



## LINGUISTIC DISFLUENCY IN STORY-TELLING: EVIDENCE FROM LITHUANIAN- AND RUSSIAN-SPEAKING PRESCHOOLERS\*

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For citation: *Pediatrician*, 2016, vol. 7, No. 1, pp. 142–146

Accepted: 02.02.2016

**Abstract.** Speech disfluency can be distinguished as being either stuttering or linguistic disfluency; the latter can be divided into categories such as hesitations, fillers, repetitions, revisions, and connectors. Significance of linguistic disfluencies in the flow of conversation has been particularly emphasized at the very beginning of studies in conversational analysis; however, linguistic disfluency in children speech still has not been widely investigated. The paper deals with the production of mazes in story-telling. Our analysis was based on experimental data of two (Lithuanian- and Russian-speaking) groups of typically-developing monolingual children from middle-class families, attending state kindergartens. During the experiment, the children were asked to tell a story according to the picture sequence. After transcription of video-/audio-recorded stories, production of mazes was measured automatically by using CLAN tools. The study highlighted the main tendencies of linguistic disfluency in the narratives of Lithuanian- and Russian-speaking TD preschoolers, such as dominance of hesitations (especially, silent (unfilled) pauses) among all the mazes and prevalence of lexical reformulations among all the revisions. Only a few but significant differences were obtained between the groups: first, only in the Russian-speaking group hesitations correlated with revisions; second, in the Russian-speaking group, repetitions correlated with fillers, while in the Lithuanian-speaking group a correlation between silent (unfilled) pauses and repetitions was identified. The differences observed between the groups might lead to raising a question about cross-linguistic and cross-cultural universalities and differences from the perspective of linguistic disfluency in narrative speech.

**Keywords:** narrative; linguistic disfluency; hesitation; revision; repetition.

## НАРУШЕНИЕ ПЛАВНОСТИ РЕЧИ В НАРРАТИВЕ: ДАННЫЕ ЛИТОВСКО- И РУССКОГОВОРЯЩИХ ДОШКОЛЬНИКОВ

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Статья принята к печати 02.02.2016

**Резюме.** Неплавность речи встречается в двух формах: при заикании или в качестве затруднений в языковом программировании высказываний. Последнее выражается в следующих феноменах: хезитации, использовании филлеров, самоповторов, самоисправлений и в использовании коннекторов. Значимость языковой неплавности в реализации речевых актов отмечалась уже в самом начале появления конверсационного анализа как научного направления. Однако неплавность в детской речи изучена еще недостаточно. Статья посвящена изучению нарушений плавности речевого акта в рассказах, составленных детьми по картинкам. Исследование проводилось на двух выборках детей-дошкольников с нормой речевого развития, посещавших государственный детский сад: говорящих

на литовском и русскоговорящих. Детям предлагалось придумать рассказ по серии картинок. Видео- и аудиозаписи транскрибировались и подвергались автоматическому анализу посредством программы CLAN на предмет наличия явлений неплавности речи. Основное внимание в исследовании было обращено на проявления неплавности в речи литовскоговорящих и русскоговорящих дошкольников: частоту явлений хезитации (особенно пауз), частоту лексических реформуляций среди всех видов самокоррекции. Между группами были обнаружены достоверные различия в небольшом числе показателей. Только у русскоговорящих детей частота хезитаций коррелировала с общим числом самокоррекций, а число самоповторов с числом филлеров. В группе литовскоговорящих дошкольников пустые (не заполненные филлерами) паузы по частоте достоверно коррелировали с самоповторами, чего не было в группе русскоговорящих детей. Межгрупповые различия, выявленные в настоящем исследовании, актуализируют вопрос о наличии кроссязыковых и кросскультуральных универсалий и различий в языковой неплавности при порождении нарративов.

**Ключевые слова:** нарратив; нарушение плавности речи; колебание; самокоррекция; самоповтор.

## INTRODUCTION

Speech disfluency can generally be distinguished as being either *stuttering* or *linguistic disfluency* [16]. The second one, also called *mazes* [10, 15], can be divided into categories such as *hesitations*, *fillers*, *repetitions*, *revisions*, and *connectors* [4]. Despite the fact that all children demonstrate linguistic disfluency [15], language-impaired (LI) children tend to produce more mazes than do typically developing (TD) children [14], thus general number and proportions of linguistic disfluencies can potentially indicate language impairment and help to distinguish between TD and LI children. Moreover, some particular types of linguistic disfluency considered typical for bilingual children [4] and second language learners [16, 17].

On one hand, a great number of mazes might be a symptom of atypical language acquisition; on the other hand, production of mazes might be explained by serial models of speech production [1, 2, 5, 7], where a self-monitoring performs a crucial role.

Significance of linguistic disfluencies in the flow of conversation has been particularly emphasized at the very beginning of studies in conversational analysis [9]; however, linguistic disfluency in children speech still has not been widely investigated [18]. Moreover, previous studies in linguistic disfluency have been based mainly on English language data, thus we still need more comprehensive studies based on other languages in order to develop (cross-)linguistic profile for TD vs. LI children from the perspective of language fluency. The current study focuses on the production of mazes in Lithuanian- (LIT) and Russian-speaking (RUS) monolingual TD 6-year olds. Since LIT and RUS communities might be characterized as culturally and geographically close populations (and Lithuanian and Russian are typologically close languages), similar characteristics of mazes in the experimental groups might be expected; however, cultural and schooling differences might lead to some differences from the perspective of linguistic disfluency.

The questions addressed in this study include: What are a number and a distribution of mazes in LIT and RUS monolingual TD 6-year olds? How can the production of mazes explain a process of language production?

## DATA AND RESEARCH METHODOLOGY

**The subjects** of the study were 10 monolingual TD RUS children (mean age 76 months) and 10 monolingual TD LIT peers (mean age 76 months). The RUS subjects were living in Saint Petersburg; they attended state kindergarten daily and were taught according *The Federal State Educational Standard of Preschool Education*<sup>1</sup>. Similarly, the LIT subjects were living in Kaunas (the second largest city in Lithuania); they attended state kindergarten and were taught according a state programme *Pre-primary Education*<sup>2</sup>. An equal number of participants for both the groups were selected from those children whose parents provided written permission for them to participate in the experiment.

Preschool age considered critical for the transition from oral to written communication, which appears to be crucial for the later development of literacy and academic attainment. Thus language skills at preschool age should be investigated in order to indicate the linguistic profile of this age group and to identify children who need language therapy or a help in learning the written language.

**Procedure.** While various models and methods for analyzing children's linguistic competency have been developed, *narrative analysis* has been applied in many studies for a number of reasons. Following Hayward and Schneider [8], narratives "constitute instances of language in use rather than in isolated component out of

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<sup>2</sup> Priešmokyklinis ugdymas. Available at: [www.smm.lt/web/en/education\\_1/pre-primary-education-](http://www.smm.lt/web/en/education_1/pre-primary-education-) (accessed 11.10.2015).

context; they are an integral part of everyday social interactions and the school curriculum". The narratives are "typically monologues that have a recognizable beginning and end, thus are relatively easy units to identify; they are also familiar to people of all ages, excepting only infants and toddlers" [13]; finally, narrative "play a critical role in the development of discourse, literacy, and socialization abilities" [12]. All-in-all "one can hardly underestimate the role of narrative skills in general language proficiency and in a proper functioning of an individual in a society" [6].

A visual stimulus, namely, picture sequence, the *Baby-Birds Story* [6], was selected for eliciting children's narratives. The sequence consisted of six colored pictures (10 × 10 cm), without a text. An experimenter tested each child individually, in a quiet room in their kindergarten. First, for warming-up, each child was asked, whether he/she likes fairy-tales and stories, who tells stories to him/her, and then the experimenter said: "Today I would like you to tell me a story." The experimenter took the pictures and continued: "This is a story in these pictures. First I'll show you all pictures, and then you look at the pictures carefully and tell me the story you see." Then the experimenter placed the pictures in the correct sequence in a single row in front of the child, without saying anything except, "The story starts like this...". The child was allowed to look at the pictures for a minute or two to get the gist of the story. Then the experimenter said: "Now I want you to tell the story. This is the beginning of the story. Look at the pictures and try to tell the best story you can." No questions such as "What is he/she doing here?"; "What is this?" etc., were used in order not to disrupt or influence the child's narration. Allowable prompts, if the child was hesitant to continue, were, "Tell me a story about what happens in this picture" or "Tell me what happened".

All the stories were audio-recorded, transcribed and coded according to CLAN [11] tools for automatic analysis of the mazes and the main indications of story productivity.

#### Variables tested

**Hesitations** can be described as (1) silent (*unfilled*) or (2) *filled pauses* (also called *fillers*) involving the articulation of some sound during the delay [17], e. g.:

(1) *Lipo katė (.) i lizdą.*

'The cat climbed to PAUSE a nest.'

(2) *Потом собака (.) ммм (.) прогнала кошку.*

'Then the dog PAUSE-FILLER-PAUSE chased the cat away.'

**Repetitions** can be grouped into repeated (3) phrases, (4) words and (5) parts of word.

(3) *И сказали (.) и сказали это (.) своей маме.*

'Then [they] told PAUSE then [they] told their mother about this.'

(4) *Mama savo (.) savo vaikams valgyt atnešė.*

'Mother bird brought some food for her-PAUSE-her children.'

(5) *Малы (.) малыши птенцы остались одни.*

'Baby: INCOMPLETE-PAUSE-baby-birds were left alone.'

**Revisions** can be classified as (6) phonological, (7) lexical, and (8) grammatical modifications of speech.

(6) *Принесла одного червяка дра (.) для всех птенчиков.*

'[She] brought just one worm for: INCORRECT for all the chicks.'

(7) *Varna pribėgo (.) priskrido prie katės.*

'The crow ran-PAUSE-flied to the cat.'

(8) *Были (.) было мама птица и три птенца.*

'[There] were-PAUSE-was a mother-bird and three chicks.'

During the analysis, a percentage of each type of mazes over total words was calculated. Then, individual variables were submitted for statistical analysis.

## RESULTS AND DISCUSSION

The findings indicated that TD children produced all types of mazes in the stories. In total, 102 mazes were observed in the RUS and 65 mazes were found in the LIT stories. This contained respectively up to 30.9% and 31.3% of mazes over total words.

The majority of them can be identified as hesitations (11.9% of hesitations over total words in RUS; 11.9% in LIT), while repetitions (5.0% of repetitions over total words in RUS; 2.6% in LIT) and revisions (1.2% of revisions over total words in RUS; 2.1% in LIT) were much rarer.

**Hesitations.** Both the RUS and LIT children tended to use much unfilled pauses (8.6% of unfilled pauses over total words in RUS; 10.2% in LIT), while filled pauses were much rarer (3.2% and 1.5% respectively). The filler may resemble an actual word (9) or be a non-lexical formation (10), e. g.:

(9) *Взял (.) так сказать (.) и дернул за хвост.*

'[The dog] took PAUSE-FILLER-PAUSE and pulled [cat's] tail.'

(10) *Жили-были (.) эээ (.) ласточки.*

'[There] were PAUSE-FILLER-PAUSE swallows.'

The majority of the fillers could be identified as non-lexical units, whereas only a few of them (3 of 17 in RUS; 1 of 7 in LIT) were actual words.

Following previous researches [3], fillers "are most likely to occur at the beginning of an utterance or phrase, presumably as a consequence of the greater demand on planning processes at these junctures". However, in our study, the majority (2 of 17 in RUS; 1 of 7 in LIT) of fillers occurred within an utterance. Although we still need more data and comprehensive studies, one can

observe that children from both the groups tend to hesitate before object/subject naming, e. g.:

(11) *А (.) мама ммм (.) птица прилетела.*

‘And PAUSE the mother FILLER-PAUSE bird came back.’

(12) *Мама сорока и ее (.) эээ (.) ммм (.) сорочки.*

‘Mother-magpie and her PAUSE-FILLER-PAUSE-FILLER-PAUSE baby-magpies.’

This presumably can be related to vocabulary limitations and its influence on the speech planning processes.

**Repetitions.** Following the results, repeated words (10 of 29 repetitions in RUS; 7 of 13 in LIT) and parts of word (18 of 29 repetitions in RUS; 6 of 13 in LIT) were much more frequent in comparison to repeated phrases (1 of 29 repetitions in RUS; 0 in LIT). Among the repeated words, conjunctions (e. g., Russian *а* ‘and’, *и* ‘and’), discourse markers (such as Russian *потом* ‘then’), and prepositions were dominant. In only the RUS group, repetitions of the last syllable of word were observed, e. g.:

(13) *Пришла да мама сорока ка.*

‘Mother mother:INCOMPLETE magpie magpie:INCOMPLTETE came’

**Revisions.** After analysis it can be stated that lexical revisions (5 of 8 revisions in RUS; 7 of 7 revisions in LIT) were dominant among all the revisions, while grammatical and phonological revisions were rarer.

Despite the observed slightly different characteristics, statistical analysis did not reveal any significant differences ( $p > 0.05$ ) between the RUS and LIT groups from the perspective of a number and distribution of mazes. However, statistically significant different correlations between the variables within the groups were obtained. First, in the RUS group, *a percentage of unfilled pauses over total words* correlated ( $p < 0.05$ ) with *a percentage of revisions over total words*. A strong correlation ( $p < 0.01$ ) between *a percentage of hesitations over total words* and *a percentage of unfilled pauses over total words* suppose that the majority of hesitations may be identified as silent (unfilled) pauses between or within words. The latter correlation was also obtained in the LIT group, but the revisions did not correlate with any other type of mazes. Moreover, the repetitions were used completely differently between the groups. In the RUS group, *a percentage of repetitions over total words* correlated ( $p < 0.05$ ) with *a percentage of filled pauses over total words*, while in the LIT group, *a percentage of repetitions over total words* correlated ( $p < 0.05$ ) with *a percentage of unfilled pauses over total words*.

## CONCLUSIONS

The study highlighted the main tendencies of linguistic disfluency in the narratives of Lithuanian- and Russian-speaking TD preschoolers. Although various

types of mazes were observed, the majority of them can be identified as hesitations, while repetitions and revisions were much rarer. Among the hesitations, silent (unfilled) pauses strongly prevailed. A dominance of lexical reformulations among all revisions supposed that a self-monitoring in story-telling was related rather with lexical processing (but we still need to analyze correlations between different types of revision and a number of phonological, grammatical, and lexical errors). Generally, the findings confirmed a prediction that pauses and repetitions are more immature disfluencies, while other types of disfluencies such as revisions are more characteristic at the later stages of language acquisition.

Statistical analysis did not reveal any significant differences between the groups from the perspective of a number and distribution of mazes, but statistically significant different correlations between the variables within the groups were obtained. First, in the RUS group, revisions correlated with hesitations, while in the LIT group such a tendency was not observed. Second, in the RUS group, repetitions correlated with fillers, while in the LIT group a correlation between silent (unfilled) pauses and repetitions was identified. The differences observed between the groups might lead to raising a question about cross-linguistic and cross-cultural universalities and differences from the perspective of linguistic disfluency in narrative speech.

## FINANCIAL SUPPORT

The research was carried out with the financial support of the Russian Foundation for Humanities (grant No. 14-04-00509 *Формирование языковых подсистем у детей с нормой и отставанием в развитии речи: корпусное и экспериментальное исследование текстов* [Development of linguistic subsystems in typically-developing and language-impaired children: Corpus-based and experimental study]) and the Research Council of Lithuania (grant No. LIT-9-11 *Sintaksinės sakytinės lietuvių kalbos ypatybės: tekstyno analizė* [The Syntactic Features of Spoken Lithuanian: the Corpus Analysis]).

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