198; O. BLOODSTEIN: *A Handbook on Stuttering*...

¹¹ M. LOBOCKI: *Metody i techniki badań pedagogicznych*. Kraków, Oficyna Wydawnicza „Impuls” 2000, p. 133.

¹² M. CHEŃCIEK: *Wybrane zagadnienia realizacji jednostek mowy w jakaniu się (fragmentaryczne wyniki badań) – cz. I*. „Śląskie Wiadomości Logopedyczne” 2006, nr 10, pp. 25–34; IDEM: *Jąkanie – diagnoza, terapia, program*...

Subjects characteristics and research course

The research material was conducted on two hundred and fifty stutterers aged between 7 and 42 years (table 1). The group included 82.8% of males, whereas the proportion of female subjects amounts 17.2% – ($N = 43$). The group was selected at random. From January 1992 until December 2003, two hundred and fifty cases were drawn of all the stutterers examined ($N = 748$). Children between 7 and 11, consists of 80 people which is 32 per cent, teenagers aged between 12–16 – 100 people (40%), whereas adults aged between 17 and 42 – 70 people (28.0%).

TABLE 1. Data of the researched group

Age	Sex				Domicile				Social descent						Total	
	M		F		Town		Village		Workman		Peasant		Intellectuals			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
A (7–11)	70	33.8	10	23.2	46	29	34	37.3	26	26.8	14	40	40	34	80	32
B (12–16)	83	40.1	17	39.6	65	40.8	35	38.5	39	40.2	9	25.7	52	44	100	40
C (≥ 17)	54	26.1	16	37.2	48	30.2	22	24.2	32	33	12	34.3	26	22	70	28
Total	207	100	43	100	159	100	91	100	97	100	35	100	118	100	250	100

Most of cases i.e. 63.6% ($N = 159$) live in cities, whereas 36.9% ($N = 91$) in villages. While selecting research group, current results on epidemiology of stuttering were taken into consideration¹³. These findings show that stuttering is found at least four times more often among males than females.

Two hundred and fifty people of all cases were drawn, taking into account the above gender proportions, as well as their age group of stutterers enrolling for a Psychological-Pedagogic Centre, are young people aged between 12–16. The next most numerous group consists of children aged between 7–11, whereas the young people and adults (17 years and more) apply for a logopedic therapy.

An assessment of dysfluent speech it was achieved by visual and aural methods during so called *programmed observation*¹⁴. This observation is often called categorised observation because of behaviour criteria predicted in advance included in it. It was taken into consideration free conversation from *the interview* and independent statements referred to separate subtests of the questionnaire (*Kwestionariusz Cooperow do Oceny Jakania*). Most statements were video or tape recorded.

¹³ G. ANDREWS: *The epidemiology of stuttering*. In: *Nature and Treatment of Stuttering: New directions*. Eds. R.F. CURLEE, W.H. PERKINS. San Diego, College-Hill Press, Inc. 1984, pp. 1–12.

¹⁴ M. LOBOCKI: *Metody i techniki badań pedagogicznych...*, p. 220.

The methods of applied statistical research

In order to compare the results among three groups it was used the Test of Significance of Differences Chi-quadrat¹⁵. Basing on statistically significant greatness. It was accomplished a cognitive description¹⁶. On the basis of the cognitive description pictures are presented and prototypical description including various phenomena regarded fluent speech disorder – stuttering as well as beyond the language symptoms, that accompany the stuttering (*prototypical – means most representative, most often*).

While accomplishing prototypical analysis of examined phenomena it was guided by the prototypical structure in accordance with the example par excellence of stuttering. However, it was not formed full pictures prototypical for the certain dysfluent speaking (e.g. occurrence of tonus blocks on the vowel level) according to the rule of a par excellence example, including par excellence prototype in the middle, whereas on the right and left side “often, more rarely, rarely, exceptionally” etc. The prototypical figures presented in the further part of the paper presents yet the line of thought.

Research results analysis (choice)

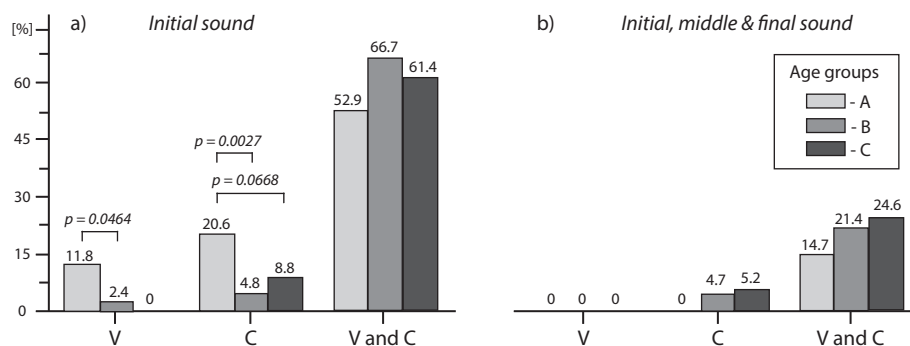
The comparison of frequency of occurring among the stutterers disturbed, dysfluent realisation of sounds, syllables, words, phrases and sentences, emphasizing their place (the initial sound, and parallel the initial sound, middle and final sound); the number of repetitions of given speech units (1–2 and 1–3>) the type of stuttering (*tonus, clonus, clonus-tonus/mixed*) as well as other symptoms connected with stuttering, compared to particular age group and above all, compared to other examined age groups which is to show, what quantitative and qualitative differences, if there are at all, of people presenting given, disordered language phenomenon regarding stuttering (and another symptom bound up with stuttering) in comparison with all people in given group and remaining age groups which have this speech units disorder phenomenon (and other symptoms that accompany stuttering).

¹⁵ S. JUSZCZYK: *Statystyka dla pedagogów*. Toruń, Wydawnictwo Adam Marszałek 2001, p. 211; J.D. LANIEC: *Elementy statystyki dla pedagogów*. Olsztyn, Wydawnictwo Uniwersytetu Warmińsko-Mazurskiego 1999, p. 251.

¹⁶ I. NOWAKOWSKA-KEMPNA: *Jednostki językowe...*, pp. 91–112.

Stuttering of tonus blocking on the sound level type

While analysing *tonus blocking* on the sound level, taking into account its type and place of blocking (prototypical figures 1a and 1b) it can be stated that among the stutterers the most frequent are parallel blocks on vowels or consonants in their initial sound ($N = 127$; 60.8%) or parallel in the initial, middle, and final sounds ($N = 42$; 20.1%). *Tonus blocks* on consonants occur more rarely ($N = 23$; 11.0%) and only on vowels ($N = 10$; 4.5%) in the initial sound. The consonant tonus blocking parallel to the initial, middle and final sound appear the most seldom ($N = 7$, 3.3%). *Tonus blocks* were not found in case of vowels occurring simultaneously with initial, palatal and explosive sound.



FIGURES 1a and 1b. Prototypes of *tonus blocking* on the sound level type

Considering age of examined while analysis, it has been found that in all age groups (A, B, C) the most frequent were the parallel *tonus blocks* on vowels and consonants in initial sounds of the words (A = 52.9%, B = 66.7%, C equals 61.4%) as well as simultaneously in initial sound, middle and final sounds in the word (A = 14.7%, B = 21.4%, C = 24.6%). The bigger differences were observed among the age group in case of *tonus blocking* on consonants and vowels in their initial sound. In group A blocks on consonants occurred among 14 people (20.6%), whereas in group B among 4 people (4.8%) and in group C among 5 people (8.8%).

Carrying out a prototypical analysis it must be said that prototypical are *tonus blocks* occurring on vowels parallel to consonant in their initial sound for the age group B (12–16 yrs.), the one which achieved the biggest sign 66.7%. Groups A and C got in this scope a bit lower results.

Prototypical figures 1a and 1b compare the *tonus blocking* occurrence in the initial sound of vowels, consonants, as well as vowels or consonants in three age groups. The first graph presenting the initial sound shows that in case of consonants statistically significant differences appear, that is relevant ones, between group A and B ($p = 0,0464$). In case of the consonants the statistically significant difference

($p = 0,0027$) appears also between group A and B, whereas the ratio on the statistic significance border was noticed between group A and C ($p = 0,0668$).

While analysing blocking occurring parallel on vowels and consonants in the initial sound, the lack of statistically significant differences is observed, and the frequency of blocking occurrence in this case is prototypical in relation to vowels and consonants exclusively blocked in the initial sound. While comparing the frequency of occurrence of this dysfluent phenomenon in group A, B and C, it must be said, that in this case prototypical will be group B with its highest ratio 66.7%.

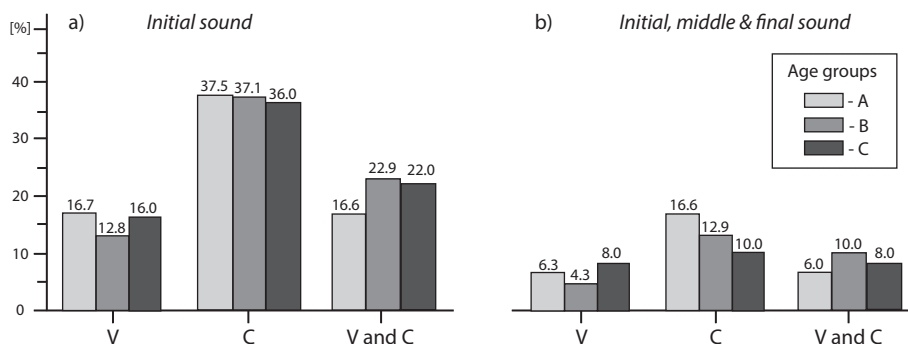
While analysing the figure 1b showing the indexes of *tonus blocking* occurrence parallel: in the initial, middle and final sound, any statistically significant differences for vowels and consonants, along with vowels parallel to consonants, can be observed. For this group lacking the speech fluency, prototypical will be the group of simultaneously blocked vowels and consonants in comparison with vowels and consonants blocked in an isolated way. The most prototypical, in this prototypical picture, is group C with its highest index 24.6%.

It should be explained that the per cent of the cases in the figures 1a and 1b each of group (A, B, C) with the *tonus blocking* as a initial sound and as a initial, middle and final sound simultaneously is to a hundred per cent added up (e.g. the group A: $11.8+20.6+52.9+0+0+14.7 = 100\%$). The third graphs in the figures 1a and 1b "V+C" showed. It means that these cases the *tonus blocks* on vowels and on consonants in their dysfluent speech showed. This explanation to the next figures in this paper refers too.

Stuttering of clonus type on the sound level

The research presented in the prototypical figures, as well as previous studies show that, *clonus blocking* should also include sounds repetitions during which, mild muscle tensions occur along with muscle comovements in mild degree only, or their lack. *Therefore, it should distinguish vowels repetitions in tonus blocking with strong muscle tensions and comovements, from the vowel repetitions in clonus blocking with the weak muscle tensions and few comovements (or their lack).*

The similar state of affairs can be observed in case of consonants. While distinguishing *tonus* and *clonus blocking* of the consonants it was taken into consideration not only the symptoms differentiating vowels, but also the fact that in case of the consonant, once it can be completely *tonus blocked* e.g. p-p-p-practice, p-p-p-partner (with strong muscle tensions and explosions, with many muscle comovements and others), next time *clonus*, as this consonant will be accompanied by semi-vowels, e.g. py-py-py-practice, py-py-py-partner (with mild muscle tensions and weak explosions along with minimal number of comovements or their lack).

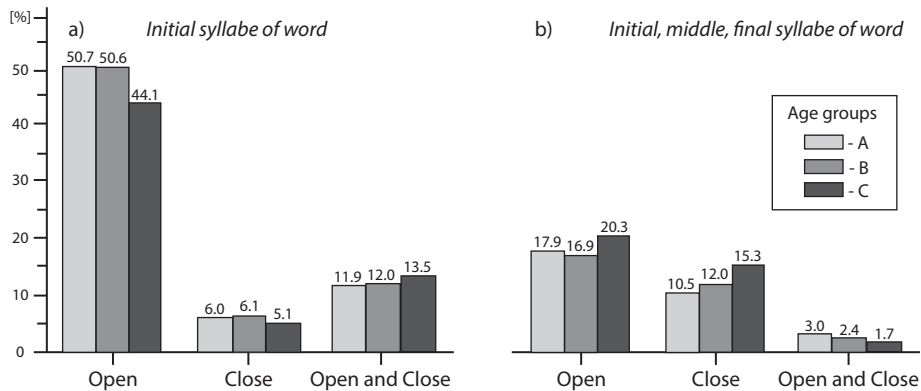


FIGURES 2a and 2b. Prototypes of *clonus blocking* on the sound level type

The results regarding *clonus blocks* occurrence on the sound level, taking into account its kind (vowel, consonant and vowel parallel to consonant) and the place of disorder occurrence (initial sound along with parallel initial, middle and final sound). The highest escalation of *clonus blocks* was observed on the consonant level in the initial sound in all age groups (A = 18 cases, it's 37.5%; B = 26 it's 37.1% and C = 18 it's 36.0%), whereas the lowest one on the vowel level and similarly, parallel on the level of vowels and consonants in three phonetic positions (initial, middle or final sound of word) simultaneously (in all three groups). Comparing the percentages in the prototypical figures the lack of statistical significance among the group is observed, owing to the lack of frequency advantage which would let call one of the group prototypical meeting the statistical calculations requirements. So, they are not prototypical. If the results from the chart in horizontal position were compared, what is distinctively shown on the graph, it would turn out that in group A prototypical would be the consonant *clonus blocking* in the initial sound with 37.5% index in relation to e.g. vowels, *clonus blocked*, parallel in initial, middle and final sound with 6.3% index. Similar analysis was conducted in group B and C getting comparable conclusions.

Stuttering of *clonus* type on the syllable level

Prototypical figures 3a and 3b show the frequency of *clonus blocks* occurrence on the syllable level with regard to its type (open syllable, close syllable along with open syllable parallel to the close one) and the position in the word (the initial sound and parallel: the initial, middle or final sound). The highest escalation of blocking frequency occurrence is visible in the initial sound of the words in case of open syllable in all groups discussed (A = 34 children, 50.7%, B = 42 adolescent, 50.6% and C = 26 adults, 44.1%), e.g. pa-pa-pa-paragon; sa-sa-sa-salary. Parallel *clonus blocking* on the open and/or close syllable in all phonetic positions (initial, middle or final syllable of



FIGURES 3a and 3b. Prototypes of *clonus blocking* on the syllable level

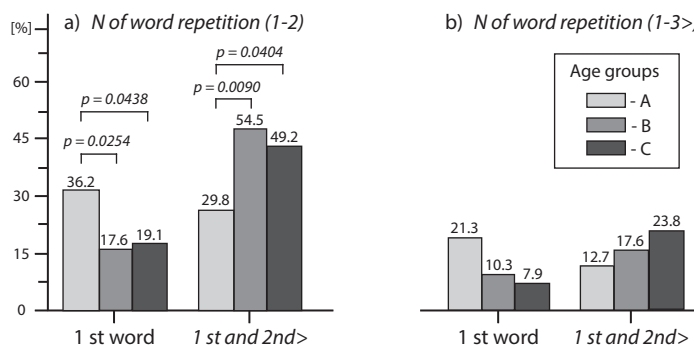
word) occurred on the opposite frequency pole in all group discussed (A = 2, 3.0%, B = 2, 2.4%, C = 1, 1.7%), e.g. ple-ple-plebiscite, bag-bag-bagpipes. Analysing the research results in columns it can be stated that examined groups are not prototypical because of lack of statistical significance. However, comparing particular categories of blocked syllables in the prototypical pictures the innovative nature of initial open syllable can be definitely recognized as a prototypical in all three groups in comparison with either e.g. open syllable occurring parallel in three phonetic positions (initial, middle or final syllable of word) and also in all examined groups, or in relation to each disorder category presented in these prototypical figures.

Therefore, in logopedic therapy the biggest attention should be focused on blocking the open syllable in the initial sound. It is known from experience that applying *Prolongation Speech Technique*, with the focus on prolonging the first vowel in the word, will cause, on the analogy, prolonging the following vowels which will result in fluent pronunciation of the word. Emphasizing the picture of these vowels in the read text will be a good example of the exercise, e.g. pArticipant, stEreometry¹⁷.

Stuttering of clonic type on the word level

The research results, regarding *clonus blocks* occurrence on the level of the words with regard to the position of dysfluent word in the sentence along with its number of repetitions, were collated in prototypical figures 4a and 4b. The biggest blocking escalation was noticed in group B and C in case of number of word repetition (1–2 and 1–3>) and further position of the word in the sentence (B = 37 adolescent, 54.5%,

¹⁷ A. PIELECKI, M. CHĘCIEK, Z. BARTKOWICZ: *Phonological Conditions of Role of Vowels in Therapy of Stutterers*. In: *Fluency Disorders: Theory, Research, Treatment and Self Help. Proceedings of the Third Congress on Fluency Disorders in Nyborg, Denmark*. Eds. H.G. BOSSHARDT, J.S. YARUSS, H.F.M. PETERS. Nijmegen, Nijmegen University Press 2000, pp. 381–385.

FIGURES 4a and 4b. Prototypes of *clonus* type on the word level

C = 31 adults, 49.2%). The statistical significance level of groups in comparison with group A ($p = 0,0090$ also $p = 0,0404$) is noticed here. Prototypical groups with this blocking category will be group B. Thus, group A becomes not prototypical. Statistically significant differences were also noticeable, as prototypical picture 4a shows, in case of blocking the first word of the sentence with the number of repetitions once or twice between group A ($N = 17, 36.2\%$) and groups B ($N = 12, 17.6\%$) and C ($N = 12, 19.1\%$), that is $p = 0,0254$ and $p = 0,0438$. The prototypical group in this category of dysfluency is group A, whereas groups B and C are not prototypical. The lowest escalation of this blocking category was noticed in case of repetition of the first word in the sentence 1–3 > times in groups C ($N = 5, 7.9\%$) and B ($N = 7, 10.3\%$).

Summary

From the research carried out after the verification of separate hypotheses, the following observations and notions were put forward (among others things):

1. In all age groups the most often occurred the categories of parallel *tonus blocks* on subcategory of vowels and consonant in three phonetic positions, that is in the initial, middle and final sounds in the word. The differences between groups were noticeable in case of *tonus blocking* on the consonants and vowels in the initial sound. The significant differences between groups were not observed, analysing the position and number of repetitions (1–2 as well as 1–3>) in case of parallel *tonus blocking* on vowels and consonants. Therefore, the biggest prototypical escalation was noticeable in the initial sound in case of parallel blocked vowels and consonants in group B ($N = 56, 66.7\%$). The biggest number of repetitions in subcategory was observed and also in group B ($N = 31, 41.9\%$), what can signify the innovative nature of number of repetitions and the group.

2. No significant differences of *tonus blocks* frequency occurrence on the nature of tense pauses, because of the kind of the sound, its position after the tense pause and their number both in case of vowels, consonants and vowels and consonants, were observed in the groups discussed. The most often blocked, so prototypical (without the recognition of significant differences), are parallel vowels and consonants in the initial sound with the biggest index of the middle group B ($N = 24$, 38.1%).
3. Research pointed to the need of qualifying sounds for the *clonus blocking* category, which has not been in detail observed in previous research. It should be differentiate *tonus sound blocking* with its *clonus blocking* because of the occurrence, in the second case, so called *semi-vowel* just after the consonant, which functions as an incomplete syllable (consonant plus *semi-vowel*). Comparing the frequency of this *clonus blocking* category occurrence on the sound level, with regard to its kind (vowel, consonant along with parallel vowel and consonant), place and number of repetitions – the lack of significant differences between particular age groups can be seen. The biggest index in this subcategory is presented by group A ($N = 18$, 37.5%) with explosive consonant, and this group would be prototypical in comparison with other ones which also present similar results.

References

- ANDREWS G.: *The epidemiology of stuttering*. In: *Nature and Treatment of Stuttering: New directions*. Eds. R.F. CURLEE, W.H. PERKINS. San Diego, College-Hill Press, Inc. 1984, pp. 1–12.
- BLOODSTEIN O.: *A Handbook on Stuttering*. Chicago, National Easter Seal Society for Crippled Children and Adults 1969.
- BRYNGELSON B.: *A method of stuttering*. "Journal of Abnormal Psychology" 1935, No. 30, pp. 194–198.
- CHEŃCIEK M.: *Jąkanie – diagnoza, terapia, program*. Kraków, Oficyna Wydawnicza „Impuls” 2007.
- CHEŃCIEK M.: *Kwestionariusz Cooperow do Oceny Jąkania. Zarys terapii. Podręcznik*. Lublin, Fundacja Orator 2001.
- CHEŃCIEK M.: *Wybrane zagadnienia realizacji jednostek mowy w jąkaniu się (fragmentaryczne wyniki badań) – cz. I*. „Śląskie Wiadomości Logopedyczne” 2006, nr 10, pp. 25–34.
- COOPER E.B., COOPER C.S.: *Cooper Personalized Fluency Control Therapy – Revised*. Allen, Texas, DLM Teaching Resources 1985.
- JOHNSON W.: *The Onset of Stuttering*. Minneapolis, Univ. Minn. Press 1959.

- JOHNSON W., DORLEY F.L., SPRIESTERSBACH D.C.: *Diagnostic Methods in Speech Pathology*. New York, Harpes & Row 1963.
- JUSZCZYK S.: *Statystyka dla pedagogów*. Toruń, Wydawnictwo Adam Marszałek 2001.
- LANGECKER R.: *A View of Linguistic Semantics*. In: *Topics in Cognitive Linguistics*. Ed. B. RUDZKA-OSTYN. Amsterdam, Benjamins 1988, pp. 3–48.
- LANIEC J.D.: *Elementy statystyki dla pedagogów*. Olsztyn, Wydawnictwo Uniwersytetu Warmińsko-Mazurskiego 1999.
- LOBOCKI M.: *Metody i techniki badań pedagogicznych*. Kraków, Oficyna Wydawnicza „Impuls” 2000.
- NOWAKOWSKA-KEMPNA I.: *Jednostki językowe w analizie prototypowej*. Katowice, Międzyuczelniane Towarzystwo Naukowe im. R. Ajdukiewicza 2000.
- PIELECKI A., CHĘCIEK M., BARTKOWICZ Z.: *Phonological Conditions of Role of Vowels in Therapy of Stutterers*. In: *Fluency Disorders: Theory, Research, Treatment and Self Help. Proceedings of the Third Congress on Fluency Disorders in Nyborg, Denmark*. Eds. H.G. BOSSHARDT, J.S. YARUSS, H.F.M. PETERS. Nijmegen, Nijmegen University Press 2000, pp. 381–385.
- YAIRI E., LEWIS B.: *Disfluencies at the Onset of Stuttering*. “Journal of Speech and Hearing Research” 1984, No. 35, pp. 782–788.