STUDIA LINGUISTICA HUNGARICA

A Journal of the Faculty of Humanities, Eötvös Loránd University

Editor-in-Chief
Gábor Tolcsvai Nagy

Vol. 32. (2020)

Editorial information
Studia Linguistica Hungarica
The Linguistic Journal of the Faculty of Humanities, Eötvös Loránd University
ELTE DiAGram Research Centre for Functional Linguistics

1088 Budapest, Múzeum krt. 4/A.
(http://ojs.elte.hu/slh)

The present issue of Studia Linguistica Hungarica has been supported by the Thematic Excellence Program of ELTE Eötvös Loránd University, Budapest, Hungary.

ISSN 2732-1142

CONTENTS

READING MISCUES AND SELF-REPAIRS DURING ORAL READING IN CHILDREN IN 3RD, 4TH, AND 5TH GRADE – A PILOT STUDY

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Abstract

The study analyses the relationships between reading miscues, self-repairs, and temporal characteristics in oral reading of children in 3rd, 4th, and 5th grades. Speech samples of 30 children were analysed from each of the GABI Speech Database. 10 children were selected from the three grades. Speech and articulation rates, pausing characteristics, frequency of reading miscues, and correction strategies and their durational patterns (error-to-cutoff time, editing phases, and error-to-repair time) were analysed.

Results show that although older children produce faster speech rates and less disfluencies and oral reading errors than younger children, the types and correction times of reading errors are similar in every age group. Results show great differences among the children independently of grade.

Results confirm the facts established by the prior literature while also providing new results on the types of reading miscues and the timing of error-repairs in oral reading. They also have pedagogical implications.

Keywords: oral reading, grade, reading miscue, self-repair, speech tempo

1. Introduction

The analysis of oral reading errors is very important in elementary age since oral reading fluency and tempo are main measuring tools of reading ability (e.g. Fuchs et al. 2001; Hasbrouck–Tindal 1992; 2006; Miller–Schwanenflugel 2008). Oral reading of a child who is in the process of learning to read or is simply a relatively inexperienced reader shows reliably whether the child is in the early stages of literacy or is already in the comprehensive phase (Gósy 2005). In the case of naive readers, a close relationship was found between reading fluency/tempo and reading comprehension (Fuchs et al. 2001). In adulthood this method is not suitable to distinguish between naive and skilled readers (Frederiksen 1981).

All this can be explained by the model of the reading process. According to the most widely used theories, reading consists of two parts: 1) decoding (matching letters to speech sounds and segmentation), 2) comprehension (Perfetti–Hogaboam 1975). The aim of reading is this latter (understanding the written text; Józsa–Steklács 2009). For naïve readers, even the decoding phase is challenging while for skilled readers, comprehension becomes the first and foremost. In this case visual decoding processes work quasi-automatically (Gósy 2005).

Oral reading is a complex process, in which there is no need for a higher level speech planning process but it requires well-functioning perception (Váradi 2011). Readers have to comprehend the text and then read it out loud with appropriate prosody, according to the

DOI: 10.5281/zenodo.3906243 ISSN 2732-1142

meaning (Fuchs et al. 2001; Adamikné Jászó 2006; Váradi 2011). The fluency and tempo of oral reading increase during schoolyears. So the oral reading fluency value indicates the differences between children appropriately, and the performance of the certain child objectively (Fuchs et al. 2001). Oral reading fluency is connected to reading comprehension mostly at elementary school and at high school (Frederiksen 1981). There are differences between oral and silent reading in the activated areas of the brain: in the case of oral reading the auditory processing areas in the brain are activated, while in case of silent reading the visual processing areas (Berninger 1996).

In addition to oral reading fluency, miscues in oral reading can be examined. These miscues are quite frequent in the oral reading of typical lower-primary aged children. This analysis helps us find ways to improve the teaching of reading (Chinn et al. 1993). The teaching method of reading also affects the types of reading errors and how readers deal with them (Chinn et al. 1993). Oral reading is especially important also since it allows both teacher and student to notice mistakes of reading-technique (Steklács 2009).

Types of oral reading errors can be described in several ways. First, according to the linguistic process they can be insertions, omissions, substitutions and non-words. Secondly, they can be low-meaning-change errors and high-meaning-change errors, or similar or dissimilar errors from graphophonemical aspects (Chinn et al. 1993). Readers might react in different ways during making the error: with self-repairs, with the continuation of reading (this might happen both when they have noticed the error and when they have not), or with restarting the sentence altogether (Chinn et al. 1993). With regard to the oral reading of elementary school pupils, it was found that skilled readers produced more self-repairs than naive readers (Hoffman–Clements 1984; Hoffmann et al. 1984), but the ratio of self-repairs was also highly affected by the difficulty of the read text (McNaughton–Glynn 1981; Share 1990). In addition, oral readers might also produce other types of miscues like filled pauses, repetitions etc. (Hoffman–Clements 1984; Adamikné Jászó 2006).

Self-repair can happen in many different ways both in spontaneous and read speech. The repair consists of three main parts (Levelt 1983), but it can be divided to further units. The main parts are the following: original utterance, editing phase and repair. The original utterance contains the error (reparandum) and lasts until the moment of interruption. Speakers can interrupt the original utterance during pronouncing the error, right after it was made, or with some delay (delay). During the editing phase, speakers plan the repair. During this planning they can keep silent pauses or filled pauses, or they can pronounce filler words (editing term). The editing phase is the interval between the moment of interruption and the beginning of the repair. This latter is a correct version of the previously pronounced reparandum. The repair might begin with the corrected word or the speaker can retrace to an earlier point of the utterance (span of retracing).

1.1. Aims and hypotheses

This study analyses the oral reading of 3rd-, 4th-, and 5th-grade children with acoustic phonetic and psycholinguistic methods. Since the fluency of reading is also determined by the tempo of reading, the analysis also deals with its characteristics. It examines the temporal characteristics of oral readings, the frequency and types of disfluencies and errors, and then analyses the patterns of self-repairs. These age groups were chosen because 3rd-grade Hungarian children are not completely beginner but not yet proficient readers, while 5th graders are expected to understand and interpret the text and reflect on the content of what they read (Józsa et al. 2015). In the 5th grade (in typical development) the level of reading comprehension must

reach the level of hearing comprehension (Gósy 1996; Imre 2007). According to the hypotheses, 1) children in higher grades produce fewer miscues (disfluencies and errors) in oral reading than children in lower grades, 2) the proportion of types of miscues depends on grade (children in lower grades produce more disfluencies), and 3) children in higher grades repair their reading errors in a shorter time than children in lower grades.

2. Methods

Recordings of oral reading from 30 children were selected from the GABI – Hungarian Child Language and Speech Database and Information Repository (Bóna et al. 2019). Children were selected from three age groups: 3rd graders, 4th graders, and 5th graders. In each group there were 10 children (5 male and 5 female). According to the case histories filled in by the parents, all of them were native Hungarian children of typical development without any speech, language and hearing disorders, and all of them were students with average abilities at average elementary schools in Hungary. They were children of average middle-class families.

The recordings were made in a quiet room at school, or in the child's home, at the end of the first semester of the school year. Children read aloud 15 sentences and a short dialogue composed of 13 sentences. The dialogue contained nine turns, and in addition to the declarative sentences it contained one exclamatory, one imperative, and three interrogative sentences.

Speech samples were annotated by Praat 5.0 (Boersma–Weenink 2008). Speech units, pauses and reading miscues were annotated. The duration of speech units and pauses was measured, speech rate and articulation rate were calculated, and the proportion of pauses in the total speaking time was also defined. Frequency of pauses per 100 words was calculated. Miscues were categorized in three groups: hesitation phenomena (filled pauses, repetitions, part-word repetitions etc.), reading errors, and suprasegmental errors. Their frequency was also defined per 100 words. The proportion of self-repairs in all reading errors was calculated. There were altogether 76 self-repairs in the speech samples of the three groups (35 occurred in 3rd graders, 27 occurred in 4th graders, and 15 in 5th graders).

The number of syllables from the beginning of the error to the interruption point was counted. It was already considered to be a syllable if only one sound occurred from the planned syllable, and it was considered a new syllable if at least one sound occurred from a new syllable. The position of the interruption point was also analysed, i.e. whether it happened between words or within a word resulting in a fragment.

The characteristics of editing phases were also examined. Editing phases were categorized into 3 types: 1) zero editing phase, i.e. speakers corrected their errors right after the interruption point (editing phase was 0 ms); 2) silent editing phase when speakers produced silent pauses after the interruption point; 3) editing phase with editing term(s) when speakers produced a term during the editing phase which filled partly or completely the time between the interruption point and error repair.

The following measurements were carried out by Praat: error-to-cutoff times, duration of editing phases, and error-to-repair times. In accordance with the literature (Levelt 1983) error-to-cutoff and error-to-repair times were measured from the beginning of the reparandum.

Statistical analyses (Kruskal–Wallis-test and Mann–Whitney-test) were carried out by SPSS 20 at a confidence level of 95%.

3. Results

First, speech and articulation rates were calculated (Table 1). Results show that both speech rate and articulation rate increased in the speech of older children. According to the Kruskal–Wallis-test, there were significant differences between the groups both in speech rate (χ^2 = 10.366; p = 0.006) and articulation rate (χ^2 = 9.541; p = 0.008). Comparing the grades pairwise, there was a significant difference only between the 3rd graders and 5th graders in articulation rate (Mann–Whitney-test: Z = −2.948; p = 0.003). There were significant differences between 3rd graders and 5th graders (Mann–Whitney-test: Z = −3.024; p = 0.002), and 4th graders and 5th graders in speech rate (Mann–Whitney-test: Z = −2.041; p = 0.041).

Table 1. Speech and articulation rates

	Speech rate (word/minute)			Articulation rate (word/minute)		
	Mean	**SD**	**Min–max**	**Mean**	**SD**	**Min–max**
3rd graders	86.7	19.7	52.7–114.4	105.0	19.2	77.2–132.6
4th graders	101.0	23.1	61.1–140.3	119.8	23.4	72.7–161.0
5th graders	125.7	24.1	83.8–160.9	141.3	24.0	97.7–178.5

Pausing strategies were also analysed (Table 2). The proportion and frequency of pauses decreased in older children (results might be different from the results of other studies in which children had to read aloud a longer connected text). Kruskal–Wallis-test showed significant differences in the proportion of pauses between the groups (χ^2 = 8.299; p = 0.016). There were significant differences in the proportion of pauses between 3rd graders and 5th graders (Mann–Whitney-test: Z = −2.646; p = 0.008), and between 4th graders and 5th graders (Mann–Whitney-test: Z = −2.192; p = 0.028). There were no significant differences in the frequency of pauses between the groups. This means that the frequency of pauses was similar in 3rd graders and 5th graders and in 4th graders and 5th graders, but the average duration of pauses in 3rd and 4th graders was longer than in 5th graders.

Table 2. Data of pausing of the three groups

Group	**Proportion of pauses in the total reading time (%)**		
	Mean	**SD**	**Min–max**
3rd graders	18.0	6.6	9.9–31.7
4th graders	16.0	5.3	10.5–29.3
5th graders	11.4	3.4	5.1–17.3
	Frequency of pauses (number of occurrences in 100 words)		
	Mean	**SD**	**Min–max**
3rd graders	27.2	13.0	13.9–54.8
4th graders	22.6	9.2	9.0–38.6
5th graders	16.0	7.1	5.4–28.9

Altogether 294 miscues (disfluencies and reading errors) occurred in the analysed speech samples. 3rd grade children produced 9.3 miscues in 100 words, 4th graders 7.7, and 5th graders 3.5 (Table 3). According to the statistical analysis, there were significant differences between the groups (Kruskal–Wallis-test: χ^2 = 12.002; p = 0.002). Mann–Whitney-test showed significant differences between 3rd graders and 5th graders (Z = −3.411; p = 0.001), and between 4th graders and 5th graders (Z = −2.012; p = 0.044).

Table 3. Frequency of disfluencies and reading errors in the three groups

Group	Frequency of miscues (number of occurrence in 100 words)		
	Mean	SD	Min–max
3rd graders	9.3	3.3	4.2–14.5
4th graders	7.7	6.3	1.8–23.5
5th graders	3.5	2.2	0.6–7.2

There were three types of miscues during oral reading: 1) disfluencies, 2) reading errors, 3) suprasegmental errors. Disfluencies occurred in the highest proportion in the oral reading of 3rd graders. Third graders produced disfluencies in 57.4%, reading errors in 40.0%, and suprasegmental errors in 2.6%. Fourth graders produced disfluencies in 47.2%, reading errors in 50.4%, and suprasegmental errors in 2.4%. Fifth graders produced disfluencies in 50.0%, and reading errors in 50.0%.

There were altogether 7 suprasegmental errors in the analysed speech samples. 4 occurred in the reading of 3rd grade children, and 3 occurred in 4th grade children. Suprasegmental errors generally occurred in cases when participants began reading a question with intonation typical of declarative sentences. In one case, a participant read a declarative sentence with interrogative intonation, probably because the second sentence of the short turn was a question. Because of the shortness of the line and the question mark at the end, the reader might have assumed that the line contained a single question phrase.

Proficiency in oral reading is also shown by the occurrence of disfluencies (filled pauses, prolongations, whole-word repetitions, part-word repetitions, and pauses within the word). The lower their frequency, the more proficient the reader. Filled pauses and prolongations give time for decoding and articulatory planning. Repetitions and part-word repetitions have self-monitoring function (they occur when readers become uncertain whether the fully or partly read word was correct or not). The pause within the word occurs when there is a decoding problem during reading a word. The occurrence of disfluencies decreased in the older groups (Table 3). Kruskal–Wallis-test showed significant differences between the groups: $\chi^2 = 9.283$; $p = 0.010$. Comparing the groups pairwise, there were significant differences between 3rd graders and 4th graders (Mann–Whitney-test: $Z = -2.016$; $p = 0.044$); and 3rd and 5th graders (Mann–Whitney-test: $Z = -2.892$; $p = 0.004$).

As opposed to spontaneous speech, in oral reading, part-word repetition and pause within the word (broken word) were the most frequent in each group. Filled pauses only occurred in the two younger groups, 5th graders did not produce this type of disfluencies (Figure 1).

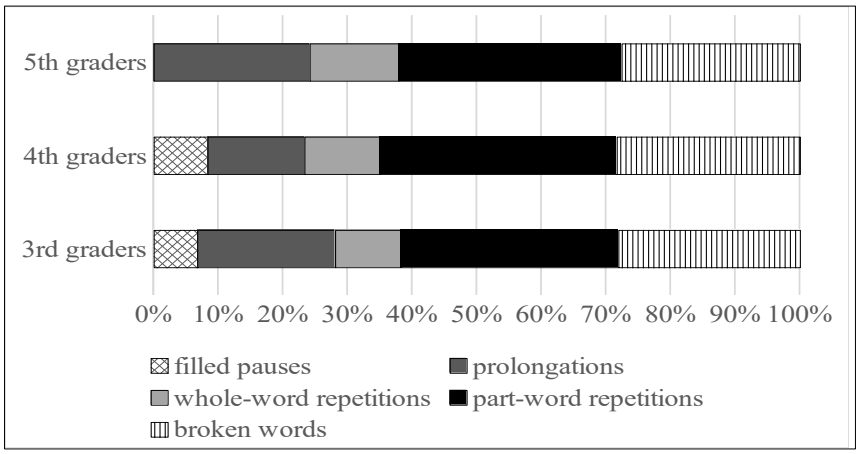

Figure 1. Proportion of types of disfluencies (without error repairs) depending on speakers' grade

Kruskal–Wallis-test showed significant differences in the frequency of reading errors between the groups: $\chi^2 = 7.633$; $p = 0.022$. The mean occurrences of reading errors were similar in the two younger groups, while there were significant differences in its frequency between 3rd graders and 5th graders (Mann–Whitney-test: $Z = -2.553$; $p = 0.011$), and between 4th graders and 5th graders (Mann–Whitney-test: $Z = -2.196$; $p = 0.028$).

The types of errors were analysed in several ways. First, the frequency of errors was analysed according to the three main types. Substitutions were the most frequent and insertions were the least frequent in each age group. Third graders produced substitutions in 58.1%, omissions in 33.9%, and insertions in 8.0%. Fourth graders produced substitutions in 56.3%, omissions in 26.5%, and insertions in 17.2%. Fifth graders produced substitutions in 58.6%, omissions in 34.5%, and insertions in 6.9%. The following example illustrates the phenomenon of substitution in the reading of a 3rd grader (SIL = silent pause): *Kérsz egy fagylaltot* SIL *az almá* SIL *egy falatot az almámból?* 'Would you like an icecream SIL from my appl SIL a bite from my apple?' Insertion mostly occurred in the form of inserting a definite article. The following example is from a 3rd grader: *Azt gondolod hogy az A* SIL *hogy Annának van igaza?* 'Do you think that the A SIL Ann is right?' Omission mostly affected the definite article, sounds or the negative particle: *Mikor megyünk Balatonra?* 'When are we going to Balaton?' (instead of *Mikor megyünk a Balatonra?* 'When are we going to the Balaton?').

Secondly, the categorization of errors was also carried out according to the levels of speech planning (Figure 2). 3rd and 4th graders produced word-recognition errors the most frequently, while 5th graders produced mostly articulatory errors.

The three groups repaired their errors in similar proportions: 58% of all errors were repaired by 3rd graders, 55% by 4th graders, and 59% by 5th graders. Table 4 shows the proportion of error-repairs in the three main error types.

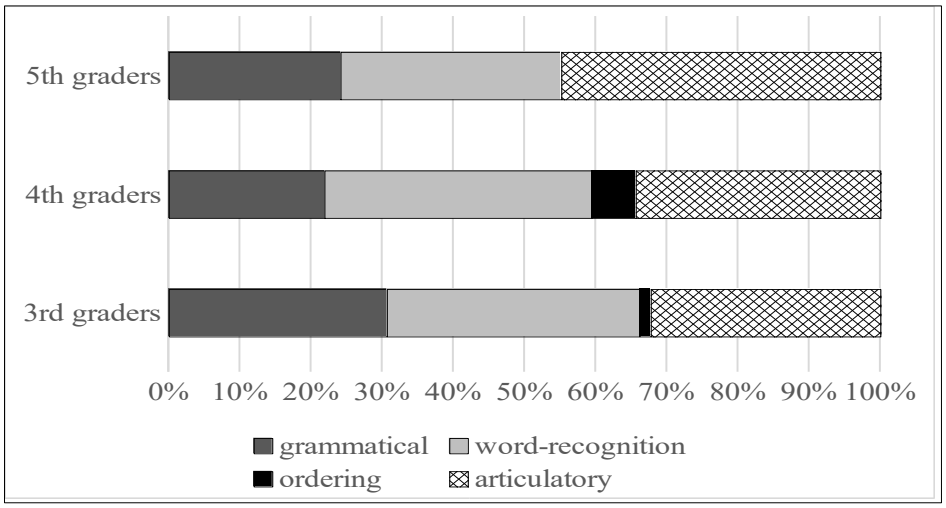

Figure 2. Types of errors depending on the speakers' grade and the levels of speech planning

Table 4. The proportion of error-repairs in the three main error types

Group	Substitution	Omission	Insertion
3rd graders	72%	43%	20%
4th graders	69%	35%	36%
5th graders	82%	30%	0%

Characteristics of error-repairs were analysed according to the parts of repairs, in the following order: error-to-cutoff time, characteristics of the interruption point, characteristics of the editing phase, error-to-repair time.

First, error-to-cutoff time was analysed (Figure 3). Error-to-cutoff time was on average 701 ms in 3rd graders (SD: 262 ms), 674 ms in 4th graders (SD: 348 ms), 481 ms (SD: 441 ms) in 5th graders. According to the statistical analyses, there were no significant differences between the groups in error-to-cutoff time.

Analysing the characteristics of interruption points, it can be stated that 3rd and 4th graders interrupted their speech within words more frequently, while 5th graders interrupted their speech on word boundaries in 50% of the interruptions. The proportion of fragments was 74% both in 3rd graders and 4th graders (and 26% on word boundaries in both groups).

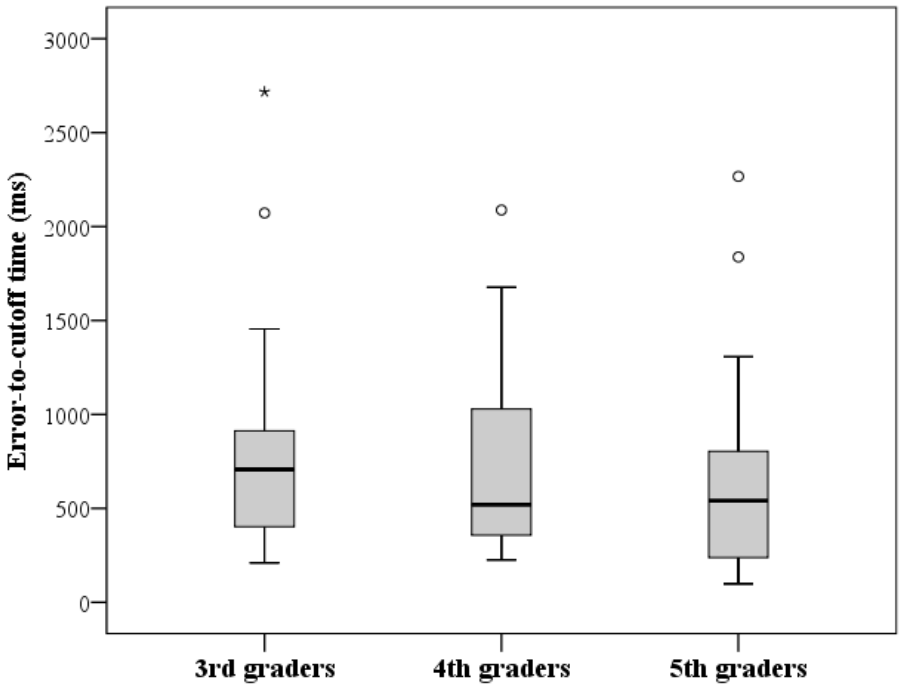

Figure 3. Error-to-cutoff times in the three groups
(the small circles show "out" values, star shows extreme values)

For editing phases, 635 ms was measured on average in the speech of 3rd graders (SD: 385 ms), 800 ms in 4th graders (SD: 820 ms), and 619 ms in 5th graders (SD: 304 ms) (Figure 4). According to the statistical analysis, there were no significant differences between the groups.

The position of interruption points did not show any difference in the number of syllables either: 3rd and 4th graders interrupted their speech after 2.5 syllables on average and 5th graders after 2.7 syllables on average.

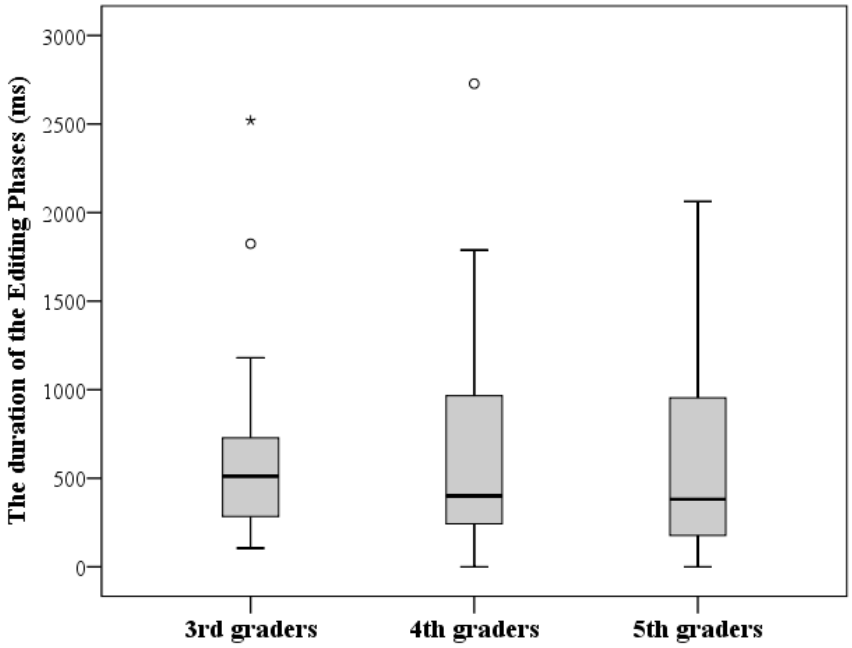

Figure 4. Duration of editing phases in the three groups (median and interquartile range) (the small circles show "out" values, star shows extreme values)

Most of the editing phases at each grade occurred as silent pauses (Figure 5). It was also common for 4th and 5th graders to use editing terms in a higher proportion than 3rd graders. For example: *a gyermekek be* SIL ***M*** SIL *b* SIL *bukfencezni is megtanulnak* 'children lu SIL M SIL l SIL learn to tumble; *a magyar űru* SIL ***Ö*** SIL *űr* SIL *turista* 'Hungarian space tou SIL Ö SIL space SIL tourist'.

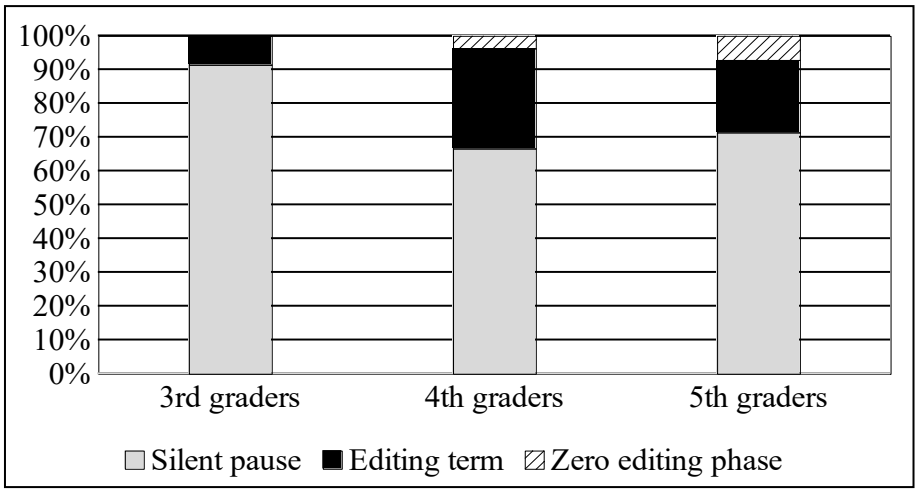

Figure 5. Proportion of types of editing phases

Finally, error-to-repair time was analysed (Figure 6). On average, 1336 ms was measured in the speech of 3rd graders (SD: 387 ms), 1474 ms in 4th graders (SD: 852 ms), 1099 ms in 5th graders (SD: 539 ms). Statistical analysis showed no significant differences between the groups.

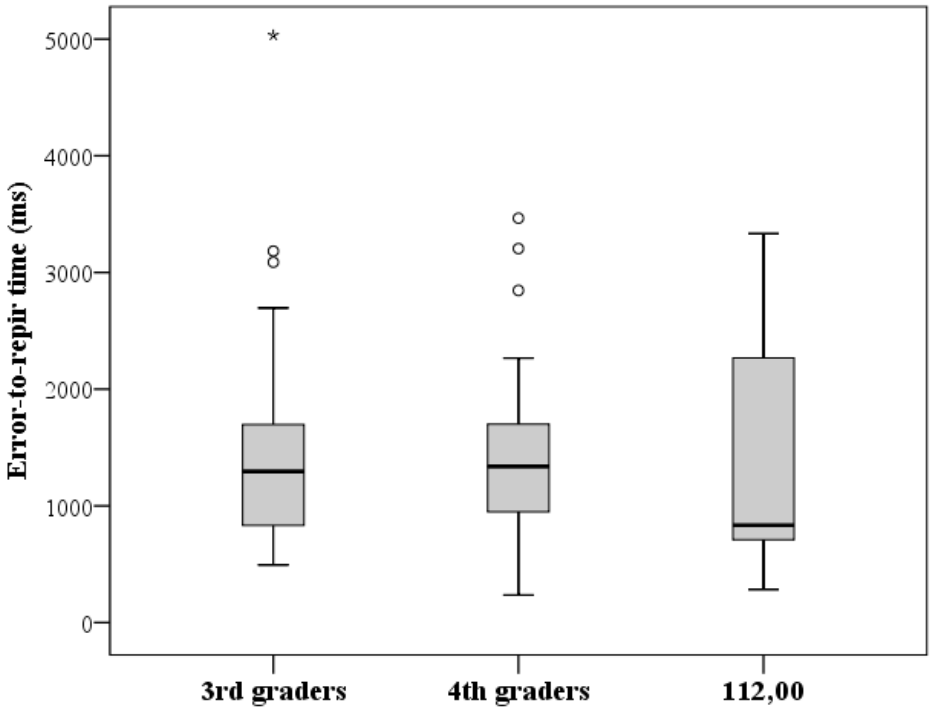

Figure 6. Error-to-repair time (median and interquartile range)
(the small circles show "out" values, star shows extreme values)

4. Discussion and conclusion

This paper analysed speech and articulation rate, pausing, disfluencies and error-repairs in the oral reading of 3rd graders, 4th graders, and 5th graders. The main questions and hypotheses were related to the frequency of disfluencies and error-repairs, the results of measuring speech tempo contribute to the interpretation of the former.

The analysis of the temporal parameters shows that as reading becomes more proficient, the speech and articulation rates increase, and the rate of pauses is reduced, but this increase or decrease is not linear according to the data of this study. Namely, there were no significant differences between third and fourth graders in tempo values and the rate of pauses. Only the speech rate of fifth grade students was significantly faster and their proportion of pauses was significantly lower than that of the other two younger age groups. The articulation rate and the frequency of pauses in the speech of 4th graders were not significantly different from the 3rd and 5th grade groups, however, there was a significant difference in the articulation rate between the latter two speakers' groups.

The first hypothesis was that there would be significant differences between the age groups in the frequency of reading miscues (older children produce miscues less frequently than younger children). This hypothesis was partially confirmed. The frequency of all reading miscues decreased with age (grade), but a significant decrease occurred only in the 5th graders

compared to the other two groups. Results show that 4th graders might be much more confident in reading than 3rd graders. However, their reading technique is similar to that of 3rd graders, as they make far more reading errors than 5th graders.

The second hypothesis was confirmed: grade and proficiency in literacy had an effect on the proportions of disfluencies and reading errors. The youngest children produced disfluencies at a higher rate than the older children, but filled pauses, for example, occurred only in the two younger groups.

Finally, the third hypothesis was that more proficient readers repair their reading errors in a shorter time than less proficient younger children. This hypothesis was not confirmed. The statistical analysis showed no significant difference between the groups in any of the parameters regarding error-repairs. There were no differences in the proportion of error-correction and correction strategies among children of different grades (which is in contradiction with previous literature, Chinn et al. 1993).

There are several reasons for the explanation. On the one hand, it is possible that there were no significant differences between the groups due to the relatively low number of the examined children. On the other hand, there were large individual differences between the children regardless of grade. There was a 3rd grader who read faster and more fluently than a slower reading 5th grader child. Thirdly, it is assumed that the duration of error-repairs might be largely determined by the type of error, and not only by the reader or the reader's grade. That is, it is probably not (only) reading proficiency which affects the duration and strategies of error-repairs, but also the characteristics of the error itself. In addition to these factors, the rare occurrence of error-repairs and large standard deviation of the data might contribute to the lack of differences in corrections produced by speakers of different grades. More proficient readers produced fewer errors, but when they did, they corrected them in the same way as less proficient readers.

The analysis has several limitations, as described in the explanation of the results. On the one hand, relatively few children participated in the study. However, because average children of typical development participated in the study, the results can be used to design further research. On the other hand (due to the characteristics of the used speech database), the participants read a relatively short text, which resulted in fewer errors. This rare occurrence also influenced the results of the statistical analysis.

The results also have pedagogical implications. Although oral reading and silent reading already assume different processes for skilled readers, silent reading can also be inferred from the types of reading errors and corrective strategies. The results indicate that passages which are harder to read in the text can also be difficult for more skilled readers. These readers do not always notice the mistake either, and they have the same strategies for correction as those in the lower grades.

The results of the study confirm the facts established by the prior literature. However, they provide new results on the types of disfluencies and on the rate and timing of error-repairs in oral reading, which require further studies involving a larger number of participants.

Acknowledgements

This paper was supported by the National Research, Development and Innovation Office of Hungary, project No. K-120234 and the Thematic Excellence Program of ELTE Eötvös Loránd University, Budapest, Hungary.

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NOUN DURATIONS WITH AND WITHOUT SUFFIXES ACROSS AGES

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Abstract

Temporal properties of words are defined by several physiological, psychical, and language-specific factors that interact with each other in spontaneous speech. Storage of lexical representations either in a morphologically decomposed form or in a conceptually non-decomposed form is supposed to influence word durations, particularly during language acquisition. To access the appropriate suffix and combination of stem and suffix requires greater mental effort from children than from adults. The process is assumed to result in longer word durations. The goal of the present study is to analyse the possible changes in word durations depending on the morphological structure of words across ages. We assumed that the duration of words with and without suffixes would show age-specific differences.

Hungarian nouns with various lengths (containing 2, 3 and 4 syllables with and without suffixes) produced by 30 children (ages of 5, 7 and 9) and 10 young adults in spontaneous utterances were measured. Word durations revealed significant differences depending on age and on the words' morphological structures. Monomorphemic nouns were shorter than multimorphemic nouns of the same length in all experimental groups. Durational differences between monomorphemic and multimorphemic nouns, however, showed gradual changes according to age, being larger in younger children and smaller in older children and adults.

Our interpretation is that the longer route of lexical access for multimorphemic words in young children can be explained by their developing routine for accessing the suffixes fast and for combining stems and suffixes.

Keywords: monomorphemic and multimorphemic nouns, temporal patterns, children's word production, lexical route

1. Introduction

A great number of studies have discussed how diverse factors influence the temporal patterns of speech both in children and adults (Smith 1992; Bell et al. 2009; Guitar–Marchinkoski 2001; Kuperman–Bresnan 2012; etc.). In spontaneous speech, speakers regularly speed up and slow down their articulation depending on various physiological, language-specific, and individual factors. During language acquisition, temporal patterns of word articulation reflect the children's motor skills, morphological knowledge, grammatical awareness, routes of lexical access, memory capacity, and temporal control (e.g. Berko Gleason and Bernstein Ratner 1988; Pinker 1999; Tomasello 2003; Redford 2015).

Temporal characteristics of words (their durations and the variability therein) are decisive for both speech rate and fluency impression although several other factors influence the dura-

DOI: 10.5281/zenodo.3906266 ISSN 2732-1142

tions of the words. Words and their lexical representations change during language acquisition across ages from the 'frozen' lexical units (Handl–Graf 2010; Berko Gleason and Bernstein Ratner 1993) up to the production of morphologically complex words. The increase of the children's vocabulary and the organization of their mental lexicon define the route of their lexical access together with their developing motor skills and the underlying acoustically linked articulatory schema (Redford 2015). Not only the length of the words but also their morphological structure influence durations (Gósy 2005). In this study, we provide experimental data on temporal properties of nouns produced by Hungarian-speaking monolingual children and young adults.

Before discussing the theoretical background of the topic, we summarize a few relevant facts on the language. Hungarian is an agglutinating language that belongs to the Finno-Ugric language family. It has an extremely rich morphology and an extensive system of affixation and postpositions (rather than prepositions). The syntactic and semantic functions of noun phrases are primarily expressed via suffixes and postpositions. Case markings are used extensively with Hungarian nouns. There are certain phonological rules to be performed at morpheme boundaries (e.g., voicing assimilation). Word order is relatively flexible but not completely free. The average number of syllables per word in spontaneous Hungarian is 3.5 (adult speech). Word stress invariably falls on the initial syllable although in connected speech not all words are stressed (Siptár–Törkenczy 2000).

To interpret our findings, we specify a few related points about the language acquisition of Hungarian-speaking children. In the second year of life, typically developing children begin to show increased use of suffixation. Inflected forms of nouns begin to give evidence of conscious segmentation and systematic linking of suffixes to stems. Rapid morphological development of affixation takes place between the ages of 2 and 3 (Gósy 2005; Bunta et al. 2016). A similarly rich morphological system is reported to be used relatively error-free by the age of 2 for example in Spanish and Persian, somewhat earlier than in the case of languages with less rich morphology (Samadi–Perkins 1998; Aguado-Orea–Pine 2015; Fletcher et al. (eds.) 2016). After the age of 3, children use more and more varied suffixes consciously linked to nouns in their spontaneous utterances. By the age of five, Hungarian-speaking children acquire all productive suffixes of nouns including accusative case markings, plural markers, diminutive markers, the use of marking possession on the noun (both genitive marker and possessive suffixation) and the markers of various temporal, spatial, positional or other relationships as well. Cases where the suffixation of Hungarian words requires mastering of various phonological rules are unambiguously acquired by the age of 5. When speaking fluently, children combine stems and suffixes according to morphological rules followed by a phonological and an articulatory plan to produce the target word. It is widely assumed that children's mental lexicon is continuously reorganized, particularly semantically, as new words are acquired across ages (e.g. Clahsen 2007; Penke 2006). Since 5-year-old children are able to identify stems and suffixes of the words, this offers insights into how their mental lexicon might be organized (Clark 2017).

There is a debate in the literature concerning storage in the mental lexicon and the routes of lexical access (both in children's and adults' language). Over the past thirty years, the literature has provided a large body of empirical evidence for the dual-route (word stems and suffixes are the basic building blocks in the mental lexicon) and one-route models of the mental lexicon (dissociation in terms of frequency factor, phonological and/or semantic similarity) (e.g. Rueckl–Raveh 1999; Pinker–Ullman 2002). The theory of decomposed storage and the decompositional route of lexical access assumes that morphological units are represented separately in the mental lexicon. The speaker would access the word stem and the suffix(es) at

different places in the mental lexicon. By contrast, under the assumption of conceptually non-decomposed storage, suffixed words are stored and activated holistically. The theories of morphologically decomposed vs. conceptually non-decomposed forms of storage in the mental lexicon failed to provide conclusive support for either account (e.g. Caramazza et al. 1988; Roelofs 1993; Pinker 1999; Ferro et al. 2010).

There are data from diverse languages (e.g., English, German, Chinese, French) that provide experimental evidence for the storage of lexical representations in morphologically decomposed forms and the existence of a decompositional route for inflected word forms in speech production (Zhang–Peng 1992; Marslen-Wilson et al. 1994; Kazanina et al. 2008; Ferro et al. 2010; Gor–Jackson 2013; Estivalet–Meunier 2015). Storage and activation of morphologically complex forms of words is not restricted to irregular words (Ferro et al. 2010). In a paper on adults' speech, we assumed that the duration of Hungarian nouns with and without suffixes would indicate the route of their lexical access which is in close connection with the storage of stems and suffixes (Gósy–Gocsál 2019). Durations of monomorphemic nouns were significantly shorter than those of multimorphemic nouns. This finding seems to support the existence of morphologically decomposed forms of nouns in Hungarian.

The question arises whether nouns have their lexical representations separated into stems and suffixes in the children's mental lexicon. Researchers agree that during the early phases of language acquisition, when children use both regular and irregular word forms the same way (as a kind of overgeneralization), their mental lexicon contains both forms (e.g., **bringed* vs. *brought* in English) that can be accessed similarly (Maratsos 2000). Empirical results have confirmed that inflected word forms that consist of regular suffixes have decomposed representations in German-speaking children's mental lexicon between the ages of 1;1 and 3;8 years (Clahsen et al. 2001). According to Saxton (2010), regular past tense forms of English verbs are generated by a rule while irregular verbs are stored as whole units like in the 'words-and-rules model' proposed by Pinker (1999). The model for storage in the mental lexicon described by Ferro and his colleagues (2010) assumes a 'temporal connection' affecting short-term node activation. We think that this temporal connection is an important factor in language acquisition that controls the linking of stems and suffix(es) during word production. The durations of words may carry information about the route of lexical access, which is assumed to be shorter if accessed from a single place and longer if accessed from different places.

Various studies confirmed that young children's spoken words tend to be longer and more variable than those of older children and adults (e.g. Smith 1992; Lee et al. 1999; Flipsen 2002; Tomasello 2003). In line with Hay and Baayen (2005), our theory is that stems and suffixes may develop their own lexical representations. It follows that multimorphemic words are assumed to be accessed decompositionally in children's spontaneous utterances. Separate storage of stems and suffixes in children's mental lexicon requires the full capacity of retaining temporal sequences of items when speaking. This process is characterized (among others) by age-specific memory span (Henry 2012), age-specific vocabulary and appropriate phonological awareness (Gathercole–Baddeley 1989).

The goal of the present research is to analyse the durations of monomorphemic and multimorphemic nouns in children's speech from 5 to 9 years of age. We intend to compare the children's data with those of young adults. Our findings might reveal new information concerning the storage of nouns in the mental lexicon and lexical access in children.

Three hypotheses were defined. We expected that (i) the durations of the analysed nouns would be shorter as the participants' age increases, (ii) durations of the analysed nouns would show reductions across the lengths of the nouns only in adults, (iii) nouns with suffixes would

show longer durations than those without suffixes, (iv) there would be differences in noun durations depending on the number of suffixes that multimorphemic words contain.

2. Methodology

Thirty children were selected to form three groups: 5-year-olds (4;11–5;2), 7-year-olds (6;9–7;2), and 9-year-olds (8;10–9;3), while ten young adults (aged between 22 and 30 years) formed the fourth group (half of the participants were females in each group). 5-year-olds were preschool children, 7-year-olds were first graders while 9-year-olds were fourth graders. Children were randomly selected from the GABI Hungarian children's database (Bóna et al. 2014) while adult speakers were randomly selected from the BEA Hungarian speech database (Gósy 2012). None of the participants had any hearing or speech disorders. No known history of delayed onset of language acquisition were reported in child speakers. All children attended kindergartens and schools in Budapest. All of them had similar social and cultural backgrounds. Young adults were university students or had a university degree and also came from Budapest. All subjects were native monolingual speakers of Hungarian. The 9-year-olds and young adults were taught a foreign language (or languages in the latter case) at school.

Subjects were asked to speak about their family, life, hobby according to the protocol of both databases. Close to 9 hours of Hungarian spontaneous speech was analysed. The average length of the speech material of 5-year-old children was around 12 minutes, in the case of schoolchildren it was around 18 minutes, and in the case of young adults it was around 25 minutes per speaker.

Both monomorphemic and multimorphemic nouns (with 1 or 2 suffixes) were selected for analysis. Those nouns were considered that contained 2, 3 or 4 syllables. In order to diminish the possible effects of other factors on the durations of the words, the following criteria were defined (apart from the number of syllables and suffixes). (i) Undirected spontaneous utterances were produced both by children and adults on the same topic. We expected that the participants would use their accustomed nouns that were frequent in their verbal communication when speaking about their everyday life. (ii) The effects of noun frequency, suffix frequency, (local) variations of speech rate, and various syntactic positions on word durations could be compensated by the relatively large amount of speech samples. (iii) A great number of nouns were used to neutralize the temporal effects of the various speech sounds the nouns consisted of. Efforts were made to control the effects of diverse phonological and phonetical constructions of words on their durations. (iv) In suffixed nouns, we considered all suffixes indicating accusative case markings, plural markers, diminutive markers, possession on the noun and suffixes of various temporal, spatial, positional or other relationships. However, suffixed nouns in which the stem belonged to another part of speech were excluded (such as *szabadság* 'freedom', where the stem is the adjective *szabad* 'free' and *-ság* is a nominal suffix). No distinctions were made according to the suffix types in this study. (v) Compounds were not considered. (vi) We controlled the data against phrase-final lengthening. Therefore, no nouns produced in the vicinity of pauses were selected. (vii) Nouns that had lengthened segment(s) were excluded from analysis.

Examples from children's utterances (suffixes are marked in bold): *ebéd* 'lunch', *farkas* 'wolf', *mesé**t*** 'story + ACC', *keksz**ből*** 'cookie + from', *bicikli* 'bicycle', *boszorkány* 'witch', *lépcső**nél*** 'stairway + at', *ovi**ban*** 'kindergarten + in', *veszedelem* 'evil', *helikopter* 'helicopter', *pillangó**val*** 'butterfly + with', *irodalma**t*** 'literature + ACC'. Examples from young adults' utterances: *gyerek* 'child', *busz**on*** 'bus + on', *telefon* 'telephone', *csoport**ba*** 'group +

into', *gimnázium* 'highschool', *készülékek* 'device + PLURAL'. Examples where a stem is followed by two suffixes (suffixes are marked in bold): *ruhákkal* 'clothes + PLURAL + with', *dolgokról* 'thing + PLURAL + about', *fejükre* 'head + their + on', *versenyemen* 'competition + my + on', *gyerekekben* 'child + PLURAL + in', *nyelveket* 'language + PLURAL + ACC'.

A total of 2,437 nouns were analysed. 5-year-olds produced 511 nouns, 7-year-olds 613 nouns, 9-year-olds 633 while young adults 680 nouns. There were 947 disyllabic, 953 trisyllabic and 537 four-syllabic nouns. 869 of all nouns were stems, 1309 had one suffix while 259 had two suffixes. The speech material was carefully hand-labeled in Praat (Boersma–Weenink 2014). All nouns were segmented and measured. The word boundaries were identified in the waveform signal and spectrogram display via continuous listening to the words. Markers were inserted at the onset and offset of acoustic features characteristic of a given segment, voicing, and second formant information was also considered following standard acoustic-phonetic criteria. A specific script was written to obtain the values automatically.

To test statistical significance, we performed mixed analysis of variance (ANOVAs) to examine between-group differences of noun durations by morphological structure, and a Tukey post hoc test was applied (SPSS 20.0 version). The confidence level was set at the conventional 95%.

3. Results

As expected, the durations of the nouns decreased as the **speakers' age** increased (Fig. 1). However, no difference was found between the two youngest age groups. The mean duration of all words produced by 5-year-olds was 702 ms (SD = 231.1), by 7-year-olds it was 714 ms (SD = 218.5), by 9-year-olds 608 ms (SD = 185.9) and by young adults 500 ms (SD = 159.8). Statistical analyses confirmed significant differences in noun durations depending on age ($F(3, 2436) = 302.109$, $p = 0.001$, $\eta^2 = 0.274$). Tukey post hoc tests revealed, however, that there was no statistically significant difference in noun durations between those produced by 5-year-olds and 7-year-olds ($p = 0.305$).

The **word lengths** obviously influenced the durations of the analysed nouns. The longer the words the longer their durations are. This tendency could be shown in all age groups (Fig. 1). The mean values of disyllabic, trisyllabic and four-syllable nouns were 461 ms (SD = 143.6), 655 ms (SD = 172.0) and 830 ms (SD = 185.3), respectively. The differences in noun durations depending on word length varied with age. The two youngest groups showed similar patterns, the mean difference between the disyllabic and trisyllabic nouns was 220 ms in their cases. The difference between the trisyllabic and four-syllable nouns was 190 ms in 5-year-olds and 200 ms in 7-year-olds. Mean durations of nouns produced by 9-year-olds showed a 130 ms difference between their disyllabic and trisyllabic nouns, and 190 ms difference between their trisyllabic and four-syllable nouns. Young adults' within-group durational differences were 160 ms and 106 ms, respectively.

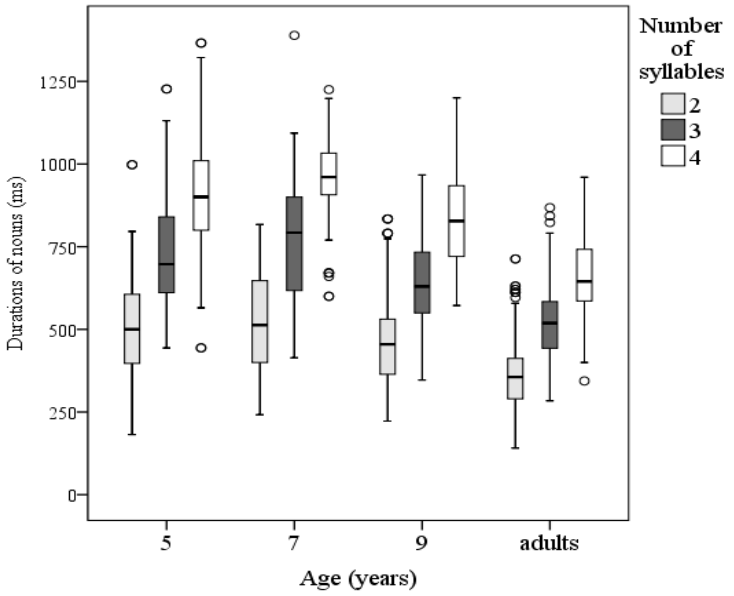

Figure 1. The durations of nouns according to word length and the speakers' age (medians and interquartile ranges)

Although the longest nouns were expected to be produced by the 5-year-old children, data showed that a great many of the 7-year-olds' nouns were even longer (the difference of the mean values turned out to be larger by 28 ms in the cases both of disyllabic and trisyllabic nouns while it was larger by 41 ms in the case of the four-syllable nouns produced by the older children). Nouns of a higher number of syllables produced by 9-year-olds were shorter than those of the 5-year-olds (the differences were 49 ms, 92 ms, 90 ms, respectively). Young adults articulated the shortest nouns, on average (the difference of the mean values in noun durations between 9-year-olds and adults turned out to be 149 ms in the case of disyllabic nouns, 116 ms in the case of trisyllabic nouns and 200 ms in the case of four-syllable nouns). The mean value of the longest nouns was 917 ms in the 5-year-olds (four-syllabic words).

Statistical analysis revealed significant differences in noun durations depending on the number of syllables ($F(2, 2436) = 925.288$, $p = 0.001$, $\eta^2 = 0.435$). The post-hoc Tukey tests confirmed significant differences for all noun lengths ($p = 0.001$, in all cases). The interaction between age and noun length was also significant ($F(6, 2436) = 7.615$, $p = 0.019$).

The **presence** of a **suffix** or suffixes altered noun duration. The mean values of noun stems were 576 ms, 477 ms, 506 ms and 391 ms in consecutive age groups. The age-specific mean durations of the suffixed nouns were 785 ms, 807 ms, 629 ms and 567 ms, respectively. Data showed that all suffixed words were longer than the monomorphemic nouns (of the same lengths) irrespective of age. Figure 2 shows various differences in noun durations depending on the presence (or absence) of a suffix (or suffixes) according to increasing age (considering all data the durational differences were 209 ms, 330 ms, 123 ms, 176 ms, respectively). Boxplots demonstrate also the overlaps of values between monomorphemic and multimorphemic nouns in each age group. Statistical analysis revealed significant differences in noun durations between the monomorphemic and multimorphemic nouns ($F(2, 2436) = 178.735$, $p = 0.001$, $\eta^2 = 0.129$).

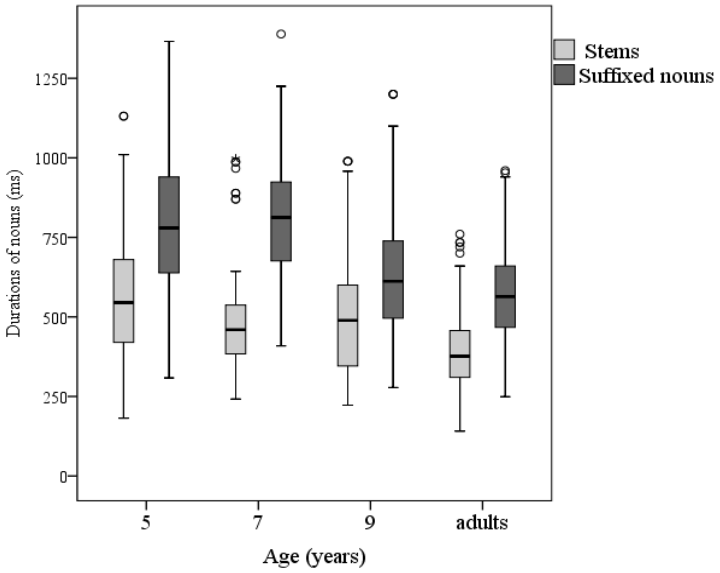

Figure 2. The durations of nouns according to suffixation and the speakers' age (medians and interquartile ranges)

The durations of the nouns were further analysed in terms of the **factors** of length and suffixation (shown in Fig. 3) as well as length, suffixation and age (summarized in Table 1). As expected, suffixed nouns were significantly longer than stems with the same number of syllables ($F(1, 2436) = 274.085$, $p = 0.001$). The differences were significant in all age groups ($p = 0.001$ in all cases). The interactions between the number of syllables, the number of suffixes and age were also significant ($F(9, 2436) = 4.352$, $p = 0.001$). The ranges of noun durations increased according to the increasing length of the nouns, they were larger with suffixed nouns than with stems, and decreased as the speakers' age increased.

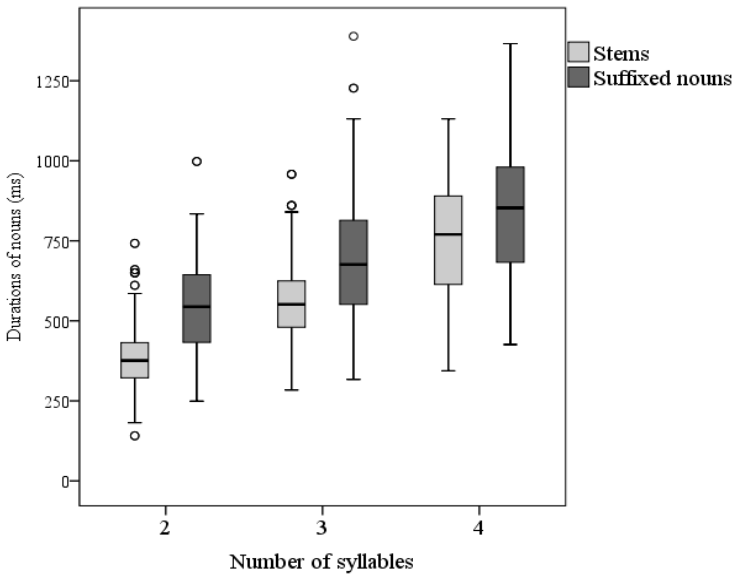

Figure 3. The durations of nouns according to suffixation and the number of syllables of the words (medians and interquartile ranges)

Table 1. Durations of nouns depending on noun length and number of suffixes across ages (SD = standard deviations)

Age groups	Durations of nouns (ms)					
	Number of syllables nouns contain					
	2		3		4	
	stem/SD	suffixed noun/SD	stem/SD	suffixed noun/SD	stem/SD	suffixed noun/SD
5-year-olds	440/111.1	594/134.7	651/143.5	773/172.0	881/104.6	927/187.9
7-year-olds	406/59.2	641/108.5	532/61.7	823/138.8	866/148.8	967/98.0
9-year-olds	396/96.4	509/115.7	512/129.6	628/122.9	751/134.4	850/153.7
Young adults	323/74.2	429/110.7	466/83.5	545/101.9	579/112.2	677/124.9

Multimorphemic nouns of 3 and 4 syllables were analysed in terms of the **number of suffixes** they contained (we did not separate nouns by their lengths in this case due to the limited amount of measured data). The values showed that nouns with two suffixes were significantly longer than those containing one suffix ($F(1, 1118) = 137.326$, $p = 0.001$). The differences were larger than 150 ms in the children's groups while it was only 80 ms in young adults. The Tukey post hoc tests confirmed significant differences in noun durations depending on the number of suffixes the nouns contained in all groups (p-value was 0.001 in all cases). The interaction between the number of suffixes and age was significant ($F(2, 1118) = 9.452$, $p = 0.001$).

4. Conclusions

The aim of the paper was to analyse and compare the durations of monomorphemic and multimorphemic nouns in Hungarian-speaking children's and young adults' speech. Our findings provided exact temporal values of the spoken nouns with diverse numbers of syllables (from 2 to 4), and we were able to confirm the expected effects of suffixation on word durations. The findings may shed light on the storage of nouns in the mental lexicon and lexical access.

The older our subjects were, the faster they produced the nouns, which is an obvious outcome of language development in children and of more practice and steady language knowledge in young adults (see also Lee et al. 1999). The mean durational difference of nouns between 5-year-olds and young adults was around 200 ms. The 9-year-olds' noun durations were significantly shorter than those of 5-year-olds by around 100 ms, on average. There is, however, one exception: Suffixed nouns were relatively slowly articulated by the 7-year-olds. The durations of their suffixed nouns did not differ significantly from those produced by the 5-year-olds. Thus, our first hypothesis was partly confirmed. This finding can be explained by the beginning of literacy acquisition at the age of 7, with children starting to learn to read and write, acquiring various pieces of new information at school with the corresponding new words. Examples for possibly "new" or earlier rarely used nouns from their utterances include *szakkör* 'study class', *matek* 'math', *technika* 'technology', *házasság* 'marriage', *trambulin* 'springboard', *követelmény* 'requirement', etc. The suffixes are linked to both the "old" and "newly acquired" nouns in children's speech. 7-year-olds use many suffixes frequently that they rarely used before due to the morphologically and syntactically complex utterances they produce (see Gósy 2005). All these processes (noun and suffix selection, lexical access, linking of stems and suffixes, underlying phonological and articulation planning) are assumed to slow down the suffixed noun production of 7-year-olds.

The durations of the analysed nouns show a linear increase as a function of the number of syllables but there is no constant change according to noun lengths. Syllable reductions could

be observed with young adults and slightly with the oldest children (see Köhler et al. 2005). Our hypothesis that the durations of the analysed nouns would show reductions across the lengths of the nouns only in adults was again partly confirmed. The effectiveness of temporal control over noun durations in the spontaneous utterances of younger children is a developmental factor that does not seem to work properly until the age of 9.

Our data confirmed that monomorphemic nouns were significantly shorter than multimorphemic nouns in all age groups and with various lengths of nouns. Thus, our hypothesis was confirmed. These results support the assumption that nouns and suffixes may be stored at different places in the mental lexicon of Hungarian-speaking subjects. In noun production, the different morphemes are linked during lexical access in spontaneous speech (Leminen et al. 2016). On the basis of these temporal patterns, morphologically decomposed storage seems to be supported by evidence, at least for nouns, underlying dual-route lexical access irrespective of age (e.g. Pinker 1999; Ferro et al. 2010). Children need more time for (i) linking stems and suffixes and (ii) performing Hungarian phonological rules at the same time. The need for extra time to execute appropriate suffixed nouns can be observed in durational differences between monomorphemic and multimorphemic nouns particularly in the two youngest groups of children. The temporal differences across ages can be explained by diverse cognitive abilities, memory, attention span, grammatical, phonological knowledge, individual vocabulary, and age-specific articulation skills of the speakers, among others (Redford 2015; Fletcher et al. 2016).

Our last hypothesis was that there would be significant differences in word durations depending on the number of suffixes multimorphemic words contain. The results confirmed this assumption. Two suffixes seemed to require more complex execution of lexical access and more mental effort than one suffix. The linking procedure of the two suffixes following the stem needs higher-level grammatical knowledge including complex phonological execution as opposed to the construction of a stem and a suffix. Our interpretation of the findings based on the measured data is that the increased duration of nouns with two suffixes as opposed to those with one suffix reflects the longer route of lexical access in the former cases (Caramazza et al. 1988; Baayen 2007; Ferro et al. 2010). We think that our assumption was confirmed.

There are limitations to this study. We focused only on nouns while analysing the assumed different durations depending on suffixation. Verbs and some other parts of speech can be considered in the future. Young children use fewer nouns with four syllables than young adults which is the normal case in age-specific spontaneous utterances. Efforts were made, however, to compensate differences in the number of occurrences by using large speech materials.

The development of children's grammatical, phonological, articulatory abilities, memory, attention span, and cognitive abilities during first language acquisition makes it possible for them to use the rich morphology of the language, increasing the number of morphemes and syllables in Hungarian nouns. The durations of stems and suffixed nouns provide an opportunity to learn more about lexical access in spontaneous speech underlying age-specific language awareness. More research is needed to analyse further the temporal consequences of lexical access in spontaneous utterances across the lifespan (e.g., the phonological requirements of the stem and suffix combinations).

Acknowledgements

This paper was supported by the Thematic Excellence Program of ELTE Eötvös Loránd University, Budapest, Hungary.

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GLOTTAL MARKING IN SENTENCE READING: COMPARISON OF ADOLESCENTS' AND ADULTS' SPEECH PRODUCTION

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Abstract

Glottal marking is well described for adult speakers; however, children's speech has been less documented yet. The present study analysed the appearance of glottal marking in 16 adolescent (16- and 17-year-old) and 16 adult (20- to 45-year-old) speakers' reading aloud (with an equal number of males and females in both age groups). Data in terms of gender as well as age were compared based on four parameters of frequency of occurrence. The results showed that although the frequency of occurrence of glottal marking in adolescent speech in general was somewhat lower than in adult speech, and the gender-specific differences did not appear yet, the positional triggers for glottal marking were found to affect the frequency of the phenomenon similarly in the two age groups. The results and further research may contribute to the better understanding of both the appearance of glottal marking and the emergence of gender-specific characteristics of speech.

Keywords: glottal marking, adolescents, adults, sentence reading, Hungarian

1. Introduction

The speech attributes of adolescents are undeservedly underinvestigated in both international and Hungarian phonetic research, despite the fact that this age group represents an inevitable transition between childhood and adulthood. The analysis of adolescent speech may shed light on several developmental issues in both biological and social dimensions. The phonation characteristics of adolescents following the pubertal change of voice may gradually come to serve the same discourse functions which are already well-documented in adult speaking behaviour from boundary marking to the expression of attitudes. The development of correlations between various aspects of voice quality and communicative functions is a topic well worth exploring. The present study provides an analysis of a certain stage of this development based on a study of Hungarian read speech. Our aim is to compare certain features of adolescent and adult speech, namely the frequency and the position of glottal marking in sentence reading.

Phonation results from vocal fold vibration. This vibration is usually quasiperiodic, leading to modal phonation; however, inconsistency may also appear. The phenomenon goes by several names, e.g. *creaky voice, glottalization, vocal fry.* Whichever term is used, it is an umbrella

DOI: 10.5281/zenodo.3907323 ISSN 2732-1142

term, as the vibration can be aperiodic in several ways: the timing or amplitude of adjacent periods may exceed the normal ranges of jitter and shimmer (e.g. Surana–Slifka 2006). Some researchers also analyse the glottal stop in this context (e.g. Dilley et al. 1996). Therefore it is not always clear which terms refer to which types of glottal behaviour, or which terms are treated as synonyms. In our own analysis, we use the term *glottal marking* in reference to both (and together) glottalization and glottal stop.

The functions of glottal marking vary across languages. It can fulfill various roles: phonological (see e.g. Gordon–Ladefoged 2001), emotion and attitude marking (see e.g. Gobl–Ní Chasaide 2003), various kinds of boundary marking (e.g. Dilley et al. 1996; Lennes et al. 2006), conversational (e.g. Redi–Shattuck-Hufnagel 2001), and socio-cultural (e.g. Henton–Bladon 1988). In Hungarian, its boundary marking function has been thoroughly investigated. As shown by Markó's monography (2013), glottal marking appears in utterance-final position, on phrase-initial vowels, and in V(#)V clusters (particularly at word boundaries). Since in the present study we analysed sentence readings, we also focus on the function of boundary marking.

Kohler (2001: 282–285) defined four types of glottalization covering "the glottal stop and any deviation from canonical modal voice" as follows. (1) The first type includes vowel-related glottalization phenomena which signal the boundaries of words or morphemes beginning with vowels. (2) Plosive-related glottalization phenomena belong to another category in his system, these occur as reinforcement or even replacement of plosives. The third group is (3) syllable-related glottalization phenomena which characterize syllable types along a scale from a glottal stop to glottalization (Danish stød among others). He also separated (4) paralinguistic function of glottalization phenomena at the utterance level with two subtypes: (i) phrase-final relaxation of phonation, and (ii) truncation glottalization, i.e. utterance-internal tensing of phonation at utterance breaks. From these four types, two occur frequently in Hungarian speech, (1) vowel-related glottal marking and (4) paralinguistic glottal marking, especially the subtype (i) phrase-final relaxation of phonation (see Markó 2013).

The occurrence of glottal marking was found to show gender-related differences in many languages. A number of studies have found creaky voice to predominate among male speakers, e.g. Stuart-Smith (1999) in Glasgow; Esling (1978) in Edinburgh; Henton and Bladon (1988) for speakers of RP and 'Modified Northern' English.

Nevertheless, despite strong associations between creaky phonation and male gender, the opposite tendency is also documented in the literature. For example, in college-aged women in Virginia (Lefkowitz 2007, cited by Podesva 2013), creaky voice was found to be prevalent, and young Californian women also use it significantly more frequently than their male counterparts (Yuasa 2010). Podesva (2013) found similar tendencies independently of age and race. In Hungarian females' speech, creaky voice was found more frequent than with male speakers of the same age groups (see Markó 2013).

The age-related tendencies of glottal marking have been studied mainly as a function of aging. Some studies did not detect any difference in jitter and shimmer values between young and old adults (e.g. Brown et al. 1989), while others did (e.g. Benjamin 1981; Biever–Bless 1989; Orlikoff 1990; for Hungarian see Bóna 2009). In Hungarian, neither the frequency of occurrence of glottal marking nor the gender and speech style related variation were different between the young and the elderly (Markó 2013).

Only a few studies have been devoted to the analysis of glottal marking in children's speech. In terms of age, the data are far from being consistent, but this is hardly surprising given how many variables might influence the phenomenon. Athanasopoulou et al. (2015) analysed 5-, 7- and 10-year-old children compared to adults. They found that at higher ages,

variation in the pattern of glottal marking resembled adult speech more. Therefore, they hypothesized that this phenomenon was learned from adult speech. Traunmüller and Eriksson (2000) found no glottal marking in 7-year-old children's speech.

As for Hungarian, both the frequency of occurrence of glottal marking and the positional characteristics have been studied mainly in adult speech. Some studies have addressed differences between young adults and elderly (see Bóna 2009; Markó 2013), but the developmental aspect and children's speech have not received the attention it deserves. Tóth (2016) found glottal marking to be present in the speech of 11-year-old Hungarian monolingual children. In her thesis, Tóth (2017) found that neither age nor gender had an effect on the frequency of occurrence of glottal marking between the ages of 7 and 18 years.

Numerous studies found that many aspects of speech of adolescents do not yet show the same patterns that adults' speech does (e.g. realization of phonemic contrasts). Glottal marking is elicitated by physiological reasons on the one hand, and on the other hand its occurrence is learnt to some extent. Therefore the question may rise what differences and similarities appear in the two age groups' speech.

The adolescent subjects in the present study are 16-17 years old. One's voice undergoes mutation during childhood. The age of 16-17 years is approximately the end/last phase of this mutation. Hacki and Heitmüller (1999) summarized the findings on mutation for both boys and girls as follows: Premutation, mutation and postmutation were observed in boys in most studies, while in girls, only Pedersen and his colleagues (1990) found these three phases of mutation. The structure of the vocal chords reaches its final, adult-like structure at the age of 17, and the maturity of the fibers and the structure were found to reflect the phonatory functions (Ishii et al. 2000). The larynx grows to a larger extent in puberty in boys than in girls, sexual dimorphism appears from these changes (e.g. Kahane 1978). The exact timing of the f0 changes is different across studies (see Hacki–Heitmüller 1999). The decrease of habitual, speaking f0 was found at the age of 7-8 years in girls, and at the age of 8-9 years in boys in Hacki's and Heitmüller's results (1999), while Böhme and Stuchlik (1995) found this lowering between 7 and 11 years. Hacki and Heitmüller (1999) found the first signs of mutation at the age of 10-11 years. Böhme and Stuchlik analyzed children up to the age of 14. They could not draw a typical voice profile for the 13-14-year-old boys, thus they linked mutation to this age. Mutation itself takes place at the age of 10-14 years in girls, and at the age of 11-16 years in boys, with postmutation taking place at the age of 16-18 years (Hacki et al. 2013). Mutation does not only mean the decrease of f0 and the broadening of the f0 range. The f0 changes during speech without the subject's intention, and also the posterior portion of the vocal chords may stay open ("mutational triangle") in boys (Hacki et al. 2013). The subjects of the present study are at the latest phase of mutation, in which their organs are almost adult-like, but still in development and their voice is still undergoing changes. Therefore, their speech may not yet pattern entirely like the adults'.

The present study aims to produce data on the distribution and typical position of glottal marking in adolescent speech in comparison to adults in reading aloud of 25 sentences. When it comes to Hungarian adults, it is well-documented that female speakers are much more likely to produce glottal marking (Markó 2013). Even though a fair number of studies exist on the frequency of occurrence of glottal marking in Hungarian adult speech (e.g. Bőhm–Shattuck-Hufnagel 2007, Bőhm–Ujváry 2008, Bőhm 2010, Markó et al. 2019), systematic analysis of the various functions of it (based on the same and well-balanced speech material) is hard to come by (e.g. Markó 2013, 2014).

A meaningful comparison between adult and adolescent data requires the fine-grained analysis of adult speech, which the present study aims to supply. Based on the above considerations, our research questions were formulated as follows:

Q1: How often does glottal marking appear in adolescents' speech compared to adult speakers' speech?
Q2: Do the same phonetic positions trigger glottal marking in adolescents' and adults' speech?
Q3: Does adolescent speech display the same gender-related differences as adult speech (as described by previous studies)?

The corresponding hypotheses were the following:

H1: Glottal marking in general is less frequent in adolescents' speech compared to adults.
H2: The boundary marking function of glottal marking is already observable in adolescent speech; however, the frequency of glottal marking in these positions is lower compared to the corresponding positions in adult speech.
H3: Based on personal experience, gender-related variation was expected in adolescents' speech similarly to adults. In particular, girls and women were supposed to produce more glottal marking than boys and men, however, we expected less frequent glottal marking in the case of girls than in women.

2. Methods

The present comparative study was prompted by the fact that a speech database building project called TiniBEA had been launched at the Research Institute for Linguistics. The speakers of the recordings were 16 to 17-year-old secondary school students. The most important advantage of this corpus is that the same institute had also developed an adult speech database with a very similar recording protocol and under the same laboratory conditions (see Gósy 2012; Gyarmathy and Neuberger 2015). Therefore, the speech samples are easy to compare. In order to balance the samples in terms of gender, we only used the data of 16 teenage speakers, 8 girls and 8 boys (as at the time of the study these samples were available), selecting the same number of male and female speakers from the adult speech database as well. The 16 adult speakers' age varied between 20 and 45 years. The same adult speech material had been analysed in terms of glottal marking in previous studies (e.g. Markó 2013), with the result that in adults, age did not have an effect on the relevant glottal marking characteristics. Therefore, the wide age range of adult speakers was not expected to confound the data. All speakers were native speakers of standard Hungarian, with no speech or hearing deficits. The recordings were carried out in a sound attenuated room with an AT4040 microphone.

For the present study, we selected from the databases the sentence reading task where the speakers were asked to read aloud 25 sentences. The sentences are the same in the two corpora, and their order is also fixed. The sentences are all declarative, but varying in length (15 to 27 syllables). They include simple and complex sentences, and their phonetic structures are also diverse (e.g. 0 to 3 V(#)V sequences appear per sentence). We have to admit that the databases were not specifically designed for the analysis of glottal marking, but all of the sentences offer some opportunity for this kind of investigation. For example, glottal marking typically

occurs at the end of sentences, and most sentences contain word-initial vowels and vowel-clusters both within words and at word boundaries, which all favor glottal marking (Kohler 2001).

Labeling and acoustic analysis were carried out with Praat (Boersma–Weenink 2016). The sound files were labeled manually. The sentences were labeled into sounding and pause intervals. Their durations were calculated based on these labels, with the durations of pauses ignored.

The analysis of glottal marking was performed in accordance with the methodology of previous studies (e.g. Dilley et al. 1996), combining visual and auditory information. Acoustically, glottal marking was identified when (i) the duration or amplitude of the basic periods suddenly changed to a significant extent (including the occurrence of a glottal stop, see Dilley et al. 1996); or when (ii) the fundamental frequency suddenly fell below the speaker's normal pitch range. In addition, as a perceptual criterion, cases in which the timbre was audibly hoarse or creaky were taken into consideration. Following the general practice in the literature on phonation types, no particular quantitative criterion was set up for glottal marking. The parts pronounced with glottal marking were labeled from the start point to the end point (Figure 1) based on visual inspection of the oscillogram and the spectrogram as well as auditory checking.

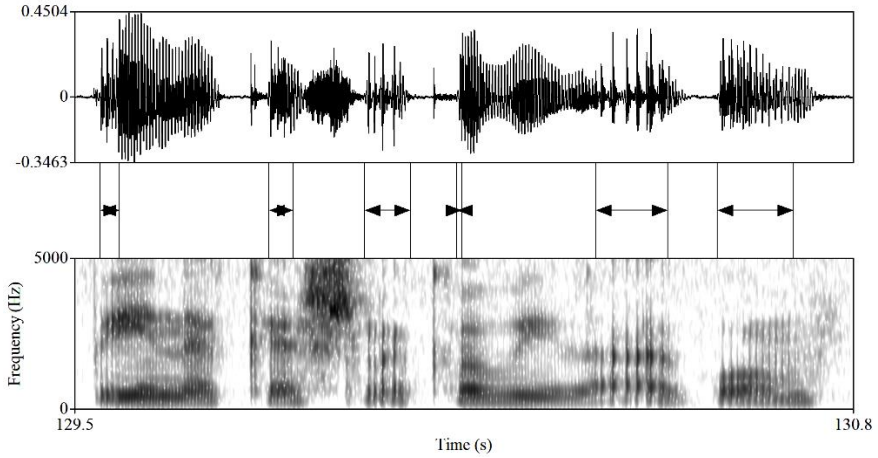

Figure 1. Sample of labeling method.
Arrows show the start and end points of glottally marked parts

Data in terms of gender as well as age were compared based on three parameters of **frequency of occurrence:**

(M1) number of glottally marked speech intervals (any long continuous speech section produced with glottal marking) per utterance (N);
(M2) ratio of duration of glottal marking to the total duration of the utterance (%);
(M3) ratio of the syllables produced (partially or fully) with glottal marking to the total number of syllables per utterance (%).

One might wonder why we applied three different methods to the analysis of frequency of occurrence (from (M1) to (M3)). We decided to combine these methods because the various studies concerning glottal marking generally use one of them (see e.g. Bőhm–Ujváry 2008; Markó 2013), but the same paper has never compared the results obtained by different methods.

In order to see the theoretical problems inherent in each method, we can take extreme scenarios which, however, do occur in speech. With regard to the first method (M1), we may

consider the example of a long pause-to-pause interval with one short part produced with glottal marking (possibly of just a single syllable) as against the entire utterance displaying glottal marking. Both of these realizations give 1/interval as a result. If we measure durations (M2), we obtain two extreme values, one close to 0%, and one at 100%, which is a more plausible description of these two specific occurrences. However, in (M2) an interval produced with glottal marking of the same length can result in different values depending on whether it appears in a short or in a long pause-to-pause interval. Thus this method also hides the real length of glottal marking. If we compare a V(#)V position (which is frequently marked with glottal marking but it is necessarily short due to its function) and a phrase-final position where glottal marking can be of any length, the method has no way of discriminating between these cases. Depending on the carrier pause-to-pause interval they can receive the same duration ratio with (M2). (M3) also considers the length of the phrase (but in syllable number), and thus has the same disadvantages as (M2).

The other problem that may arise is that glottal marking can only appear in voiced sounds. Thus voiceless or devoiced sounds may interrupt an interval produced with glottal marking. This means that while counting the number of intervals with glottal marking, we need to decide whether to count an occurrence of glottal marking extending before and after a voiceless consonant as 1 or 2 intervals. This decision is relevant for (M1) and (M2) as it affects the number of parts produced with glottal marking. Also, when such occurrences are considered as one interval each, the duration of non-voiced parts is added to the duration of glottal marking even though it is not phonated at all.

In order to see how these theoretical problems can be resolved, we compared our data obtained with the three methods. We decided to consider glottally marked stretches of speech extending before and after non-voiced parts as two occurrences of glottal marking. The rationale behind this was that although the physical parameters may not change to favour modal voicing, the causes of glottal marking may be manifold. Thus, for example, a V(#)V glottal marking does not necessarily have an underlying reason for the specific voicing type that would automatically result in its continuation after a non-voiced break. However, considering all types and causes of glottal marking at each occurrence one by one would not be methodologically viable.

The positional analysis determined the ratio of glottally marked vowels to the number of all vowels in the utterance. We analysed the vowels in three positional groups.

Vowel-related glottal marking (see Kohler's (2001) category (1)): vowels located word-initially and/or participating in a vowel cluster either on word boundary or within a word were counted, and this amount was considered 100%. Then we defined the number of vowels in this group which had been pronounced with glottal marking, and determined their ratio.

Sentence-final glottal marking: the vowels of the last three syllables were considered 100%, and we determined the ratio of those vowels in this group which were produced with glottal marking.

Finally, in the miscellaneous group we counted all the other vowels which did not belong to either the vowel-related or the sentence-final group, and defined the ratio of vowels produced with glottal marking.

We compared the frequency and positional data in terms of gender and age group, so here we present the results in four groups: FEMALE ADOLESCENTS, MALE ADOLESCENTS, FEMALE ADULTS and MALE ADULTS.

Linear mixed models were run with age group and gender as factors (Bates et al. 2015). Their interaction was allowed. The speaker was set as a random factor. The number of glottally marked intervals, the ratio of syllables produced with glottal marking, and the ratio of the duration of glottally marked intervals were set as dependent variables in three different models.

The comparison of the syllable types (two triggering glottal marking, and one miscellaneous) was carried out with the means of repeated measures ANOVA. The three syllable types were set as the within-subject effects, the ratio of glottally marked syllables was set as the dependent variable. Statistical analysis was carried in R (R Core Team 2018).

3. Results

3.1. Frequency of occurrence of glottal marking

3.1.1. Number of occurrences (of any length) per utterance. First we analysed the number of glottally marked intervals in the sentences regardless of their length. Figure 2 shows the mean and the standard deviation of the results calculated for the four analysed speaker groups. No difference was found between the adolescent gender groups, while adult men used glottal marking less frequently and adult females more frequently than the adolescent subjects (FEMALE ADOLESCENTS: 4.5±2.4; MALE ADOLESCENTS: 4.4±2.4; FEMALE ADULTS: 5.0±2.7; MALE ADULTS: 4.0±2.1). The individual differences were the lowest in the speech samples of the adult men, all three other groups showed large variability among the speakers. According to the linear mixed model, the differences were not significant between the analysed speaker groups.

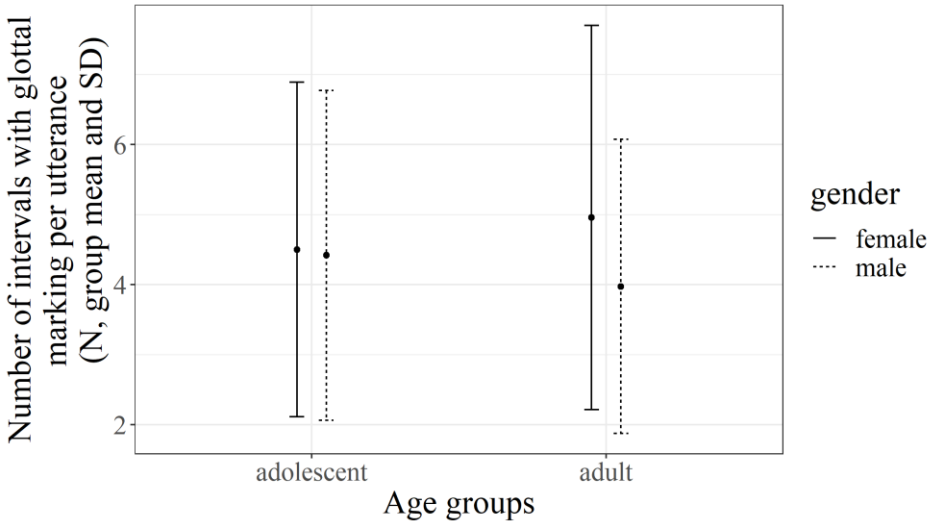

Figure 2. Number of intervals containing glottal marking per utterance (mean and SD)

3.1.2. Ratio of syllables with (any length of) glottal marking to the total number of syllables in the sentence. We also calculated the frequency of occurrence of glottal marking by calculating the ratio of the glottally marked syllables in the utterances. Figure 3 introduces the mean and the standard deviation values for the speaker groups in question (FEMALE ADOLESCENTS: 26.3%±13.6%; MALE ADOLESCENTS: 25.5%±12.9%; FEMALE ADULTS: 29.6%±12.9%; MALE ADULTS: 24.3%±12.7%). While this calculation method may differ from the previous one as one glottally marked interval may include more than one syllables, in the present specific data these two calculations show the same tendencies. This means that there was no difference between adolescent women and men with regard to the ratio of syllables with glottal marking, and the adult women had the highest ratio, adult men the lowest. Though both measurements showed some difference between the adult gender groups, interspeaker variability is large, and therefore no statistical difference could be detected (according to linear mixed models).

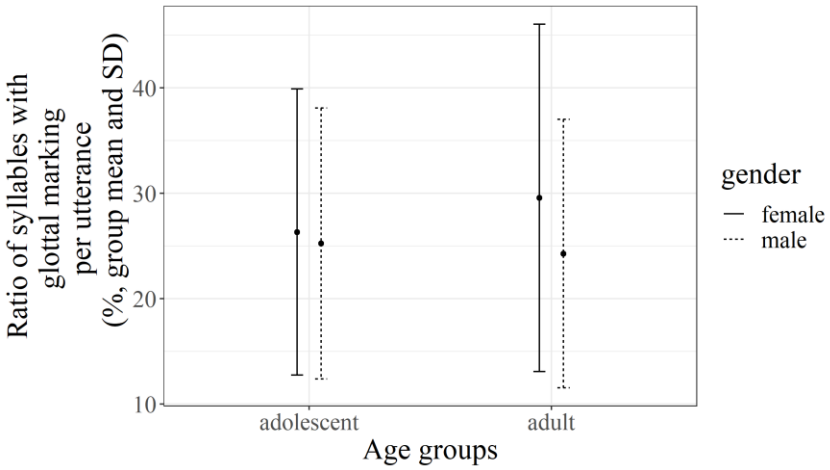

Figure 3. Ratio of syllables produced with glottal marking per utterance (mean and SD)

We analysed what proportion of the syllables of the utterances was pronounced with glottal marking. Roughly one fourth of the syllables displayed this voice quality (mean = 26.4%, minimum = 21.1%, maximum = 34.8%). The ratio of syllables produced with glottal marking did not show any correlation with the total number of syllables in the utterance. We analysed the results for the four speaker groups separately as well, but the average ratio for the groups did not show any correlation with the number of syllables per sentence ($p > 0.05$ in each case).

3.1.3. Ratio of the total duration of intervals produced with glottal marking in the sentences. As the intervals with glottal marking may appear with any length in the voiced intervals of the utterance, the number of occurrences may vary between very short (a single glottal stop) and very long (glottal marking across several sounds) values (see Dilley et al. 1996). Figure 4 shows that in terms of duration, the ratio of intervals with glottal marking was somewhat higher in the adult groups than in the adolescent ones (FEMALE ADOLESCENTS: 13.6%±8.2%, MALE ADOLESCENTS: 12.5%±8.3%, FEMALE ADULTS: 13.8%±8.3%, and MALE ADULTS: 15.7%±10.1%). While adult men had the lowest values with regard to the ratio of glottally marked intervals and syllables per utterance, the duration ratio of these was higher than that of the adolescent gender groups. The statistical analysis showed no significant effect on the data.

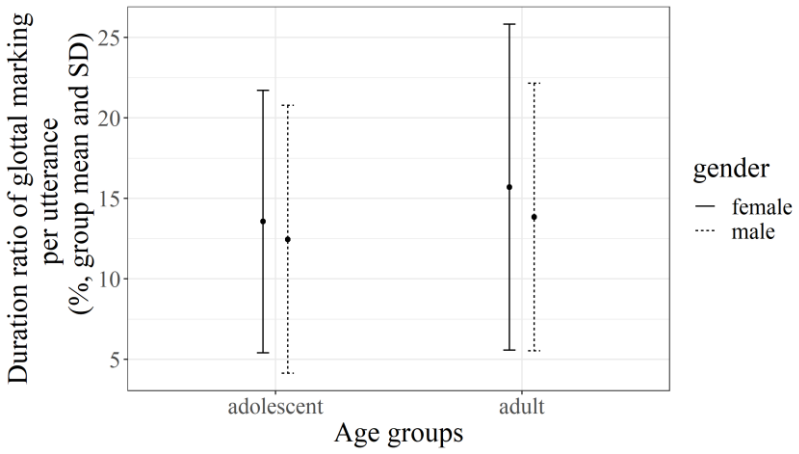

Figure 4. Ratio of the duration of intervals produced with glottal marking per utterance (%)

3.2. The phonetic positions of syllables with glottal marking

The phonetic positions in the sentences that typically trigger glottal marking and those that are not known to do so were also analysed in detail. The first triggering group included two subgroups: vowel-related occurrences, i.e. vowels in vowel boundary positions (word-initial vowels and vowels in V(#)V vowel clusters) and in utterance-final positions, while any other positions belong to the third, so called miscellaneous group.

Approximately half of the vowel-related positions appeared with glottal marking in each speaker group (Figure 5), and again, FEMALE ADULTS showed the highest and MALE ADULTS the lowest ratios.

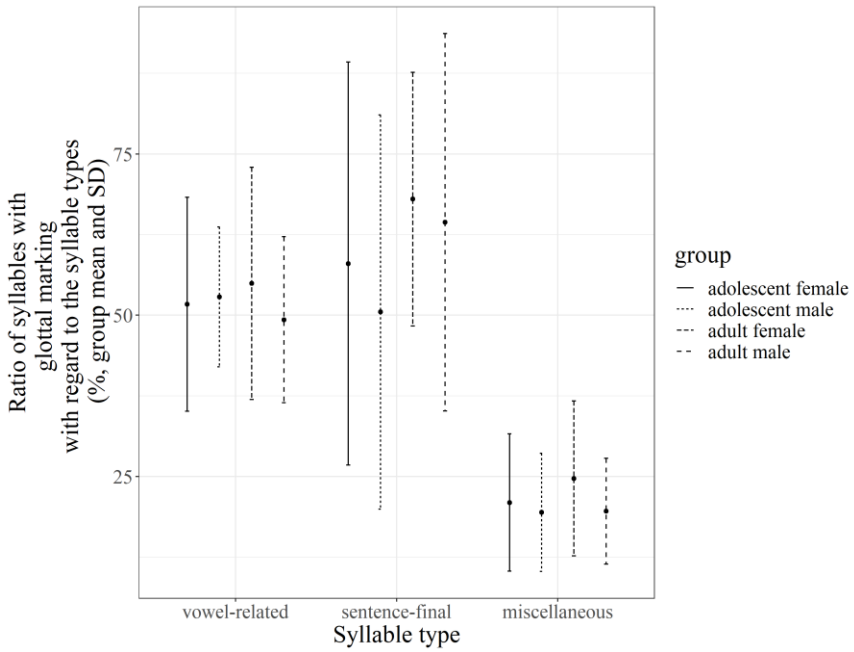

Figure 5. Ratio of vowels produced with glottal marking in vowel-related utterance-final, and miscellaneous positions

Larger differences were detected in utterance-final position. While MALE ADOLESCENT speakers' speech included approximately the same ratio of glottal marking in this position (53.9%±39.1%) as in the vowel-related category, all other participant groups used glottal marking more often in this position (FEMALE ADOLESCENTS: 58.3%±38.6%, FEMALE ADULTS: 68.0%±35.1%, MALE ADULTS: 64.4%±39.2%).

In the miscellaneous positions where glottal marking is not motivated by boundary marking, this type of vocal fold vibration not only occurred much less frequently, but also the standard deviation values, i.e. the differences among the speakers, were lower. The highest ratio of vowels produced with glottal marking appeared in this position again in adult women's reading aloud (25.7%±16.5%) while other speaker groups used this phonation less frequently in this position (FEMALE ADOLESCENTS: 20.9%±13.6%, MALE ADOLESCENTS: 19.4%±13.1%, MALE ADULTS: 19.6%±12.6%). The three positions were also compared to each other. As shown by the results, at least half of the syllables in vowel-related and sentence-final positions were affected by glottal marking in all four groups, with a share of only one fifth or one fourth in the miscellaneous group. The position of the syllable had a significant effect on the ratio of glottal marking (repeated measurements ANOVA: $F(2, 13617) = 66.555$, $p < 0.001$).

3.3. Inter- and intraspeaker variability

Bőhm and Ujváry (2008), and Markó (2013) found that the frequency of occurrence of glottal marking in Hungarian was highly variable among speakers. The variability of the results was also large among our subjects in each age and gender group. Figure 6 shows the interspeaker and intraspeaker variability of the number of glottally marked syllables per second, the mean and standard deviation across the 25 sentences. The number of glottally marked syllables per second in the speech of the subject with the highest mean value is three to four times higher than that in the speech of the subject with the lowest mean value in each group. The criterion of intraspeaker variability showed up more limited differences across speakers, each subject was found to have high variability across the sentences.

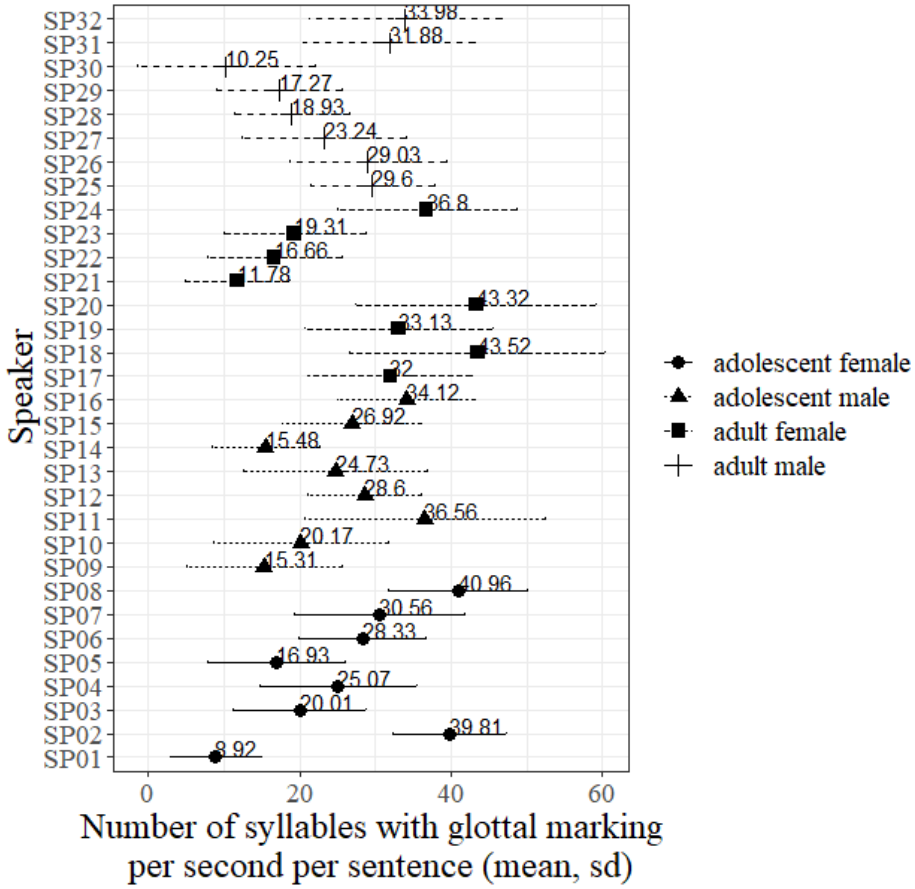

Figure 6. Inter- and intraspeaker variability in the number of syllables with glottal marking

4. Discussion and conclusion

The present study aimed to set a start for the analysis of glottal marking relative to the age of the speaker. We analysed adolescent (16-17 years of age) and adult speakers' sentence reading and compared the frequency of occurrence, ratio of duration and functional/positional dispersion of glottal marking based on the results of previous studies on Hungarian (for a summary, see Markó 2013 and Section 1 of the present paper).

Our data showed similar tendencies in adult age groups as previous studies, i.e. female speakers produced glottal marking more frequently and in a higher ratio of sentence duration

than their male counterparts, however, the present results did not show a statistically significant effect of gender in this age group. Gender-specific differences did not appear in the adolescent age group either.

The positional analysis also confirmed the earlier results, i.e. vowel-related and sentence-final positions triggered glottal marking in a higher ratio than other positions. In the former two, approximately half or more of the syllables, while in the latter one only one fifth or fourth of them occurred with glottal marking.

The three analysed positions showed the same tendencies in the four groups. In the two positions triggering glottal marking, such syllables had a higher share than in miscellaneous positions, for which no regular link with glottal marking had been found in previous studies. This result is important as it shows that the patterns detected by the previous studies for adults are present in the speech of adolescent speakers as well, and neither shows gender-specific differences.

With regard to our hypotheses, certain conclusions can be drawn. Our first hypothesis, namely that glottal marking in general is less frequent in adolescents' speech compared to adults, has not been corroborated. This phenomenon's frequency of occurrence appeared to be rather similar between the age groups. However, adult female speakers tended to apply glottal marking more frequently than adult male or adolescent subjects.

Under the second hypothesis, we expected that the boundary marking function of glottal marking would already be observable in adolescent speech, but the frequency of glottal marking in these positions would be lower than in adult speech. The results confirmed that the same phonetic positions trigger glottal marking in adolescent speech as with adults regardless of which type of triggering position is analysed.

The third hypothesis about gender differences in adolescent speech was not supported by the evidence. Based on our personal experience, we expected that girls produce more glottal marking than boys, similarly to women (compared to men), however, we expected less frequent glottal marking in the case of girls than in women. Although women produced more glottal marking than men, no significant difference was found between women and girls.

We can conclude that the gender-specific differences that appear in adults do not occur in the speech of adolescents. Thus, it emerges later, maybe during early adulthood. The positional patterns are, however, clearly apparent. This means, in particular, that the sentence-final and vowel-related positions with their boundary marking functions and the physiological bases of the sentence-final position prevail over any age- or gender-related differences.

Acknowledgements

The research was founded by the National Research, Innovation and Development Office of Hungary, project No. FK-128814 and the Thematic Excellence Program of ELTE Eötvös Loránd University, Budapest, Hungary. The authors are grateful to Karolina Takács for her valuable help in annotation.

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ARTICULATORY STUDIES IN HUNGARY – PAST, PRESENT AND FUTURE

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Abstract

Articulatory studies performed in Hungary date back to the sixties, when different methods were applied for the description of the segment inventory of Hungarian and various other languages (e.g. Russian, German, English, Polish). Palato- and linguography, labiography, and X-ray were used in the analyses of both typical and atypical speech. However, coarticulation, which requires dynamic methods, was not analysed until recently, when the suitable tools and methods, electromagnetic articulography, ultrasound tongue imaging and electroglottography became also available in Hungary. The paper presents an overview of the main issues of articulatory studies on Hungarian in the past and the present. It summarizes the main findings from some studies on gemination and degemination, transparent vowels, phonatory characteristics of emotion, and gives a couple of examples of possible and future applications.

Keywords: articulatory studies, applications, Hungarian, overview

1. Introduction

Speech researchers have been studying articulation (the co-ordinated movements of the speech organs) and the acoustic features of speech since the 1700s (Kempelen 1791/1989). Special equipment is needed to examine the movements of the articulators (vocal folds, tongue, lips) as most of these structures cannot be seen during the production of speech. As the

DOI: 10.5281/zenodo.3907330 ISSN 2732-1142

study of articulation requires complex instrumentation and all articulation-focused measurement methods modify speech production to some extent, the question arises as to why articulation should be examined at all. As opposed to articulation, the acoustic signal is readily observable and analysable, and the acoustic analysis of speech does not introduce any major measurement-related artefacts to the data. Furthermore, the tools of acoustic analysis are easily available and are relatively inexpensive. For the necessity of articulatory research, the Quantal Theory provides an explanation (Stevens 1989). According to the Quantal Theory of speech production and perception, articulatory gestures have acoustic consequences; however, the magnitude of articulator displacement is not proportional to the magnitude of change observable in the acoustic signal, as the relationship between articulation and its acoustic consequences is not linear. It follows that a minor change in articulation might result in a significant change in the acoustic output if it takes place in the so-called critical region and vice versa, major differences in articulation might not induce any differences in the acoustic signal. The adjective *quantal* refers to this non-linear relationship (Stevens 1989). The importance of the study of articulation is further highlighted by the fact that although certain acoustic parameters highly correlate with articulation, the acoustic parameters cannot be identified with specific articulatory movements in a one-to-one manner. It is commonly known that although the first formant (the first resonance) of the vocal tract is primarily influenced by the vertical position of the tongue, it is also modified by the displacement of the jaw which is, to some extent, independent of tongue position. Similarly, although the second formant is primarily determined by the horizontal position of the tongue, it is also influenced by the movements (especially rounding) of the lips (Stevens 1998). As a corollary to this, articulatory movements cannot be reconstructed solely on the basis of acoustic characteristics of the speech signal.

In Hungary, the creation of the MTA–ELTE Lendület Lingual Articulation Research Group (2016) arguably marks the beginning of a new era of research into articulation (and coarticulation). The establishment of new technical conditions opened up pathways of research that had formerly been impossible. The present study gives an overview of the background of research into articulation in Hungary and presents the tools and methods that can transform these investigations. We give an insight into the most important research carried out with these innovative technologies on the articulation of Hungarian adults.

2. Articulatory studies in Hungary – before 2000

Articulatory investigations in Hungarian that are based on dynamic data instead of static images are scarce. The X-ray film technology (the so-called cineradiographic examination) was used by János Lotz in the 1960s (1966, 1967), Tamás Szende in the 1970s (1974) and Kálmán Bolla in the 1980s (1981b, 1981c) to study articulation characteristics of the Hungarian speech. Bolla analysed all the Hungarian vowels and consonants in his study. Five images of each speech sound were transmitted from the X-ray films to a computer and the computerized drawings were then phonetically analysed. In his studies, all the articulatory configurations were presented in drawings and the sizes of the vocal tracts were shown in tables. These data do not only help understand the mechanisms of Hungarian speech production and describe the basis of articulation but could also be used for a modern, articulation-based speech synthesizer. Bolla and his colleagues later gave a detailed description of the equipment used to make radiograms and the methodology applied to make the recordings (1986). According to this, the microcomputer technology was designed to embrace interlingual phonetic comparison. Bolla also experimented with the study of the lips (photolabiogram), the palate (palatogram) and the tongue (lin-

guogram). He did not only carry out articulatory research on Hungarian pronunciation (e.g. 1980, 1995), but also on other languages (Russian: 1981a; American English: 1981d; Finnish: 1985; German [with László Valaczkai]: 1986; Polish [with Éva Földi]: 1987).

Of the methods mentioned above, the X-ray technology is now considered to be obsolete. The most important reason for this is of ethical nature – in the modern scientific view, even voluntary exposure to harmful radiation for scientific purposes is regarded as improper. Furthermore, the use of X-ray machines requires special circumstances.

3. Articulatory studies with respect to Hungarian – the 2000's

Following the experiments in the 1980s, Hungarian articulation was not researched for a long time. As the necessary equipment was not available in Hungary, some sporadic investigations were conducted in foreign laboratories.

Beňuš and Gafos (2007) studied Hungarian vowel harmony with electromagnetic articulography and ultrasound tongue imaging, more specifically the phenomenon of transparent vowels (vowels that are neutral from the perspective of vowel harmony) /i iː ɛ eː/ not transmitting their quality to the vowel in the suffix. The authors explained the transparency of these vowels with their coarticulatory characteristics. Three participants were involved in the research and an ultrasound image was made of one of them. In the research material (target sentences), there were monosyllabic harmonic (e.g. *hír* 'a piece of news' – *hírek* 'news') and non-harmonic (e.g. *ír* 's/he writes' – *írnak* 'they write') words and trisyllabic suffixed words, in which the final vowels of the stems were transparent (e.g. *bilivel* 'with potty' vs. *bulival* 'with party'). The results showed a link between vowel harmony and articulatory characteristics as the tongue took a more retracted position during the pronunciation of non-harmonic stems than with harmonic stems. However, based on acoustic measurements, Blaho and Szeredi (2013) questioned the relevance of these results because they did not find any similar connection in the acoustic data. As a consequence, further research is needed in order to answer the question whether phonetic characteristics can account for the morpho-phonological behaviour of these vowels.

In 2008, Mády used electromagnetic articulography to examine Hungarian vowels in the normal and fast speech of two speakers. This research aimed at showing whether the articulatory characteristics (tongue displacement and jaw openness) are distinct in the case of phonologically short and long vowels pronounced in two different situations (normal and slow speech tempo). Mády reported a stronger coarticulatory effect during the pronunciation of short vowels, which is congruent with the results of research on German fortis (tense) and lenis (lax) vowels (Hoole–Nguyen 1999).

Recent investigations into Hungarian vowels were also conducted with electromagnetic articulography. Deme et al. (2016) examined the pronunciation of vowels sung at high fundamental frequency by a soprano singer. The focus of the investigation was on the mechanisms of the tongue and the jaw during the pronunciation of all the standard Hungarian vowels. The research was inspired by the results (primarily gained from acoustic and perceptual measurements) which showed that vowels in singing at a high fundamental frequency are distinct from their realizations in normal speech. The aim of the research was to record the articulatory mechanisms that underlie this phenomenon. According to the results of the EMA-analysis, the singer systematically changed the position of the tongue and the jaw (increased the angle of jaw openness and lowered the vertical tongue position) as the fundamental frequency of singing reached and then exceeded the F_1-value of vowels pronounced in normal speech. However, the lowering of the back of the tongue could already be observed below these critical frequencies. In addition, it

was found that below 988 Hz the singer achieved F_1 : f_0 tuning by the unique combination of tongue and jaw movements specific to the intended vowel qualities, at 988 Hz the tuning was achieved by jaw opening and resulted in a uniform tongue and jaw position across all vowels.

In a subsequent study, Deme et al. (2017) analysed the vowels pronounced by three Hungarian and three German soprano singers at a high fundamental frequency. In their research, they compared all the standard Hungarian and German vowel qualities and used the same method for the recording of data as in the previous research. According to the data, the vertical tongue position lowered in each singer with raising of the f_0. The tongue position and the openness of the jaw systematically changed as the f_0 reached and then exceeded the F_1-value of vowels in speech. The strategies of F_1 : f_0 tuning were the following. (i) In the case of low f_0, the lowering of the vertical tongue position was observed during the production of close vowels. (ii) In the case of high f_0, especially at fundamental frequencies f" (698 Hz) and h" (988 Hz), the increase of jaw opening was observed during the production of more open vowels. (iii) This was, however, also accompanied by the lowering of the tongue. In addition, significant individual differences were recorded among the Hungarian and German participants regarding the retainment of articulatory differentiation of vowels. By contrasting the results of Hungarian and German singers, we concluded that there is no or only marginal dependence between the articulatory strategies of soprano opera singers to raise the f_0 and the mother tongue of the singer, if the vowel systems of the languages we compare, have only minor differences.

4. Recent articulatory studies with respect to Hungarian

The MTA–ELTE Lendület Lingual Articulation Research Group was founded in 2016. Its primary goal is to investigate coarticulation in Hungarian speech with articulatory devices. The following methods are available in our laboratory:

(i) electromagnetic midsagittal articulometry (EMA), which is suitable for imaging a limited number of flesh-points;
(ii) ultrasound tongue imaging (UTI), which gives information of the midsagittal view of the global tongue surface;
(iii) electroglottography or laryngography (EGG), which is used for the measurement of the degree of contact between the vibrating vocal folds during voice production.

Without being exhaustive, research topics so far have been analysed are the following: the effect of prominence on coarticulation patterns (Markó et al. 2019b) and in relation to this, glottal marking on word and utterance-initial vowels (Markó et al. 2019a); articulatory timing of singleton, geminate and degeminated consonants and singleton consonants in clusters (Deme et al. 2019); voicing and tongue shapes in Hungarian singleton and geminate obstruents (Percival et al. 2020); phonation changes during emotion-inducing events (Bartók 2019); articulatory behaviour of the vowels of antiharmonic stems from the perspective of the horizontal position of the tongue (Markó et al. 2019c, d). In the present review we summarize the main findings of some of these studies with respect to articulation. Both a more detailed description of the above mentioned methods and exact measurement data (mean values, standard deviations, results of statistical analysis, and the presentation of the findings in figures) are presented in the papers referred to. Most of these papers are available online, and can be found on the research group's website: http://lingart.elte.hu/en/publikaciok/.

4.1. Articulatory organization of geminates in Hungarian

Hungarian expresses semantic differences by using contrastive consonant phoneme length, see e.g. *ép* 'healthy' ~ *épp* 'right now'. In theoretical works, duration is considered to be the main acoustic cue that makes the singleton-geminate phonological contrast in consonants. It is also traditionally assumed that geminates do not occur flanked by another consonant on either side, and that in these positions, geminates surface as short. This process is called degemination (Siptár–Törkenczy 2007).

On the basis of acoustic data, pervious research concluded that in line with other languages that exhibit the contrast, it is indeed durational properties, especially closure duration, that are the most important correlates of the singleton-geminate opposition in Hungarian stops (Neuberger 2015; Olaszy 2006; Pycha 2009, 2010). Siptár and Gráczi (2014) analysed some fricative and stop geminates in degemination cases, flanked by varying consonants. The authors concluded that among degeminated and singleton /t/ and /p/ realisations, singletons (in C_1C_2, either as C_1 or C_2) were the longest, followed by degeminated geminates (flanked by a C_2 on one side), and singletons in $C_1C_2C_3$ sequences (as C_2 consonants).

In a study (Deme et al. 2019) we analysed several acoustic and articulatory features of singleton, geminate, and degeminated (voiceless) stops in Hungarian, to examine if (i) degemination neutralizes the singleton-geminate opposition in the acoustic and articulatory domain, (ii) singletons in C_1C_2 clusters, and geminates in degeminating $C_1C_1C_2$ positions differ in the extent of articulatory overlap they exhibit with a following heterorganic consonant, and (iii) slower tongue rise and longer preceding vowel duration is observable in geminates (compared to singletons), and if they are independent. For the articulatory analysis electromagnetic articulography was applied.

Consonant duration and total consonant cluster duration as measured in the acoustic signal, and the duration of the gestural plateau detected in the articulatory signal unanimously showed that degemination does not reduce stops to intervocalic singletons, but rather to singletons that are flanked by another stop consonant (i.e., singletons in two-term clusters). Articulatory data further suggests that degeminated stops and two-term clusters form an in-between category between geminates and singletons. As far as the timing of the articulatory gestures, more specifically, the articulatory overlap of gestural plateaus is concerned, we found that two-term clusters and degeminated stops differed only in lingual-labial (/pt/ ≠ /ppt/), but not in labial-lingual (/tp/ ≈ /ttp/) clusters, that is, degemination reduced geminates to singletons in C-clusters dependently of the place of articulation of the stops. Further, our results supported the findings of Fujimoto et al. (2015) showing that a preceding vowel does not show shortening (as one might expect) but lengthening before geminates. However, we also found the same trend for simple C_1C_2 clusters. Moreover, we found a similarly slow tongue rise for both geminates and singletons in two-term clusters, which suggests that in some aspects, the phonetic implementation of geminate stops resembles that of two-term stop clusters. And finally, we found a strong correlation of tongue rise and preceding vowel duration, suggesting that preceding vowel duration may very well be considered a mere side effect of slower tongue movement in geminates and two-term clusters.

Even though Hungarian exhibits voiced geminates in a distinctive function, like in *megy* 'go S3' vs. *meggy* 'sour cherry' this pattern is not very frequent even in this language. Among various languages, moreover, voiced geminates are rather uncommon because of the articulatory difficulty of synchronously maintained voicing and obstruction. Voicing, therefore, has been found to vary in geminates in some languages (e.g. in Tokyo Japanese by Kawahara 2015). Although Hungarian acoustic research has found that voicing in singletons is variable

(e.g. Gráczi 2013), this effect in Hungarian geminates has not been studied so far. In a study (Percival et al. 2020) we used EGG and UTI to investigate articulatory correlates to voicing in geminate as opposed to singleton consonants in Hungarian. With the help of EGG, we investigated whether voiced geminate obstruents are fully voiced in Hungarian, partially devoiced, or variable. Ultrasound can give an answer to the question if tongue position differ across singleton and geminate obstruents in Hungarian. In previous studies, coronal geminates were found to be produced with greater lingual-palatal contact and a higher and flatter tongue in various languages including Japanese, Korean, Italian and Oromo (Kochetov–Kang 2017; Payne 2006; Percival et al. 2019), suggesting that in geminates the tongue more fully reaches its targeted place of articulation than in singletons. These findings associate gemination with fortition.

We followed up on these studies by examining whether there is evidence for differences in lingual articulation in geminates compared to singletons in Hungarian. As previous studies concentrated on coronal stops, we additionally asked if similar patterns of tongue raising or fronting can be found for geminates at other places of articulation as this could indicate how closely the pattern is tied to gemination in general versus a tongue pull mechanism limited to coronals. Therefore, voiced and voiceless bilabial, alveolar and velar stops, and alveolar fricatives were involved both in singletons and geminates. We also examined the nature of the relationship between voicing and advanced tongue root, as previous research (e.g. Ahn 2018 for English and Brasilian Portugese) has found advanced tongue root occurring with phonological but not necessarily phonetic voiced consonants.

We supposed that voiced obstruents are produced with advanced tongue root, an articulatory strategy which facilitates voicing. Given the articulatory difficulty in producing voiced geminates, we predicted partial or variable voicing in geminates and more use of advanced tongue root. However, EGG results did not show difference in voicing between singleton and geminate consonants. While voiceless consonants were generally voiceless, voiced consonants, both singletons and geminates, varied considerably in percent voicing. It seems that Hungarian geminates display variable behaviour similarly to what Gráczi (2013) found for singletons in her acoustic study, they do not seem to be consistently semi-devoiced, or fully voiced.

As a function of voicing (based on phonological category: voiced and voiceless), ultrasound results did not differ, but some significant interactions with place of articulation and radius number in pharyngeal and velar regions were suggestive of advanced tongue root for many voiced obstruents. When phonetic voicing was included in addition to phonological voicing in the model, phonological voicing remained significant only in certain interactions, while percent voiced was a significant main effect. This is unexpected as it tentatively suggests that tongue root is better predicted by phonetic than phonological voicing in Hungarian, contrary to what Ahn (2018) found for devoiced stops in English. This may suggest that advanced tongue root is not automatically implemented as a strategy to enhance voicing in Hungarian. Follow-up research is needed to investigate the robustness of this finding with further analysis methods, and to compare it with other languages with variable and semi-voiced geminates.

4.2. Articulatory analysis of transparent vowel /iː/ in antiharmonic Hungarian stems

Backness harmony in Hungarian is a highly productive process, and due to the exceptional behavior of so-called neutral or transparent vowels, it has been analysed extensively in the phonological literature (see e.g. Hayes et al. 2009). Hungarian vowel harmony is stem-controlled, and operates in the left-to-right direction, i.e., the backness of the stem's final

vowel assigns the backness of the suffix vowel. Most of the suffixes show front-back alternation in Hungarian, and suffix vowels receive their [± back] quality from the [± back] quality of the adjacent stem-final vowel (Siptár–Törkenczy 2007).

In the phonological domain of the Hungarian vowel system harmonic and neutral vowels can be differentiated. Harmonic vowels can be classified as front, such as [y yː ø øː], and back, as [u uː o oː ɒ aː]. In the case of alternating suffixes and harmonic stem final vowels, backness harmony governs the quality of the suffix, without exception, e.g. *ablak-ban* /ɒblɒkbɒn/ 'window-loc', *üst-ben* /yʃtbɛn/ 'cauldron-loc'. Neutral vowels are phonetically front unrounded [i iː eː ɛ], but from the phonological aspect they are neither front nor back, as they are transparent with respect to harmony. If the stem final vowel is neutral/transparent, the backness of the suffix vowel is governed by the last harmonic vowel within the stem, e.g. *kastély-ban* /kɒʃteːjbɒn/ 'castle-loc'.

The question thus arises whether a back or a front suffix is selected when the stem is monosyllabic, and its vowel is neutral/transparent. In Hungarian, both patterns can be observed. We can find stems selecting front suffixes (harmonic stems), where the phonetically front unrounded vowels [i iː eː ɛ] behave as phonologically front ones, e.g. *víz-ben* /viːzbɛn/ 'water-loc', *kéz-ben* /keːzbɛn/ 'hand-loc'. However, other monosyllabic stems with these vowels are followed by back suffixes (antiharmonic stems), e.g. *sír-ban* /ʃiːrbɒn/ 'tomb-loc', *cél-ban* /ʦeːlbɒn/ 'target-loc'.

In one of their experiments, Beňuš and Gafos (2007) analysed monosyllabic antiharmonic target words without any suffix but in carrier sentences. As the authors mentioned, they had tried to compile a set of stimuli in which the front- and back-selecting stems were comparable as much as possible, however, some of the surrounding consonants differed in their place of articulation, and these differences might have had an effect on the data. Therefore, in our study (Markó et al. 2019d), homophonous front-selecting (harmonic) and back-selecting (antiharmonic) stems (*nyír* /ɲiːr/ 'birch', 'trim' and *szív* /siːv/ 'heart', 'suck') were chosen, and electromagnetic articulographic experiments were conducted in order to test the hypothesis that in the back-selecting stems, the tongue was more retracted during the articulation of /iː/ than in the front-selecting stems. The target words were analysed both in isolation (isolation setup), where neither a suffix nor a carrier sentence were applied, and in carrier sentences (sentence setup), where the target word was positioned at the beginning of the sentence, and was followed by a word containing (i) only front vowels (*éppen* /eːpːɛn/) or (ii) only back vowels (*ugyan* /uɟɒn/). The horizontal position of four receiver coils (one on the tongue tip, one on the tongue blade, and two on the tongue dorsum) were obtained at the temporal midpoint of the target vowels. The results showed that neither the horizontal positions of the receivers nor the formant values varied as a function of the harmonicity of the stem in either the isolated or the coarticulated setup.

Based on these results, the conclusions formulated by Beňuš and Gafos (2007) on the sub-phonemic differences between the realizations of transparent vowels in front- and back-selecting stems are to be handled with care. On the basis of our data obtained with a well-controlled material, it seems reasonable to suggest that sub-phonemic differences (if they exist) cannot be traced back to (different) tongue positions associated with the transparent vowels' realizations in front- (harmonic) and back-selecting (antiharmonic) stems.

4.3. Phonatory changes during emotion-inducing game events

According to appraisal models of emotion (e.g. Ortony et al. 1990; Scherer 2001), behavioral and physiological reactions to affective stimuli are a result of cognitive appraisal of the stimuli. Appraisal is described by the Component Process Modell (CPM, Scherer 2001) as a process consisting of several subsequent Stimulus Evaluation Checks (SECs). The result of these steps of evaluation determines the emotional state and physiological reactions of the organism.

In a study (Bartók 2019), two such SECs, goal conduciveness and discrepancy from expectations were manipulated in a computer game, with the aim to describe their effect on vocal fold vibration. Speech was acquired during voice commands controlling the game, resulting in utterances that could capture the induced emotional effects right at the time they occurred. Hypotheses concerning these effects were formed based on the physiological changes predicted by the CPM for different results of these SECs and their possible effect on phonation, while also considering phonatory patterns observed in acted emotions, since such portrayals often build on representations of spontaneous emotional reactions. It was supposed that goal conducive game events that are congruent with the subjects' expectations lead to a more frequent occurrence of nonmodal phonation types, lower f_0, lower H1-H2 for females and higher H1-H2 for males relative to the subjects' emotionally neutral speech. However, goal obstructive game events and events discrepant from the subjects' expectations both were expected to lead to a less frequent occurrence of nonmodal phonation types, higher f_0, and higher H1-H2 relative to the subjects' emotionally neutral speech.

Phonatory variation was quantified in two ways: we determined phonation type manually, after which acoustic measurements were carried out on the modal parts of the analysed vowels. The two acoustic measures taken were fundamental frequency (f_0) and the difference between the first two harmonics (H1-H2). H1-H2 is a measure well-suited to describe the degree of glottal constriction (Keating–Esposito 2007) as it correlates highly with the Open Quotient (OQ) (Shue et al. 2010), i.e., the proportion of a glottal cycle in which the glottis is open (Holmberg et al. 1995). Higher values of H1-H2 would suggest a more breathy phonation, while low values indicate irregular phonation.

Although no difference was shown in the frequency of phonation types between different results of the manipulated SECs, significant interaction effects of gender, discrepancy and conduciveness were found on the acoustic parameters measured on the modal parts of the voice commands. This could mean that emotions induced in this highly controlled, laboratory setting lead to subtle phonatory changes. The interaction effects of the two manipulated SECs and gender for both acoustic measures indicate that emotional reactions can only be captured in female speech. This could be explained by differences in the degree of emotional reactivity and emotion regulation between genders. Apart from the lay belief that females tend to be more emotional (Grossman–Wood 1993), several studies using physiological measures of emotional arousal and attention suggest that females are more reactive to emotional stimuli than males (e.g. Bradley et al. 2001; Grossman–Wood 1993; Kemp et al. 2004).

We found that for females, f_0 is higher when facing game events that are discrepant from expectations, while congruent events lead to a decrease in f_0. This effect is likely to be caused by increased muscle tension when facing unexpected, discrepant stimuli and decreased tension in case of expected events (Johnstone et al. 2001). The effect is stronger in case of relaxation at goal conducive events.

We also found a lowering of H1-H2 values for discrepant, obstructive and congruent, conducive events in the phonation of females. H1-H2 lowering indicates a shift from females' habitually breathy phonation (Hanson–Chuang 1999) to a more modal one, as a result of the

predicted increase in overall muscle tension (Johnstone et al. 2001). In the case of conducive, congruent events, low H1-H2 together with the low f_0 measured in this condition could mean that in this case, H1-H2 lowering does not simply indicate a more modal phonation, but rather a shift towards a more irregular phonation caused by relaxation, similarly to the frequent occurrence of irregular phonation when Hungarian females express contentment (Bartók 2018).

5. Possible applications based on articulatory data

Several applications might be proposed, and one of them has already started to be developed using speech data of Hungarian. Silent Speech Interfaces (SSI) are a revolutionary field of speech technologies, built on the main idea of recording soundless articulatory movements, and automatically generating speech from the movement information, while the original subject is not producing any sound (Denby et al. 2010). This research area has a large potential impact in a number of domains, including the development of communication aids for impaired people. Recently, novel methods have started to be developed for analysing and processing articulation (especially the tongue and the lips) during human speech production.

Our goals are to test and improve recognition-followed-by-synthesis and direct synthesis in the field of silent speech interfaces. For these, 2D ultrasound of the tongue and lip video are used to image the motion of the speaking organs. We use high-potential machine learning methods, including various deep neural network architectures. In order to achieve the above goals, we first recorded parallel speech and tongue-ultrasound data with multiple Hungarian speakers. Next, we performed articulatory analysis on that, modeled the articulatory-to-acoustic mapping in various ways, and are evaluating them in objective tests and subjective listening experiments. To fulfill the above goals, a multidisciplinary team was formed with expert senior researchers in speech synthesis, recognition, deep learning, and articulatory data acquisition (Csapó et al. 2018).

SSIs are still in an experimental phase, but several fields of use are predicted by the literature (see e.g. Denby et al 2010) from laryngectomized patients to providing privacy for cellular telephone conversations.

In speech therapy, articulatory devices can also be extensively used (see e.g. Cleland et al. 2015; Preston et al. 2017), as they are able to visualize fine motor behaviour which is unseen with a help of a mirror or video recording. The technique which is used in these applications is biofeedback, which means that the therapists use a kind of electronic tool to monitor and amplify body functions that may be too subtle for being available at a conscious level. Electronic instruments (like UTI or EMA) detect bioelectric signals and supply the subject via sensory modalities (auditory, visual, tactile, or a combination thereof). On this basis, the subject might be able to gain control over these specific body functions (Davis–Drichta 1980). Up until now, Hungarian speech therapy has only used this biofeedback method by relying on the acoustic domain of speech, with transformation of the acoustic signal to a visual output for patients with hearing impairment, e.g.

- Varázsdoboz: http://lsa.tmit.bme.hu/products/speco.html;
- Beszédmester: http://www.inf.u-szeged.hu/projectdirs/beszedmester/;
- Beszédasszisztens: http://www.jgypk.hu/mentorhalo/tananyag/az_ikt_alkalmazasa_a_gyogypedagogiaban_V2/1010_beszdasszisztens.html.

Now the articulatory methods, especially UTI, are also available for the therapy of motor sensory deficits.

Acknowledgements

This paper was supported by the Thematic Excellence Program of ELTE Eötvös Loránd University, Budapest, Hungary, by the Bolyai János Research Scholarship of the Hungarian Academy of Sciences, and the ÚNKP-19-4 New National Excellence Program of the Ministry for Innovation and Technology.

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BEING NAMED OR BEING NAMELESS: ON THE FUNDAMENTAL QUESTIONS OF PROPER NAME GIVING

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Abstract

The existence of the category of proper names is as old as human language, and it can be considered a linguistic and anthropological universal. Names can play several important roles in the life of society, the givers, bearers and users of names. One of these functions is to create and express personal identity. Using names also expresses the naming community's knowledge about the world, familiarity instead of strangeness, the existence of personal connections. Name giving can be an act of humanising, or expressing ownership over the human environment. Names can be given to anybody and anything who/that can be identified and differentiated as an individual, and is considered important in any way for humans. However, there are more and less typical categories of named entities. Namelessness (or anonymity) can primarily (but not exclusively) also be looked at through these considerations. The questions listed here are illustrated in the paper by a wide range of examples for using and giving (or not giving) proper names, in a way that also portrays humans as *homo nominans*.

Keywords: proper names, linguistic universals, naming, name use, identity, anonymity, *homo nominans*

1. Introduction

The linguistic, referential and semantic status of proper names is a central question of name theory, interpreted diversely by various linguistic theories and researchers (for an overview see Hansack 2006; Van Langendonck 2007: 17–71; and also Hajdú 2003a: 46–59; Várnai 2005: 20–37; Slíz 2015: 94–96). While some claim that proper names have no meaning, others analyse the complexity of their semantic structure (e.g. J. Soltész 1979; Van Langendonck 2007: 71–84; Nyström 2016). The field of onomastic studies certainly profits more from the latter approach (cf. Hoffmann 2010).

According to a minimalist but rather revealing definition of a proper name, it is a linguistic sign that its creator or user regards as a proper name (Hajdú 2003a: 58). This perspective, in accordance with that of several other researchers sheds light on the importance of functional, cognitive, pragmatic and sociocultural approaches to proper names. All these, in turn, seem to be inevitable for an in-depth onomastic study of the various roles and functioning of proper names and the category of proper names itself.

The present paper makes no attempt at contributing to theoretical discussions about the linguistic status of proper names. Its approach is defined by the functional considerations briefly mentioned above and detailed in other publications (e.g. Hoffmann 2012; Farkas

DOI: 10.5281/zenodo.3907336 ISSN 2732-1142

2014). Its focus is on the phenomena of proper name giving and the reasons and factors that influence whether an entity is named or remains nameless.

The paper considers the existence of proper names a linguistic, cultural and anthropological universal. It demonstrates their roles in the creation and expression of personal identity and also their roles played in relation to human activity involving exploring and forming a relationship with our environment. It discusses the most important factors of naming an entity and some of the basic questions of namelessness (anonymity). The paper presents its topics using examples from various sources for the activities of humans involving giving and using names and their attitudes towards onomastic phenomena.

2. The origin of the category of proper names

The emergence of the category of proper names clearly dates back to the time when language itself emerged. However, the question whether common words or proper nouns arose first, or the two came into being simultaneously cannot be answered definitively (Hoffmann 1993: 18–21; Reszegi 2018a: 159–160).

That much is certain, though, that proper names play an important role in the most ancient narratives on how humans think about the world, i.e. mythologies and creation myths. Here the beginning may be characterised by namelessness, and the creation of the individual entities and their names may have gone hand in hand. (Note, however, that it is not always possible to distinguish between common words and proper names in mythological stories, cf. Tokarev (ed.) 1988. 1: 198–200; Slíz 2013: 221–223.) In some narratives about creation, the first act of creation can be the naming of entities, such as in the Tibetan creation myth, where the first being, endowed with magical abilities, names itself (Román 1963: 290). The coming into being of something new can definitely call for being named, as shown by the Indian creation myth in which a being created by Brahma screams for being named and for being given a home (Baktay 1963: 24–25). Gods are said to give names not only to living creatures but also some important places. For example, the founding and naming of Babylon is attributed to the god Marduk (Enuma Elish, Tablet V, 129). Some peoples, like the Inuit, consider name giving an act of giving a spirit as well, and the name might even be considered a separate entity (Bramwell 2016: 276–277).

We do not know of any community that makes no use of names, their existence can thus be seen practically as a linguistic universal (Szépe 1970: 308). As far as we know, proper names are inherent in every language that has ever existed. The same goes, of course, for sign languages and even computer programming languages have proper name-like elements. If we look at the etymology of the words signifying 'name', for example in Indo-European and Finno-Ugric languages, we can also see how ancient and widespread this concept is (Nicolaisen 2011: 302–303).

People today learn about the existence of the category of proper names and their specific examples as part of their linguistic and cultural socialization. As part of their name competence they are able to recognize and use proper names, and also create new names (Hoffmann–Rácz–Tóth 2017: 16–17). However, this does not explain the emergence of the category of proper names.

The emergence of the category of proper names cannot be explained simply with logical reasons or causes from within the language system – rather, the causes are to be found in more general factors stemming from human thinking and society (Szépe 1970). The roles of proper names could be performed by other linguistic elements and using different strategies,

such as circumscription and expressions made up of common words. The main reason for them is their communicative practicality (Nyirkos 1989). They exhibit two basic linguistic principles to a high degree, namely those of economy and unambiguity. This makes it possible for proper names to identify individual entities without other additional components or (too much of a) context. (See also Várnai 2005: 14–16; Hoffmann 2010: 50.) Identification itself is an essential ability, multiple ways of which have been developed also in the animal kingdom (Hajdú 2003b). Since humans are language-using creatures, it is quite natural for mankind to have created the possibility of identification by the means of language as well.

Due to their specific semantic structure, however, proper names also have a variety of additional possible functions, which may prompt or boost the need for naming. From now on we will focus our attention on these.

3. Identification and personal identity

"Names are the badge of individuality. So long as the individual is nameless, he is amorphous. When he receives or creates a name by which he can identify himself, he enters upon a truly subjective existence" – this could be a concise definition of one of the main functions of proper (in this case of personal) names (Pei 1966: 78). This function is especially impressively expressed in the prelogical (or rather translogical; cf. Várnai 2005: 84–85) way of thinking by the archaic, but nevertheless still extant beliefs of name magic: those who have no name can be viewed as non-existing; the name pertains substantively and inseparably to its owner; the name predicts the very essence and properties of the named entity *(Nomen est omen)*. It is also a powerful example of the importance of proper names that the expression of *HaShem*, meaning 'name' is used for naming God of the Old Testament.

Countless further examples could be cited from different historical times, peoples and cultures. This approach establishes a substantial, deep and multilateral connection between names and existence, and names and the named individual (Hajdú 2003a: 101–127; Takács 2005; Várnai 2005: 84–91). It could also be exemplified by the 20th century novel by Italo Calvino titled The Non-existent Knight, in which the main character, the actually non-existing person (his empty armour) is bound to reality exclusively by his name, while his servant (who imagines himself to be a different person every time, and has a range of different names) very much has a body, but no real name and no real personality (Slíz 2007). Folk tales and authored tales provide a host of further examples for the magical significance of names (let me mention here just Michael Ende's novel, The Neverending Story).

Name giving and name bearing presuppose the possibility and intention of distinction and identification, which relates to the issues of individualization and creation, the forming and expression of identity (Alford 1987; Aldrin 2016) both as a cause and as a consequence. This is the case even when a name is assigned to its bearer without any magical principle, not in a descriptive or property-defining way but as a mere tag (Hoffmann 2010: 53). The close interconnectedness of a name and a personal identity of one's own is demonstrated by the possible emotional harm that results from any breach of the conventions governing name use (Korompay 1999). An extremely strong case of which is the loss of one's name, as testified by a note by Arthur Koestler (who lived during World War II using the alias *Albert Duval*): "But sometimes feel so lost that I repeat to myself half aloud my name, the real one – conveys a feeling of complete unreality. Had never known what importance one attaches to one's name, and what a queer amputated feeling it is to lose it" (Scum of the Earth, July 29th, 1940). Names received from others and carried ever since serve astools of individualization, while

somebody's deprivation of their name or taking it out of use are the tools of depersonalization. Name magic could have even more severe consequences: disannulment of somebody's name by the ancient Egyptians may have deprived them of their life in the afterworld (Eliade 1995–1996. 1: 30). Numerous results of contemporary psycholinguistics also indicate the very specific relation of us humans to our names (Reszegi 2018a: 160), which underpins the phenomena discussed here. However, the role of one's name is subject to quite remarkable individual and also cultural differences (Brennen 2000: 144–145).

Another fruitful question concerns the choice between names and numbers. Given that numbers are no less – or actually more – unambiguous as identifiers than names (cf. a house number vs. a house name, identity numbers vs. personal names), why don't numbers replace proper names altogether, not only in interpersonal contacts but even in the spaces of official registrations and communication? Obviously, an important factor is that names are easier to memorize. Moreover, identifying humans by numbers would seem to be inhuman, which is abundantly exemplified not only in fiction (e.g. the distopian novel of Yevgeny Zamyatin We: A Novel, in which the characters are identified by letters and digits), but also by such factual historical cases as the worlds of labour camps in 20th century dictatorships. Despite initiatives for replacing names with numbers (Hajdú 2003a: 101), this has not become a general practice.

Multiple identity often comes with multiple naming, while different identities are accompanied by different names, the most impressive literary example of which is the story of Dr. Jekyll and Mr. Hyde, a classic by R. L. Stevenson. The question is exemplified by the practice of using different (pen) names by some writers (e.g. *Romain Gary ~ Émile Ajar, J. K. Rowling ~ Robert Galbraith*), sometimes publishing under different aliases in different genres; or in everyday life by the use of internet nicknames constructed to be different from the real personal names, that is by the creation of virtual identities (Németh 2013; Martin 2016). The change of a personal name may serve as a tool of identity change and its expression (Hajdú 2009), which can be seen in the area of sacrality, e.g. in the Old and New Testaments (e.g. *Abram → Abraham, Simon → Peter*) or with the names assumed by the monks of different religions, while in the mundane world for example in the cases of sexual identity switch, and in some ways also in the widely used practice of the adoption of married names.

Proper names may also signal a kind of unity and belonging together of multiple individuals. Such names can denote very different groups of entities; e.g. groups of mythological characters (e.g. *Moῖραι* or *Parcae* 'incarnations of destiny in Greek/Roman mythology'; cf. Slíz 2013: 222); groups of artists (e.g. *Moguchaya kuchka* 'Mighty Bunch', i.e. *The Five,* a group of classical Russian composers), groups of politicians (e.g. *Sì rén bāng* 'The Gang of Four', a faction in the Chinese Communist Party); Scout patrols (e.g. the first ones of the Movement: *Wolves, Ravens, Bulls, Carlews*) or the gangs of classic youth stories (e.g. *Pál utcai fiúk* 'Paul Street Boys' and *Vörösingesek* 'Redshirts' in Ferenc Molnár's The Paul Street Boys; *Vita Rosen* 'White Rose' and *Röda Rosen* 'Red Rose' in Astrid Lindgren's Bill Bergson series). These names are sometimes given by outsiders in order to deal with the named individuals as a single group. However, the cases of self-naming – especially if there is no institutionalized group behind them – can be explained with the demand for the presentation of a collective identity.

4. Name, knowledge, and personal relations

In a variety of cultures, getting acquainted is closely related to introducing ourselves. The question 'Who are you?' is usually answered with our names, and knowing a name is some-

how considered to be the same as knowing the bearer of it. Just the indication of a name on a family tree could mean knowledge of the past of the family, and in a quiz or a school exercise solely giving a correct name often counts as equivalent to knowing the thing itself.

Human knowledge crucially involves specific details, which in turn are associated with proper names. For the 20th century Hungarian writer Sándor Márai, who had to live in emigration, in his poem Funeral Sermon, memories of the lost home world are carried by names; among others: *Toldi* (the title of János Arany's epic poem), *Margitsziget* (St. Margaret's Isle, being one of Budapest's popular locations), *Jenő* (the name of a former friend) and *Shelley-kötet* (a volume of Shelley's poetry). Fictive worlds and stories also require proper names, therefore real, existing names have to be adopted or new ones created. Names are closely related to both individual knowledge or the sum total of the knowledge of a whole society: history, geography, etc. would be unimaginable without proper names, as without them it would be difficult to navigate through space and time. Named individuals and objects are also much easier to remember (Hajdú 2003b: 6). Even myths could not exist without proper names (moreover, quite a lot of mythologies have survived only in the form of names or lists of names, on the basis of which to be reconstructed; Tokarev (ed.) 1988. 1: 198).

As soon as we know at least the proper name of something or somebody, we no longer consider it as unknown. Giving a name or knowing something or somebody by name gives us a sense of familiarity instead of strangeness, some kind of certainty instead of uncertainty, the possibility of orientation instead of getting lost, and at the same time creates a personal human connection between the name giver or name user and the name bearer. The absence of this connection could be personally painful and tragic, as expressed by a poet in search of God: "»What is Thy name, beauteous, ancient Lord, / To whom I have said many prayers? / Alas, I had forgotten Thee.« / […] / »Oh, that I knew Thy marvellous name. «" (Endre Ady: Neath the hill of Sion; transl. by B. Adams). Or, similarly for the literary character who falls in love in the novel by the well-known writer and semiotician: "[…] I burst shamefully into sobs and fled to my cell, where all through the night I chewed my pallet and moaned helplessly, for I was not even allowed – as they did in the romances of chivalry I had read with my companions at Melk – to lament and call out the beloved's name. This was the only earthly love of my life, and I could not, then or ever after, call that love by name." (Umberto Eco: The Name of the Rose, Fifth Day, Compline; transl. by W. Weaver). Note the title of the cited chapter: "In which […] Adso discovers the power of proper names". Repeating the name of a beloved person is most probably a human universal (Korompay 1999: 291).

On the other hand, not naming by name could have the purpose of maintaining impersonality, or fending off any emotional connection. Not only was it easier to let a child perish in ancient Rome who had not been given a name yet, but so can it be to take animals to the butcher if they are nameless (Zgusta 1996: 1876). This well-known phenomenon is abundantly exemplified in fiction, too, of course. For example, in Blake Edwards' film Breakfast at Tiffany's the young woman calls her cat *Cat* to avoid commitment and connectedness; in George R. R. Martin's novel A Game of Thrones the combatant horsemen refraining from emotionality do not name their horses; in the Pixar movie Monsters, Inc. the monsters are not allowed to name children whom they scare because "Once you name it, you start getting attached to it". Giving and using a proper name represents the opposite of all that. The most beautiful examples of proper names getting emotional overtones – partly resulting from their identifying role – can be found in poetry (e.g. in the 18 rows of Lőrinc Szabó's poem Your Name, or even in Sting's song Whenever I Say Your Name).

5. Further functions of proper names

"The world was so recent that many things lacked names, and in order to indicate them it was necessary to point", says the third sentence of the masterpiece of magical realism, Gabriel Garcia Marquez's One Hundred Years of Solitude (Chapter 1; transl. by G. Rabassa). Humans give names not only to living but also to lifeless entities of our environment; and in reality the most important elements of the world closely surrounding us get their names quite soon. In view of this theoretical assumption we must discard the earlier concept that the early dwelling places of the Magyars settling in the Carpathian basin were characterised by primary namelessness and only got named later, under the influence of their developing environment (Hoffmann–Rácz–Tóth 2017: 16).

At least at this point it is worth taking a closer look at the issue of place names as well, which we have discussed less up until now. Contrary to a common opinion, place names are not simply the result of the requirement of spatial orientation, although they undoubtedly make it significantly easier (Reszegi 2018b). As from the perspective of cultural geography, place can be interpreted as a location in space with human meanings, and the act of place naming can be interpreted as place making, that is, the act of turning a space with an uncertain shape and content into a system of places (Azaryahu 2020). Robinsonades (cf. Nicolaisen 1986: 141–143), where we can read about Robinson giving names even before Friday arrives, show that name giving is important not solely for communication. Names make the world a lived-in space, one which has become familiar, structured, interpreted, owned, shaped to our own concepts, "humanised" through names. Also the need for creation, for self-expression, for leaving a mark can be seen in the act of name giving (Balázs 2008: 60). It is quite a revealing fact that in the United States there are protected wilderness areas where it is forbidden to give names to places (Zgusta 1996: 1876).

Through proper names we can identify and differentiate, categorise, describe and characterise, express relations, attitudes and affections. All these could be not only the realised functions of names, but also the elementary motivation for naming. An instructive demonstration of the symbolic meaning of names is provided by the changing of place names, especially modern urbanonyms (cf. Rose-Redwood et al. (eds.) 2018), and also by the various phenomena and consequences of the so-called toponymic attachment in general, which refers to the positive or negative associations that persons and their groups make with toponyms (Kostanski 2016). Based on this potential, place names and the act of place name giving can even be regarded as a means of branding, and also as a means of turning locations into destinations, as can be seen in tourism nowadays (Azaryahu 2020).

Even if in other ways than anthroponyms, toponyms also have a role in identity formation (Helleland 2012) on individual and especially on a collective level. Name giving and name use are always connected to linguistic, cultural, or even ideological communities. At least potentially, competing, smaller or larger communities can bring this about, in the form of a kind of *bellum onomasticum* or along a principle of *Cuius regio, eius nomen*, with regard, among others, to the ruling ideologies, political practices, the power structure or the relationship between the majority and the minorities. This conflict potential inherent in place names is well demonstrated by the question of name use in different linguistic and ethnic groups throughout Europe, and outside Europe in the cases of indigenous vs colonial, colonial vs nationalist, a commodified neoliberal or postcolonial name giving (Berg–Vuolteenaho (eds.) 2016). Place naming (and even more obviously, place renaming) can always be interpreted as depending on the specific power relations, due to its sociocultural embeddedness (cf. Vuolteenaho–Berg 2016: 9).

The factors presented here also explain why the study of different types of proper names in public space (mainly the names of places, institutions and persons) is an essential component of the study of linguistic landscape (or namescape) – also as the study of a symbolic landscape –, a field that has gained great popularity recently (Puzey 2016).

6. The scope of named entities

A proper name can be given to anyone or anything that can be identified as a uniquely distinct and recognisable entity, calls attention to itself, and is considered important, at least temporarily for an individual or the community in any way, be it through its function, characteristics, relationship to the name giver or any affective aspects. Also, the fact that it is only important entities that are given a name is a further example of linguistic economy. (See Slíz 2012: 285–286; on toponyms Wahlberg 2005.) For instance among a group of domestic animals of the same species and kept in the same way, if naming them is not a usual practice, only those specimens get named that are outstanding in any respect. This is the case with a hen shunned by the other hens but kept as a good egg layer and named *Évike* (Erdős 2010: 52–53); the first cloned sheep *Dolly*, or the two pigs that escaped while being transported, *Ginger* and *Fred* (Van Langendonck 2007: 89). In practice any real or imagined creature, place or thing can be given a proper name, but there are more and less typical examples and categories of named entities.

The name bearing of humans has been unexceptional since the most ancient times. As in the Odyssey: "No one among all the peoples, neither base man nor noble, is altogether nameless, once he has been born, but always his parents as soon as they bring him forth put upon him a name" (Book VIII, 552–555; transl. by R. Lattimore). Or to summarise it in another way, "Sine nomine persona non est" (quoted by Van Langendonck 2007: 89). The statement issued by the Constitutional Court of Hungary is very revealing in this respect: "Each person has got to have a name of their own and this name is not to be replaced by a number or code or any other symbol. One's own name is one of the – essential – determinants of personal identity serving one's identification and differentiation from others and so it is one of the things expressing a person's individuality and unique and irreplaceable nature. The right to have a name of one's own is thus an essential component of the right to identity, and so it is one of the fundamental rights, emerging at birth, it cannot be alienated by the state and – with regard to its significant content – unlimitable. The same evaluation and protection is due to the right to bear one's own name as well […]" (58/2001. [XII. 7.] Decision of the Constitutional Court, III. 4; transl. for this paper.) Beyond persons' names, in other categories of entities to be named, name giving can be justified with other, such as legal or technical reasons, for example in the case of registration of a new company or brand, or registering oneself as a user of a certain website. Or if we look at the other end of the typicality scale, proper names can be given to the individual teddy bears adorning the curtain of a child's bedroom, the unique pieces of a set of building blocks, or a plaster cast worn on a limb for a few weeks. Many of the examples illustrate how name giving is, in a more general sense, a tool of the humanisation of our environment or sometimes even the personification of different (non-living or non-human) entities.

Differences in typicality occur among different name types, or rather the various categories of entities that are being named. For example, personal names and brand names cover the full set of entities they are used for, while in the case of the names of animals and objects this is not the case at all. Within the main name types we can observe the similar differences: con-

cerning place names, a settlement versus an undefined segment of the surface of the Earth; among objects, vessels versus vacuum cleaners are different in terms of how frequently they get named. Within the category of vessels, we see a difference between warships and passenger ships versus little boats and canoes. Degree of typicality can vary within one set category of named entities as well: swords were named if they were unique and especially valuable, and not named when they were ordinary; pet cats are always named, as opposed to stray or occasionally fed ones. Children's language is also revealing: toys predominantly get names if they are modelled after a living being, thus dolls and animals are regularly named (Leibring 2010: 366); and young children tend to perceive a word denoting an anthropomorphic entity or an animal that usually gets a name more as a proper name (cf. Slíz 2012: 401). These differences further illustrate the considerations already discussed under the motivations of name giving.

The usual practice of proper name giving can vary across cultures and traditions as well. In South Africa it might be usual to name local taxis (Van Langendonck 2007: 89), while in other countries this does not normally happen. Street names are not used in Japan, but individual buildings and blocks have a name of their own. In Hungary, we usually find the exact opposite, but nowadays, also following the international trends, there are more and more individually named buildings and high-end housing estates.

The typical scope of named entities can be looked at from a historical perspective as well. As a general rule, we can say that the scope of named entities has been ever widening, already at the level of main name types: the emergence of the primary categories of personal and place names has been followed by the emergence of a set of other name types. The category of titles, for example, emerged gradually, and by now it has become widespread for publications in general and works of art. Some processes, however, may have had the opposite effect. Locomotives in England were frequently named in the early days of train transportation, but with mass production, this name type has become rather insignificant (Coates 2016). When pharmacies were taken into state ownership during the socialist period in Hungary, they lost their individual names, but after they were reprivatized, individual naming was back in fashion (Bölcskei 2003). It can be revealing what subset within a certain category of entities gets individual names in a given period; like for instance how the emergence of macrotoponyms signals the widening of the horizon of the onomastic community that creates these names (Hoffmann 1993: 25).

7. Namelessness

Just like having a name, not having one can also be interpreted in the specific onomastic community's reference system. Thus for example, even if the fields of an abandoned village were considered nameless by its new settlers or the places of a continent was treated as nameless by the first European arrivals, they may well have had a name given by those who had been there earlier.

Namelessness can be interpreted in different ways from the perspective of the onomastic community and its members: (i) the given entity really has no name (which might also mean that it has no name already/yet; (ii) it has got a name but it is unknown to them; and (iii) it has got a name, it is known to them, but is practically not used for some reason. Even if these may seem superficially similar, they are in fact different. For example, it was thought earlier that the women of the Nenets people had no names, while in fact it was just taboo to utter the names of women who were present in front of strangers (Hajdú 2003a: 312). The various

types of namelessness can have different reasons, which are, however, outside the scope of this paper. On the other hand, it might not be easy to remain nameless within a given system of name use: this is what gives rise to pseudonyms to replace one's own personal name, or apotropaic names in systems with taboos concerning the use of certain names (Sitkei 2018).

The most complex set of questions is probably constituted by the type of existent but not used proper names, and the sociocultural and sociopragmatic background of this phenomenon. In some socioculturally defined situations, relations and roles, the use of actual personal names is avoided (e.g. addressing a higher ranking person, addressing parents), and the question can also be put into a historic perspective (e.g. the conventions regulating the naming or anonymity of the creators of works of art) (see e.g. Taavitsainen–Jucker 2016; Genette 1992; Németh 2013: 7–18; Újvári 2014). Literary works also provide a rich and varied source of information on the matter (see e.g. Kovalovszky 1934: 36–37; K. Szoboszlay 2000).

Finally, it is worth reflecting on the question of proper names whose etymological meaning is related to the expression of namelessness. From the Hungarian proper name stock, the proper names *Nevetlen* ('nameless'), *Nevesincs* ('has no name'), created from Hungarian common nouns, can be documented, or more recently *Noname* or *Nonick*, created form English nouns. Among the abovementioned and similar examples there are historical given names and surnames, one time pseudonyms and recent internet nicknames, pet names, names of rock climbing routes as well as codenames. Similar names also occur in other name structures, e.g. *Nevetlenfalu* ('nameless village', now located in Ukraine), *Nevetlen-tó* ('nameless lake', in multiple locations of Hungary), *Névtelen Nulla* ('noname zero', name of a music band), *A névtelen vár* ('The nameless castle', title of Mór Jókai's novel) etc. Of course, these examples are proper names, too; and they are not even substitutes for existing names, like the real or fictive pseudonyms as *Ignotus* (Lat. 'unknown'), *Nemo* (Lat. 'nobody'), *Netuddki* (Hung. 'never-know-who') or *He Who Must Not Be Named* (the name of Lord Voldemort in the Harry Potter books).

The identifying and distinguishing role of the names mentioned above is unquestionable. An edifying example for this is provided by the most famous anonymous person of Hungarian history, the author of Gesta Hungarorum, P dictus magister, widely known as *Anonymus*, whose name is clearly distinguished in Hungarian usage from similar names, like *Anonymus Ravennatis, Gallus Anonymus*, etc. Also, the name *Anonymus* can be documented from numerous other name types, for example as a pseudonym, as a dog name or as a name of a rock climbing route. The functioning as proper names of names with similar etymological meaning is exemplified also by the possible adopting of such foreign names into Hungarian without semantic translation, as with the Russian name *Bezymianny* (name of a settlement, of a volcano, and of some other locations).

8. Conclusion

Proper names are components of language with complex semantic structure, strong sociocultural embeddedness and, not independently of these, special functions.

They can be seen as linguistic, cultural and anthropological universals, and giving names is not a purely linguistic (communicational) function but also an anthropological function performed through language (Szépe 1970: 308–309). Thus, alongside the commonly used expressions *homo sapiens, homo loquens, homo faber* and *homo ludens* – and connected to these as well – *homo nominans* (see Nicolaisen 1986: 141–143) is also an instructive characterisation of our species.

Acknowledgements

This paper was supported by the Thematic Excellence Program of ELTE Eötvös Loránd University, Budapest, Hungary.

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VARIOUS INTERPRETATIONS OF THE TERM *ORIGIN* IN THE DESCRIPTION OF GIVEN NAME SYSTEMS

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Abstract

The term *origin* can be understood in several ways with regard to given names. For instance, at least four interpretations coexist in the Hungarian onomastic literature: (1) the language in which the name was formed or from which it was borrowed (these two categories frequently do not coincide with each other), (2) the method through which the name entered the name stock (by category change – e.g. from common noun to proper name –, name-building, revival or recreation of long-forgotten names, borrowing or translation of foreign names, etc.), (3) the source of the name (e.g. the Bible, martyrologies, literary works), (4) the relation of the name to the Christian name stock (saint or profane). As the categories created based on these points of view do not overlap, merging any of these approaches leads to misunderstandings not only in academic discourse but also in the public sphere. Finally, it should also be considered that everyday categorisation does not work on scientific grounds. Consequently, the lay classification of the linguistic origin of a name may differ from the scientific categorisation. The aim of this paper is to create a theoretical model – by separating the above-mentioned points of view – for the proper description of given name systems by origin, based on the contemporary Hungarian given name stock. Due to the similarities between the given name stocks of Christian peoples (and – a certain extent – that of other cultures), the model will hopefully also be useful for the description of various national given name stocks.

Keywords: onomastics, etymology, categorization, theory, given names, origin of names, sources of names

1. The topic of the paper

The paper focuses on the various interpretations of the linguistic term *origin* with regard to given names, and intends to clarify the complicated relations between them, in order to diminish the problems caused by the imprecise and undefined use of the term in the onomastic literature and when informing the public. Namely, it may lead to misunderstanding in scientific exchanges or in comparative studies if this term is used differently by various experts of the same field of study (for problems caused by terminological differences, see e.g. Harvalík 2005: 163–165; Farkas 2014: 16). According to cognitive approaches to terminology (e.g. the communicative theory of terminology, cf. e.g. Cabré 1999; sociocognitive terminology, cf. e.g. Temmerman 2000; frame-based terminology, cf. e.g. Faber 2015) polysemy is natural in scientific terminology and it has its own functions. Nevertheless, if the term *origin* remains undefined, thus its different uses remain undetected, this may lead to incorrect conclusions, for example, in the comparison of the name stocks by origin in different languages, regions or time periods.

DOI: 10.5281/zenodo.3907338 ISSN 2732-1142

However, in academic discourse these problems can be remedied by building on the realisation that the cause of misapprehension lies in varied uses of the term *origin*. Nevertheless, these inconsistencies may lead to larger difficulties in scientific popularisation or everyday use, as people with no linguistic competence do not even realise that there is a misunderstanding. Moreover, the scientific definitions and uses of terms (i.e. "the special-purpose framings of words"; cf. Fillmore 2006: 390) may differ from public use, which may also be a source of misconception (for examples related to onomastic terminology, see e.g. Farkas 2014: 17–18). The subject is an especially important question because the origin and etymological meaning of given names is a topic of high public interest, which is gratified by a vast range of dictionaries and online databases (professional and non-professional). Additionally, an increasing number of academic papers are becoming openly accessible on the internet for non-linguists.

Moreover, different interpretations of the term may cause problems not only in scientific or public communication; rather, they can also be unintentionally merged within one and the same work by certain authors, which may lead to unreliability of their results, as will be evident in Section 2.

Consequently, clarifying the various uses of the term *origin* and the relation of these interpretations is a scientific task of high account. In the following, the problematic points of the term's interpretation will be introduced through examples of its use in Hungarian. This is followed by an attempt to create a model for the comprehensive analysis of given name systems with respect to the origin of given names in every sense of the term. Although the introduction is based on the Hungarian given name system, it is hoped that the model will be useful for the description of other national given name stocks and for their comparison as well, due to broad similarities between Hungarian and Western given name systems.

2. Problematic points in the use of the term *origin*

At least four interpretations of the term *origin* can be found in the Hungarian onomastic literature: (1) the language in which the name was made or from which it was borrowed (in the following, this interpretation is referred to shortly as *linguistic origin*), (2) the method through which the name entered the name stock, (3) the source of the name, (4) the relation of the name to religion (ecclesiastical or secular).

The main problem is that the categories created through the different interpretations do not overlap, therefore merging them may lead to false results. For instance, let us examine the following citation from a paper on the composition of the 11th–13th-century given name stock of Hungary by Katalin Fehértói (1997: 73): "Approximately 25% (1700) of the 6800 people are mentioned by Christian names of ecclesiastical origin; 20% (1340) of them are mentioned by (Hungarian) names originating from common nouns; 55% (3760) of them are mentioned by (Slavic, German, etc.) loan names or by names of unknown origin."[1] Three interpretations of the term *origin* mingle in this short summary, pertaining to (1) language, (2) method and (3) the relation of the name to religion. The problematic points of this calculation are the following: (1) not all names of Hungarian origin come from common nouns (cf. point 3.3); (2) (Slavic, German, etc.) loan names and names of Hungarian origin can also be found among names of ecclesiastical origin (cf. point 3.4); (3) names of unknown origin cannot be grouped into the same category as loan names, since several of them might be of Hungarian origin.

[1] "A 6800 személynek megközelítően 25%-a (1700) egyházi eredetű keresztnéven szerepel; 20%-a (1340) közszói eredetű (magyar) néven szerepel; 55%-a (3760) jövevény (szláv, német stb.), továbbá ismeretlen eredetű néven szerepel" (translation: M. S.).

Moreover, further problems can be encountered when it comes to defining linguistic origin: the comparison of name stocks by this aspect may be rendered impossible if one name stock is categorised based on the languages in which the names were made, while the other one on the basis of the languages from which the names were borrowed. For example, the most widespread professional dictionary of Hungarian given names (Ladó–Bíró 1998) mostly categorises names by the languages in which they were created, hence *Jolánta* 'Yolanda, Violant' is described as a name of Greek origin. At the same time, Bárczi (1938) considered it to be of French origin, since he referred to the language from which the name was borrowed. (For more information on etymological problems caused by this ambiguity and their solution through the example of *Jolánta,* see Slíz 2017.) Ambiguous term use of this kind may lead to large differences in the number of names in a category even in the description of a single name stock while also making different name stocks incomparable.

The inconsistent practice of professional given name dictionaries when specifying the origin of names in their entries may also result in misunderstandings. For instance, the name *Ábrahám* 'Abraham' is of Hebrew origin according to Ladó–Bíró (1998), while the name *Jeremiás* 'Jeremiah' "comes from the Greek and Latin forms of the biblical, Hebrew name *Jirmejahu*".[2] Allowing for the merging of the two interpretations of origin (related to a language and a source) in the entry of *Jeremiás,* the inconsistency is clear: the dictionary gives the language in which the name was made in the entry of *Ábrahám* (although it also was borrowed from Latin), while it also gives the languages from which the name was borrowed in the entry of *Jeremiás*. Moreover, it is highly unlikely that the name were borrowed from Greek and Latin at the same time. The more probable scenario is that the Latin form was its direct antecedent and Greek was only an intermediate language between Hebrew and Latin.

This kind of incoherence in professional dictionaries may easily cause misinterpetations by non-linguists. For example, the information about the Celtic origin of *Brigitta* in Ladó–Bíró (1998) – without a single mention of the fact that it was transmitted by Latin – may result in the presumption of some kind of Celtic–Hungarian relation. Additionally, several given name dictionaries and online "baby name finders" are compiled by non-linguists, who usually misinterpret information on origin given by professional dictionaries, and spread unreliable, distorted data. Mentioning only one example for this phenomenon, the name *Cézár* 'Caesar' is of "latin–etruszk" 'Latin–Etruscan' origin according to the dictionary edited by Ágnes Laik (1991). (For more information about the methodological faults of lay given name dictionaries related to the description of origin, see Slíz 2020.)

Another issue should also be mentioned: a distinction must be made between the categories NAMES OF HUNGARIAN ORIGIN and NAMES REGARDED AS HUNGARIAN. The first category is based on linguistic fact, which of course may change based on new results in etymological research. The decision whether a name is a member of this category is a binary choice (yes or no). Contrary to this, the second category (NAMES REGARDED AS HUNGARIAN) is organised by typicality. The consideration whether a name is a member of the category depends on its degree of correspondence with a rather complex structure of criteria in terms of prototype theory (cf. e.g. Rosch 1978; Taylor 1991). The most typical members of the category are transparent names, i.e. names which are visibly derived from Hungarian common words. However, names borrowed from a foreign language may also be considered Hungarian, if (a) they have no variants in other languages (e.g. *Zoltán, Géza,* which were borrowed from Old Turkic); (b) they

[2] "A bibliai, héber *Jirmejahu* névnek a görög és latin formájából származik" (translation: M. S.).

have been used widely by several generations, i.e. they have become common in the name using community (e.g. *Anna, Dávid,* which came from Latin); (c) they are Hungarian variations of non-Hungarian base forms, which emerged through phonological or morphological changes (e.g. *Erzsébet, Péter,* which are the Hungarian variants of Latin *Elisabeth* and *Petrus*); (d) their orthography is Hungarian (e.g. *Mihály,* which contains a unique Hungarian letter *ly*); (e) they have a strong cultural, historical, or religious background connected to the concept of the Hungarian nation, cf. the names of Hungarian saints (e.g. *László,* a saint king's name, which came from a Slavic language); the names of national heroes (kings, leaders, artists, etc., e.g. *Lajos,* a name of French origin, which is connected to at least two great leaders of the Hungarian revolution in 1848–1849, Kossuth and Batthyány); or names created by writers for the characters of widely known Hungarian literary works (e.g. *Tímea* created by Mór Jókai or *Tünde* created by Mihály Vörösmarty in the 19th century). The discussed criteria may correlate and the members of the category are associated with each other based on family resemblance; e.g. the name *Mihály* can be considered a fairly typical Hungarian name, since it meets several criteria: it is a variant of the Latin base form *Michael,* it is written with Hungarian characters, it has been used in Hungary for a millennium, consequently, it was borne by several national heroes (e.g. the great poets Csokonai Vitéz, Vörösmarty and Babits, or the internationally known painter Munkácsy). When a name meets few of the criteria, it may be considered a less typical member, e.g. the names *Dzsindzser* or *Dzsesszika* are written with Hungarian characters, but many Hungarians consider the spelling strange or ridiculous, thus the names foreign, as is evident from online articles and comments dealing with names that have become registrable lately. These opinions are clearly due to awareness of the English forms (*Ginger* and *Jessica*) and the fact that these names were borrowed only recently and are borne by only a few people at present.

3. A model for the description of national name stocks

In the following, the paper suggests a comprehensive model for the examination of the origin of names based on the four interpretations of the term mentioned, taking altogether three cross-sections into consideration. As the linguistic origin of names is in focus, the other three aspects of the interpretation of the term will be connected to this feature in every cross-section. It should be emphasized that the different aspects are coequal; there is no hierarchy between them.

3.1. A short description of the Hungarian given name stock from a diachronic aspect

For a proper understanding, a short introduction to the history of the Hungarian given name stock may be useful, considering its richly compound and various nature. In the following, the historical layers are represented by origin and source, along with information about the relation to Christianity and the methods by wich names have been created or borrowed.

Before conversion to Christianity, the base of the Hungarian given name stock was represented by names of Hungarian origin, deriving from common words (e.g. *Fekete* 'black', *Bíbor* 'purple') or proper names (e.g. *Bán* given name > *Bán* + *-k* suffix). Beside them, loan names have constantly been borrowed from various languages: the earlier identifiable layer is from Turkic (e.g. *Tas* 'stone', *Ákos* 'white hawk'), then several names came from German (e.g. *Henrik, Hermann*), Slavic (e.g. *László* 'Vladislav', *Kázmér* 'Casimir'), French (e.g. *Gyán* 'Jean', *Jolánta* 'Yolent', etc.). The greatest group is formed by names of Latin origin (or

Greek in some cases) (e.g. *Erzsébet* 'Elisabeth', *Péter* 'Petrus'). While both secular and ecclesiastical ones were among names of German, Slavic, French etc., the majority of names of Latin (or Greek) origin were connected to Christianity. Ecclesiastical names crowded out secular names by the 15th century, and the name stock became quite homogenous and unvarying for centuries. The change was brought by 19th-century national revival, forming a new, national layer: medieval names of non-Latin origin were newly discovered and revived (e.g. *Árpád, Béla*), names created by national writers for their characters found their ways into the name stock (e.g. *Tímea* and *Tünde,* see point 3.2), new names were created during the language reform (e.g. *Rezső* as the Hungarianization of *Rudolf*) etc. Loan names have constantly been borrowed from German, Slavic, French since then, along with names from other languages. In recent decades, names of English, Spanish, Turkish etc. origin have also been entered into the name stock (e.g. English: *Brájen* < *Brian, Dzsesszika* < *Jessica;* Spanish: *Armandó* < *Armando, Rikárdó* < *Ricardo;* Turkish: *Dilara, Zejnep* < *Zeynep*), due to cultural contacts (movie, music, sport, etc.). Additionally, some names from other religions also became registrable (e.g. *Mohamed, Damajanti*). (For a more detailed historical introduction of the given name stock, see e.g. Slíz 2017a; about the creation of the national name sctok, see Farkas 2017.)

3.2. The linguistic origin and the sources of given names

After this necessary digression, let us return to the description of the model. First, the complicated connection between the linguistic origin and the sources of names will be discussed in detail. Henceforth, linguistic origin will refer to the languages from which the names entered the Hungarian name stock, as this is the only interpretation which is in conformity with the linguistic reality of the period when the name was borrowed. Although, (similarly to other languages) the given name stock in Hungary consists of several categories by origin beside the category NAMES OF HUNGARIAN ORIGIN, the subcategories NAMES OF TURKIC, GERMAN, SLAVIC, FRENCH, ENGLISH, ETC. ORIGIN may all be consolidated into a main category called NAMES OF FOREIGN ORIGIN. Therefore, only two main categories should be taken into account: NAMES OF HUNGARIAN ORIGIN and NAMES OF FOREIGN ORIGIN.

Two main categories can be formed for the sources of names as well. The category of FICTIONAL NAMES contains all names that were made by known or unknown writers, poets, etc. for their fictional characters in literary works, mythology, legends, films, computer games, etc. The other category, which consists of names coming from Hungarian common words or borrowed from the given name stocks of other languages, may be called NON-FICTIONAL. It should be noted that the term *source* also has two interpretations: it may refer to the primary source or to the source from which the name was borrowed by a language, in this case by Hungarian. Similarly to linguistic origin, it is advisable to use the latter interpretation, as it provides a real picture of the source of the name from the viewpoint of a given name stock.

The two categories can be delineated within the categories of linguistic origin: both NAMES OF HUNGARIAN ORIGIN and NAMES OF FOREIGN ORIGIN contain names from real name stocks and names that were created by artists. Examples for non-fictional names of Hungarian origin: *Bátor* ('brave'), *Virág* ('flower'); for fictional names of Hungarian origin: *Tünde* (made from the word *tündér* 'fairy' by Vörösmarty), *Gyöngyvér* (made by compounding the words *gyöngy* 'pearl' + *vér* 'blood' by János Arany); for non-fictional names of foreign origin: *Henrik, Dzsenifer;* for fictional names of foreign origin: *Boromir* (from The Lord of the Rings), *Denerisz* (from the book series A Song of Ice and Fire and its television series version The Game of Thrones).

However, the borders of the categories FICTIONAL and NON-FICTIONAL are fuzzy and names can fluctuate between the two easily. Namely, existing given names may be chosen by writers for their characters and these names may find their ways into another name stock, not due to familiarity with the original name stock, but due to familiarity with the literary work. For instance, the name *Hatidzse* is a member of the contemporary Turkish name stock *(Hatice)* but it was only brought to notoriety in Hungary by the Turkish television series Muhteşem Yüzyıl (The Magnificent Century). Conversely, names created by artists may spread in a real name stock and can be borrowed by another language from it and not from the literary work itself. For example, the name *Pamela* was created by the English poet Sir Philip Sidney in the late 16th century and spread in the English-speaking world presumably due to the success of Samuel Richardson's 18th-century novel (cf. Hanks–Hodges–Hardcastle 2016, entry *Pamela*). The name became a member of the Hungarian given name stock only at the turn of the 20th and 21st centuries, not due to the English literary works but due to the American actress Pamela Anderson. Additionally, it may also have become known in Hungary due to the influence of the television series Dallas. Its multiple possible sources make the name a perfect example of the fuzzy borders between FICTIONAL and NON-FICTIONAL names. The same can be said for ecclesiastical names: it cannot be decided whether they were borrowed from the existing name stocks of other Christian peoples through the intermediation of the clergy (NON-FICTIONAL) or from the Bible and legends directly (FICTIONAL). The most feasible explanation is that both possibilities played a role in the borrowing.

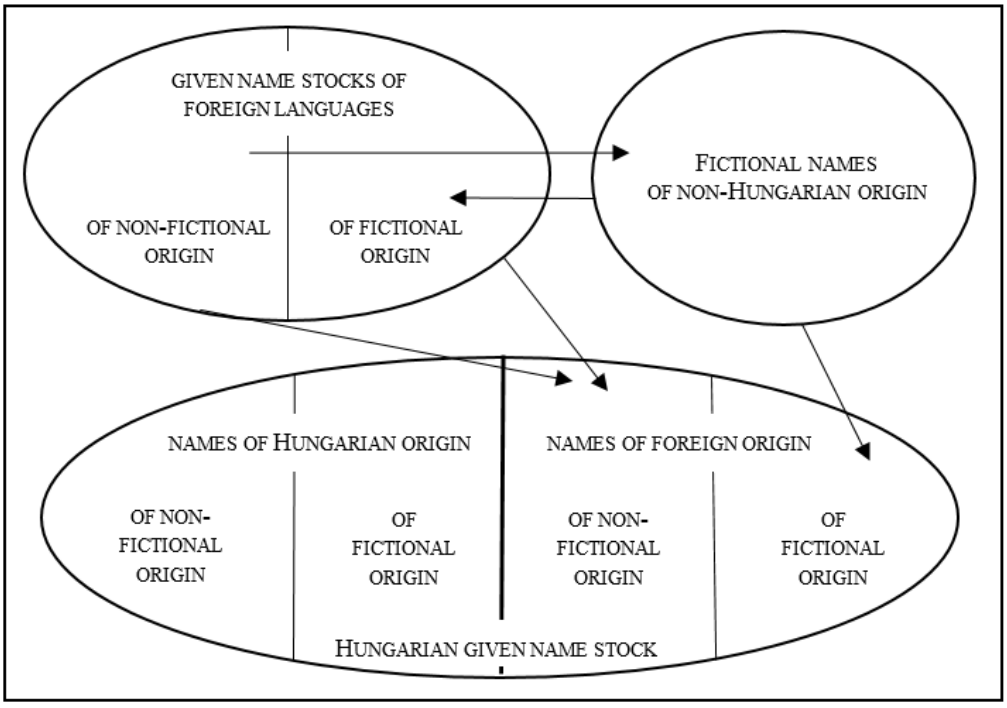

Figure 1. The linguistic origin and the sources of given names

3.3. The linguistic origin and the method through which the name entered the name stock

In the second cross-section, the connection between the linguistic origin of the names and the method through which they entered the Hungarian name stock should be considered.

A given name stock may grow from within the lexicon of a language and from other languages. On the example of Hungarian: names of Hungarian origin may be created from common words through two different methods. One is category change (from COMMON NOUNS to GIVEN NAMES, e.g. *gyopár* 'edelweiss' > *Gyopár* female name, or from A SUBCATEGORY OF PROPER NOUNS to GIVEN NAMES, e.g. *Kászon* place name > male name). The other type (referred to as name-building in the paper) utilizes various morphological methods (e.g. suffixation: *áldás* 'blessing' + *-ka* diminutive suffix > *Áldáska* female name; or compound: *Anna* + *virág* 'flower' > *Annavirág* female name). However, names of foreign origin are always borrowed. It should be noted that when a name was created (regardless of the method) from a loanword, it should be ranked among NAMES OF HUNGARIAN ORIGIN, as the base of the creation was an element of the Hungarian lexicon and the creation happened in Hungarian.

However, this is only Phase 1: in another, optional step (Phase 2), given names can be created from other given names. At this point, the linguistic origin of given names is out of the picture: names of Hungarian and foreign origin may equally be the bases of name creation. Given names can be created from other given names through several methods of name-building (e.g. suffixation: *Gyopár* female name + *-ka* diminutive suffix > *Gyopárka* female name; compound: *Anna* + *Róza* > *Annaróza* female name). Additionally, other methods are specific to this phase. For instance, the translation of foreign given names or the revival of extinct medieval given names as applied during the Hungarian language reform of the 19th century (e.g. translation: *Constantine* > *Szilárd, Victor* > *Győző;* revival: *Árpád, Géza, Olivér,* etc.). (For more information on the creation of a new national given name stock in the 19th century Hungary, see Farkas 2017.) Methods can be combined as a matter of course, e.g. *Aurora* > *Hajnal* (translation) + *-ka* diminutive suffix > *Hajnalka.*

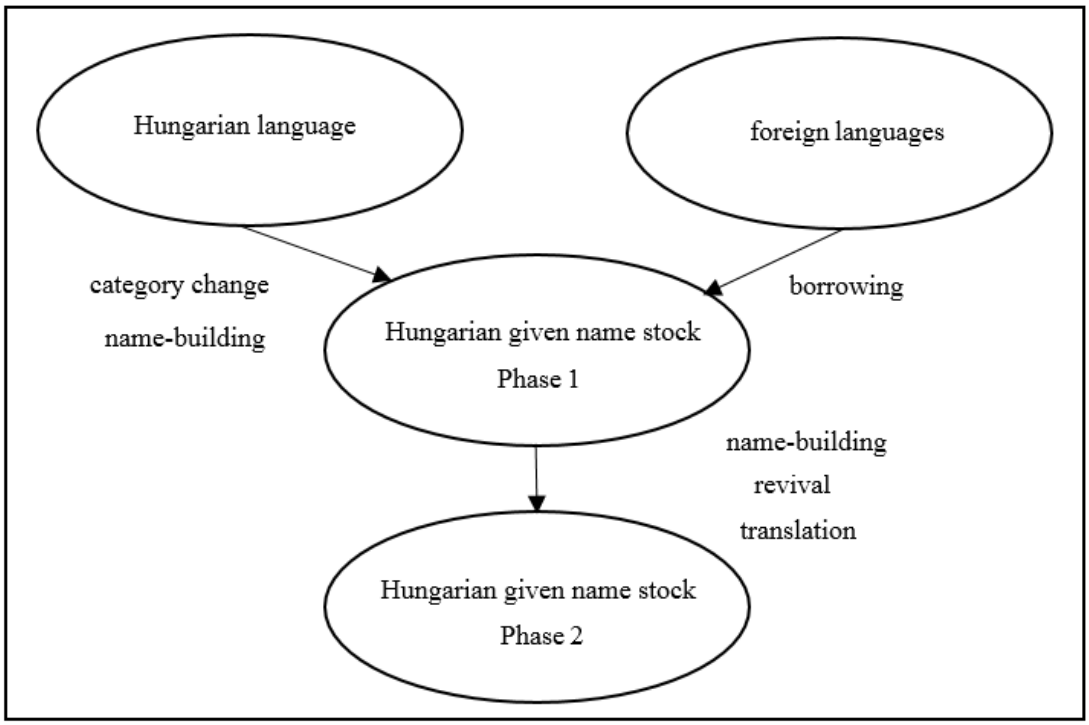

Figure 2. The linguistic origin and the method through which the name entered the name stock

3.4. The linguistic origin and the relation of given names to religion

With regard to the third cross-section, the connection between the linguistic origin of names and their relation to religion is not a necessary aspect. However, in Western cultures, the relation of given names to Christianity is a regular question of analyses, especially in diachronic surveys, due to their common history: the Christian name stock (generally transmitted by Latin or Greek) was built upon the secular given name stocks of European languages. Consequently, the onomastic literature (at least in Hungary) is disposed to put an equal sign between the categories NAMES OF HUNGARIAN ORIGIN and SECULAR NAMES, and similarly, between NAMES OF FOREIGN ORIGIN and ECCLESIASTICAL NAMES. Nevertheless, the picture is far more complicated.

First of all, members of the category SECULAR NAMES may be transferred to the category ECCLESIASTICAL NAMES due to the canonization of their bearers. E.g. the secular name *Imre* (which came from German) became a member of the category ECCLESIASTICAL NAMES due to the canonization of Prince Emeric, son of King Stephen I in 1083. The category of ECCLESIASTICAL NAMES may be broadened with names of Hungarian origin due to this process. At the moment, only one name within the category is of Hungarian origin: the name *Szilárd*, since the 20th-century bishop Szilárd Bogdánffy was beatified in 2010. However, it is also possible for other names to enter the category. Contrarily, most members of the category NAMES OF FOREIGN ORIGIN are actually ecclesiastical names in Hungary, but there are secular names among them, too; moreover, their number has been on the rise at an increasing pace for at least a century.

The opposite direction of change, i.e. from ECCLESIASTICAL NAMES to SECULAR NAMES is rather untypical, but also conceivable, since saints could be deleted from the martyrologia if their historical authenticity cannot be proven (for instance, this happened to Saint George in 1969). Nevertheless, this act does not necessarily lead to the secularisation of the name: it may remain a member of the category ECCLESIASTICAL NAMES due to other saints sharing the same name or the community's collective memory and veneration, which may still continue to regard the excluded bearer as a saint despite the official decision. Using again Saint George as an example, new churches continued to be dedicated to him after 1969 (e.g. in Debrecen, 2015, where a bell was also dedicated to him[3]).

Saint George's example reflects that the official decision of the Christian Churches whether a person can be regarded as a saint is not the only criterion of ECCLESIASTICAL NAMES: membership may be based upon the judgement of the community in question. This is confirmed by the example of Saint Margaret of Hungary, whose veneration started immediately after her death (1270), although her canonization was not achieved until 1943.

The border between ECCLESIASTICAL and SECULAR NAMES is fuzzy: here are, for instance, the variants of ecclesiastical names which were formed in the same language (this case in Hungarian), but more or less seceded from their basic name form, e.g. *Endre* (from *András* 'Andrew') or pairs of ecclesiastical names by gender (e.g. *Györgyi,* the feminine pair of *György* 'George'). Similarly, foreign equivalents of ecclesiastical names that have been used in their Hungarian form for centuries can be found among newly borrowed names (e.g. *Dominic* and *Martin* as the new equivalents of *Domonkos* and *Márton*). These new names bear no ecclesiastic connotations to the majority of Hungarians: non-professionals usually do not even know that they have their equivalents in Hungarian. Therefore, they presumably categorise these names as secular ones, while those who are aware of their connection with the basic forms may consider them ecclesiastical names.

[3] Felszentelték a debrecen-józsai Szent György-templomot. *Magyar Kurír* 2015. nov. 23. https://www.magyarkurir.hu/hirek/felszenteltek-debrecen-jozsai-szent-gyorgy-templomot

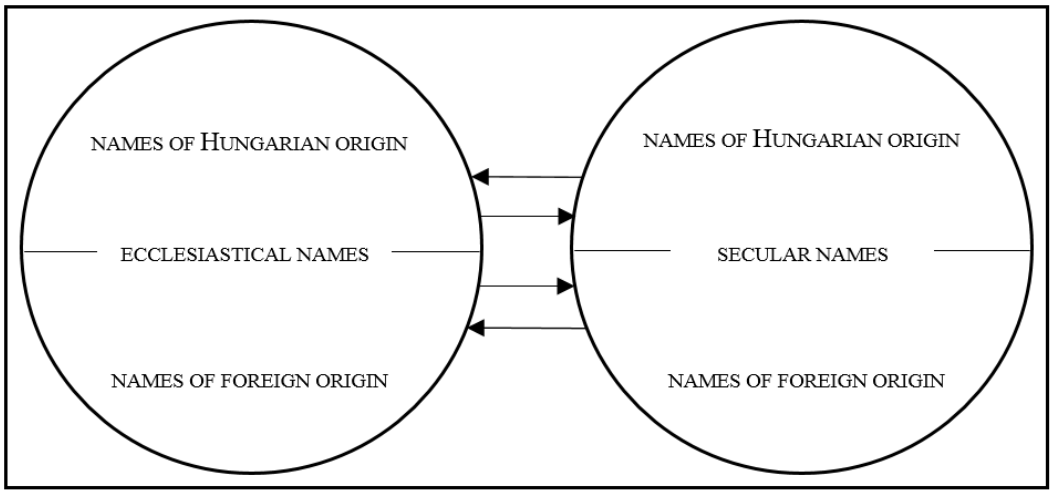

Figure 3. The linguistic origin and the relation of given names to religion

4. Conclusion

After an overview of the three cross-sections, it becomes evident that the categories based on the four interpretations of the term *origin* do not converge: the category of ECCLESIASTICAL NAMES is not equal with NAMES OF FOREIGN ORIGIN; not every name of Hungarian origin was created through category changes; names created by artists can be borrowed from real name stocks, etc. Consequently, the investigation and comparison of given name stocks by origin or even the description of the origin of a name in a dictionary can only be accurate if the four interpretations are studied and demonstrated coequally. For instance, the origin of the name *Árpád* can be described as follows: (1) by language it is of Hungarian origin; (2) by method it derives from a common noun through name-building: *árpa* 'barley' + *-d* suffix; it died out by the 15th century and was revived in the 19th century; (3) by the source it is non-fictional; (4) and by its relation to religion it is secular. It is hoped that this method for describing the origin of names may prevent misunderstandings and minsinterpretations in both academic discourse and public communication as well as miscalculations in the study of an actual name stock by different approaches or in the comparison of name stocks.

Acknowledgements

This paper was supported by the Thematic Excellence Program of ELTE Eötvös Loránd University, Budapest, Hungary, by the János Bolyai Research Scholarship of the Hungarian Academy of Sciences, and the ÚNKP-19-4 New National Excellence Program Of The Ministry For Innovation And Technology

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STUDIA LINGUISTICA HUNGARICA 32 (2020): 76–90. http://ojs.elte.hu/slh

CONTEXTUALIZING CLAUSES

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Abstract

The paper uses Hungarian data to explore the phenomenon of interclausal contextualizing relations, analysing clauses which provide access to a prominent referential scene via the speaker's mental operations. Seriality (closely related to the directing of attention) is treated as a point of departure, and it is argued that grammatical schemas for construing clause complexes offer patterns for serial construal as well. At the same time, linear realization is fundamentally affected by what opportunities are available for directing attention in the current discourse space, in the ongoing organization of discourse. These two factors collectively shape clause order within clause complexes. Clauses are regarded as intonation units integrated into clause complexes whose structure is defined by the build-up of attentional frames mutually elaborating each other as successive strata. The system thus outlined serves as a basis for exploring contextualizing clauses in Hungarian. Special attention is devoted to clauses (participating in subordinating interclausal relations) which foreground the speaker's mental operations and effect a grounding predication.

Keywords: clause complexes, grounding predication, baseline-elaboration, attentional frames, seriality, metapragmatic awareness

1. Introduction

The paper studies contextualization (cf. Verschueren 1999: 111, Imrényi 2017a: 27, 2017b: 743) in interclausal relations: it analyses clauses which provide access to a prominent referential scene. Within the category of contextualizing clauses, the focus is on those that signal the speaker's metapragmatic awareness (cf. Verschueren 1999, Tátrai 2017, 2020) by profiling the contextualizing activity which leads up to the construal of a prominent scene, and which is offered by the speaker so as to guide the listener's interpretation. Clauses providing access to the epistemic status and discursive role of a prominent scene are typically but not exclusively combined with subordinate clauses introduced by the *hogy* 'that' conjunction. This is motivated by the fact that the construction just mentioned has been grammaticized for the elaboration of mental functioning, for the specification of some mental content. Patterns which do not involve *hogy* and are not subordinating in character are beyond the scope of the present paper. Neither does the paper address contextualizing clauses with a quotative function.

The process of contextualization has an effect on the structure of clause complexes as the "main clause" only receives temporary activation (cf. Pelyvás 2006); in such constructions, departing from prototypical subordination, the referential scene of the "subordinate clause" is the more prominent one (cf. Langacker 2014). In its treatment of contextualizing clauses, the

DOI: 10.5281/zenodo.3907340 ISSN 2732-1142

paper discusses both objectivized and subjectivized construals of a mental subject (cf. Langacker 2006). The relevance of the distinction primarily results from the fact that according to the specialized literature, objectivization indicates a higher degree of metapragmatic awareness (cf. Verschueren 1999: 189; Tátrai 2017: 1046, 2019).

The paper's point of departure is the notion of seriality, closely related to the directing of attention (3). It is argued that grammatical schemas for construing clause complexes (2) offer patterns for serial construal as well. At the same time, linear realization is fundamentally affected by what opportunities are available for directing attention in the current discourse space, in the ongoing organization of discourse. These two factors collectively shape clause order within clause complexes (see 4, especially 4.3). The system thus outlined serves as a basis for exploring contextualizing clauses in Hungarian (5). Special attention is devoted to clauses (participating in subordinating interclausal relations) which are anchored to the ground (the speaker's mental operations) and effect a grounding predication (5.2). All sample sentences whose source is not specified come from the Hungarian National Corpus (v.2.0.5, see Oravecz−Váradi−Sass 2014).

2. Grammaticized patterns for the construal of clause complexes

2.1. Hierarchical interclausal relations

Clause complexes profile multiple referential scenes and their relations, integrated into a single, complex structure. They have grammaticized structural patterns (Haader 2001). Clause complexes are not structures produced by creating and concatenating clauses, they are not derivable from their parts; rather, they can be interpreted in terms of construction types (schemas) and their instantiations. Interclausal relations generally emerge in either of two ways (Hopper−Traugott 2003: 177):

i. by the integration of two (or more) referential scenes on the basis of a perceived relationship between them; we call this a non-hierarchical relationship, and the interclausal relation is one of coordination (see (1));

ii. by elaborating and further specifying some part of a referential scene and giving it the status of a separate scene, designated by a seperate clause; we call this a hierarchical relationship, and the interclausal link is one of subordination (see (2a–b)).

(1) […] egy ideig még kiabált,[1] aztán egyszerűen eldőlt a földön,[2] és horkolásban tört ki[3].
'[he] yelled for a while,[1] then simply fell to the ground,[2] and snorted[3].'

(2) a. A bosszút áhító nép veszélybe sodorja azt is,[1] akit védeni akar[2] […]
'The vengeful crowd also puts at risk the one[1] it wants to protect[2].'
b. Meg volt győződve róla,[1] hogy a mozdony keserű füstje jót tesz a torokfájásomnak[2].
'She was convinced[1] that the bitter smoke of the locomotive was good for my sore throat[2].'

The hierarchical or non-hierarchical relationship between clauses is typically a function of whether the speaker (the conceptualizer) attributes different or identical cognitive statuses to the integrated scenes. In the case of an asymmetrical relation, one scene is in the foreground of attention, with the other serving as background for its processing; in symmetric relations,

the two scenes are foregrounded to approximately the same degree (Langacker 1991; Radden–Dirven 2007: 55; Herlin–Kalliokoski–Visapää 2014: 2).

In subordinating constructions, the hierarchical relation produced by this asymmetry receives grammatical marking on the formal side. This is exemplified in (2a) by the *azt* 'that-ACC' phoric demonstrative pronoun in the main clause and the relative pronoun *akit* 'whom-ACC', which is coreferential with it and contextualizes the subordinate clause; see also the use of *róla* 'about it' and the subordinating conjunction *hogy* 'that' in (2b). In cases of coordination, apart from the clauses being integrated into one complex structure, only a conjunction may make the relationship explicit (see e.g. *és* 'and' joining clauses [2] and [3] in (1)).

In what follows, we give an overview of the factors defining the two modes of construal (see Table 1, cf. Kugler 2018: 52), and describe the main types of construction along these lines. The characterization offered here is limited to (prototypical examples of) the two major construction types; in reality, it is impossible to divide interclausal relations into two completely separate classes as suggested by the structure of the table. There is no sharp boundary between subordinating and coordinating interclausal relations; instead, we find gradience, and the overlapping of categories also gives rise to blended constructions. The factors below are based on Langacker (2014), see also Herlin–Kalliokoski–Visapää (2014: 8):

i. Prominence: is there a prominent scene among those profiled by the clauses, or put differently, do the scenes stand in a figure-ground relationship? Prominence hinges on the issue of profiling,[1] and it is assessed in relative rather than absolute terms (Langacker 2016: 21).

ii. Completeness: "whether or not a clause has all of the elements required to stand alone as a full, independent sentence" (Langacker 2014: 17). The independence of clauses is constrained by the fact that the interclausal relation and the process of integration may produce deviations in both clauses with respect to their realizations as independent sentences. When an interclausal relation is marked, it is generally less natural (or even unnatural) to use a clause independently. Langacker suggests that in English, the criterion of completeness is only met by those subordinate clauses which contain a finite verb. In our own assessment, however, it is typical for the subordinate clause to also express a grounded process. For this reason, it seems more useful to evaluate completeness by looking at the grammatical and semantic relations of the entire complex sentence. From this perspective, a clause satisfies completeness when it can be used by itself to represent the structure as a whole at a lower degree of specificity/elaboration. At the same time, we continue to explore the extent to which clauses depart from their realizations as independent simple sentences. In this regard, though, there is no crucial difference between clauses and minimal "text-sentences".

iii. Containment: whether or not "one clause is taken as literally being »inside« another, functioning as an integral part within a larger whole" (Langacker 2014: 18).

iv. Accessibility: is there a clause to which another clause provides mental access?

[1] "An expression's profile is the conceived entity made prominent as the one it designates (refers to), the focus of attention for symbolic purposes" (Langacker 2014: 19).

Table 1. Characteristics of basic types of clause complexes

Factors	Types of clause complexes	
	Hierarchical relation (hypotaxis)	**Non-hierarchical relation (parataxis)**
prominence	the scenes are observed in a figure-ground relationship, the scene of the main clause is foregrounded against the background of the subordinate clause	the scenes are equally prominent, their relation is construed as symmetric, with progressive activation at work in accordance with the directing of attention
completeness	the main clause may schematically represent (stand for) the entire structure	the clauses may occur independently but neither of them represents the structure as a whole
containment	the scene of the subordinate clause is conceptually contained in the scene profiled by the main clause (e.g. a participant is schematically elaborated by means of an anaphoric demonstrative pronoun; a conceptual frame is opened for further elaboration by the subordinate clause)	there is no part-whole conceptual relation between the clauses, neither of the two is contained within the other
accessibility	the subordinate clause becomes accessible via the scene profiled by the main clause	there is no accessibility link between the scenes, only progressive activation is at work in accordance with the directing of attention

Subordination and coordination are fundamental operations. These notions allow for the characterization of central types of clause complexes in Hungarian (the prototypical examples of these types).[2] However, the two categories are not sufficent for describing the huge variability of clause complexes.

2.2. The main types of subordinating clause complexes

The central members of the category are clause complexes involving (nominal or adjectival) relative pronouns; these display most clearly the hierarchical nature of the interclausal relation. The central type is characterized by the following properties (Kugler 2017: 838):

- the subordinate clause elaborates a participant of the prominent scene profiled by the main clause by making it observable as a participant of another scence;
- in the main clause, a phoric (back-voweled) demonstrative pronoun is integrated into the dependency network, and schematically profiles this participant, also signalling the fact that the same participant can be observed in another scene profiled by the subordinate clause (in terms of accessibility, the subordinate clause is accessed via the main clause and it is conceptually contained in it);
- in the subordinate clause, a relative pronoun refers to the participant in question;
- the main-clause demonstrative pronoun and the relative pronoun are thus co-referential;
- the main clause determines the illocutionary force associated with the construction (it is not contained; it is functionally equivalent with the construction as a whole);
- it is the main clause's polarity which determines whether the sentence is interpreted as positive or negative (it is not contained; it is functionally equivalent with the construction as a whole).

[2] For prototype effects in the organization of linguistic categories, see Tolcsvai Nagy 2013: 125–129 (with references), see also Kövecses–Benczes 2010: 28–32 (and references therein).

The other main type within the category comprises clause complexes with the subordinating conjunction *hogy* 'that'. This type departs from the basic type represented by constructions with relative pronouns; however, it is also linked to it on the basis of family resemblance. The similarity between these two types concerns the fact that in both hierarchical constructions, the subordinate clause serves to elaborate, and make observable in a separate scene, an argument (schematic figure) associated with a main-clause expression. The main features of clause complexes with *hogy* 'that' are the following (Kugler 2017: 838–839):

- in the main clause, a phoric (back-voweled) demonstrative pronoun is integrated into the dependency network, and schematically elaborates a substructure of a head word's meaning, also signalling the fact that the conceptual frame which has been activated receives further elaboration in the subordinate clause; with regard to accessibility, the subordinate clause is accessed via the main clause and it is conceptually contained in it;
- the subordinate clause is introduced by the conjunction *hogy* 'that', which signals the clause's subordinate status; moreover, in contrast with relative clauses elaborating arguments, it marks the fact that the subordinate clause expresses the content of a frame activated by the main clause;
- the main clause highlights the mental functioning of a subject having thoughts, beliefs, emotions, etc. as processed from the speaker's perspective, with the subordinate clause elaborating the object of this mental activity (some THOUGHT, BELIEF, EMOTION, etc.);
- the main clause determines the illocutionary force of the construction, with the main-clause frame-evoking expression possibly affecting the mood of the verb appearing in the subordinate clause (completeness is satisfied for the main clause, containment for the subordinate clause);
- the main clause determines the polarity of the construction, i.e. its evaluation as positive or negative (completeness is satisfied for the main clause, containment for the subordinate clause).

The central, prototypical members best instantiate elaboration in the sense of Halliday (1994: 225–229).

3. Patterns of seriality

A basic prerequisite of communicative behaviour is that the interlocutors must be able to pay attention to each other. At the age of 9 to 12 months, children are already capable of triadic attention (Tomasello 2003: 21). The structure and form of linguistic expressions are also affected by other cognitive capacities, however. For example, it is crucial what is the size of the domain that the interlocutors are able to actively attend to, how much information they can efficiently process in such domains. Moreover, it is vital to know that the speech partner's mental functioning is similar to one's own, hence the speaker is able to make inferences about the speech partner's mental operations on the basis of her own experiences (Tomasello 1999; Tátrai 2017: 909).[3]

[3] Of course other cognitive prerequisites also exist, such as abstraction and the efficient functioning of long-term memory.

While the main patterns of clause complexes described in Section 2 resist syntactic definitions of fully general, universal import,[4] serial order motivated by the directing of attention, and the modes of information "packaging" (Chafe 1988), constrained by the functioning of memory, are general. Not only do they offer an explanatory principle for the conventionalization of syntactic constructions but they also give clues for the interpretation of phenomena in the area of language acquisition.

In data on language acquisition, the most basic clause complexes (holophrase or island-construction complexes in the sense of Tomasello 2003) are not to be interpreted in terms of the categories hierarchical (subordinating) and non-hierarchical (coordinating). Rather, they can be described as attentional frame constructions (see the notion of 'frame constructions' in Lieko 1992). These attentional frames (or 'window(s) of attention' in the sense of Talmy 2007: 267) emerge via relationships between basic strata and more elaborate strata, according to the schema of 'baseline-elaboration' relationships described by Langacker (2016).

(3) A nyomtatóból kijövő lapokra mutatva mondja [Jancsi]:
Leesett egy.[1] *Jön egy másik,*[2] *onnan ki,*[3] *a papír*[4]. (Jancsi 2;5)[5] (Wéber 2011: 165)
down-fall-PST.3SG[1] come-3SG an-other[2] from-there out[3] the paper
'Jancsi[6] says pointing at the sheets of paper coming out of the printer:
One dropped. Another is coming, out of there, the paper.'

Katalin Wéber analysed the utterance in (3) by dividing it into four intonation units (on the basis of an audio recording). She assigned varied strengths to their boundaries, with the units corresponding either to clauses or units below the clause level. With the first two intonation units of his utterance, Jancsi directed attention at two different referential scenes ([1]–[2]), the ongoing processes were at the forefront of his attention. Then in [3], he elaborated the direction of the process designated by *jön* 'come-3SG' in [2] before elaborating its most important participant in [4]. In this way, he progressively elaborated his observation in ever higher detail, integrating all relevant aspects of the referential scene into a single sentence.

The intonation units typically correspond to referential scenes, and the order of scenes reflects the structure of the speaker's experience, also directing the speech partner's attention to the jointly observed event described in (3).

This operation is analogous to how attention is directed within clauses. In (4), the clausal core *adsz* 'give-2SG' stands in the focus of attention. The object of giving is then made accessible by Jancsi via its size and colour as he successively elaborates these as properties of the object in question. Presumably he expects that on the basis of these properties, the speech partner will be able to identify the relevant object; finally though, he also puts this beyond the shadow of doubt by representing the object with a noun denoting its category.[7]

[4] Several studies corroborate this finding, see e.g. Matthiessen–Thompson 1988: 275, Haspelmath 2004: 37, Cristofaro 2014: 73–76. Prototype-based description suggests itself as an alternative (cf. Herlin–Kalliokoski–Visapää 2014: 1; see also the clusters in Lehmann 1988; for a prototype-based approach applied to Hungarian, see Kugler 2017).

[5] The number specifies the speaker's age, with the first number designating the number of years and the second one the number of months.

[6] The equivalent of Hansel or Johnny.

[7] Example (4) lends further support to the assumption that it is worth subsuming appositive constructions under the phenomenon of contextualization (see Imrényi 2017b: 756–758).

(4) Adsz nagyot pirosat ollót? (Jancsi 2;3) (Wéber 2011: 165)
give-2SG big-ACC red-ACC scissors-ACC?
'Will you give me a big, a red, scissors?' (Jancsi 2;3)

In (3), the processes designated by *leesett* and *jön* constitute the core of the referential scenes. There is little point in asking whether the relationships in [2]–[4] are subordinating or coordinating in nature, since neither construction type is instantiated with its specific markers in the linguistic expressions under study. Further, it seems futile to ask (expecting a definitive answer) how many clauses the utterances consist of, as both bi-clausal and three-clause analyses could be justified. Construal is organized by the opening of attentional frames and their elaborative relations.

This functioning of the directing of attention is also evident when the patterns of subordinating and coordinating construal can be identified. In (5a), Jancsi specifies the reason in ever higher detail, thereby progressively elaborating the profiled event (of feeling sadness) that he anticipates.

(5) a. Most már szomorkodni lehet,[1] mert leveszek mindent,[2] lekapcsolok mindent,[3]
és már soha többet nem lesz cirkusz[4]. (Jancsi 4;8) (Wéber 2011: 166–167).
'Now it's time for being sad[1] because I take everything off,[2] turn everything off[3]
and there will never be a circus again[4].' (Jancsi 4;8)

In [1]–[4], there is a progressive build-up of strata; however, the relations are also marked by the conjunctions *mert* 'because' and *és* 'and'. Thus it can be evaluated what is the relationship between clauses in terms of the classification in Table 1. The examples in (5a) and (5b) further show that construal operations would not be fundamentally different even if the scenes were integrated to a lesser degree, being more separate, as seen in the modified example (5b). The integration/separation of referential scenes is a matter of degree (Lehmann 1988).

(5) b. Most már szomorkodni lehet,[1] mert leveszek mindent,[2] lekapcsolok mindent[3].
És már soha többet nem lesz cirkusz[4].
'Now it's time for being sad[1] because I take everything off,[2] turn everything off[3].
And there will never be a circus again[4].'

4. The linear order of clauses

Grammaticized constructions of clause complexes also offer patterns for serial arrangement by virtue of being associated with typical figure-ground and accessibility relations (see the factors of prominence and accessibility in Table 1). It is plausible to assume that serial construal deviating from the most entrenched pattern indicates a higher degree of pragmatic awareness on the part of the speaker (cf. Tátrai 2017: 1040).

4.1. Clause order in subordinating (hierarchical) constructions

Subordinating, hierarchical relations allow for double marking (demonstrative pronoun in the main clause, subordinating conjunction in the subordinate clause). Accordingly, the order of the two clauses can be typically reversed without any fundamental change in how the relation between the two scenes is conceptualized. However, ease of interpretation and faster processing favour main clause + subordinate clause order. Still, the order of clauses is organized

dynamically as discourse unfolds. Thus, the order of referential scenes is not determined by the dependency relation (subject, object, etc.) involving the demonstrative pronoun and the elaboration of its schematic meaning by the subordinate clause. Rather, it is shaped by how the utterance contributes to the ongoing discourse and how the speaker intends to provide access to the observed referential scenes (cf. Farkas 1962; Tátrai 2011: 30; Tolcsvai Nagy 2013: 136).

In the case of relative clauses, main clause + subordinate clause order is typical but the reverse is not uncommon either (Kugler 2017: 815). In part, this can be put down to the evolution of this construction. Such clause complexes first emerged with the subordinate clause standing in front, and the integration of clauses was marked only by the relative pronoun (functioning as conjunction) up to the middle of the 14th century; thereafter, main-clause demonstrative pronouns also began to proliferate (cf. Haader 2008: 81). Additionally, though, the frequency data are also motivated by the nature of elaboration supplied by the subordinate clause.

Up until the end of the 18th century, subordinate clauses serving to characterize or specify a participant elaborated by a noun in the main clause invariably followed their main clauses (cf. Dömötör 2008: 54–56), thus this relation departs from typical interclausal links marked by a relative pronoun with regard to the sequence of clauses too. The subordinate clause + main clause order is less common and therefore more salient in the case of subordinate clauses introduced by *hogy* 'that' (Kugler 2017: 814–815). In subordinating clause complexes, a higher degree of markedness (demonstrative pronoun and conjunction) facilitates the use of clause order for suitably embedding the associated referential scenes into discourse.

The insertion of a clause within another clause only occurs with subordination, it is not attested in coordinating clause complexes. This arrangement is more complex than the main clause + subordinate clause arrangement, hence its processing generally requires more effort. However, the difficulty of processing does not result from the inserting pattern alone. In fact, in constructions involving a relative clause such as (6), this pattern is easier to process than possible alternative construals which eliminate it. (In the example, inserted clauses are marked by italics.)

(6) Ez a fajta fejlesztési politika,[1] *ami elkezdődött*[2] *és ami folytatódik ezzel a szöveggel*,[3] ugyanis nem működhet másként,[1] mint […]
'This kind of development policy,[1] *which has begun*[2] *and will continue with this text*[3], could not function in any other way[1] than …'

4.2. Clause order in coordinating (non-hierarchical) constructions

In coordinating (non-hierarchical) clause complexes, the relationship between the scenes is typically construed to be symmetrical. Thus, the order of the scenes can be reversed when their temporal relation makes this possible. The association between the scenes is motivated by the structure of experience. The remarks made below about clause order concern clause complexes not marked by a conjunction. For this configuration, two main motivating factors can be highlighted: i. the observed scenes are construed as simultaneous, ii. the observed scenes represent events which are temporally contiguous, with one following the other.

The latter situation is reflected by clause complexes with the order of clauses matching the temporal sequence of portrayed events. The joint perception and processing of simultaneous events is subject to figure-ground alignment. Simultaneity between two scenes can only be conceptualized when the scenes are to some extent separated. In linguistic construal, salience and the spreading of attention during the observation of events may also affect the ordering of

scenes. In general, the event which is more salient or easier to process serves to provide access to what is less salient or is more difficult to process. Besides this peculiarity of the direcing of attention, the construal of scenes is also symmetrical, with the processing of more or less equally prominent scenes connected by some relationship. The scenes stand in a part-part relation, neither of them is contained in the other.

When the relationship is not marked by a conjunction, changing the order of clauses (to the extent that the result is meaningful) translates into a reversal in the relationship between the observed events, and the semantic link between the two clauses receives a different interpretation (e.g. cause-effect vs effect-cause).

5. Providing access to the prominent scene

5.1. The variability of syntactic patterns

It is possible in all grammaticized construction types that the clauses do not elaborate or expound on a prominent scene through an elaborative relation, but rather one or more clauses profile the accessibility path by which the speaker intends to observe the prominent scene. These clauses are used to contextualize a target structure (Kugler 2017: 867–870, 874–878).

(7) *Telt-múlt az idő, és a moszkvaiak számára kezdett valóban úgy tűnni,* hogy […]
'*Time passed, and for the Muscovites it really began to seem that way*, that …'

(8) *Amit nagyon fontosnak érzek* az az, hogy több mint 250 diák dolgozik most önkéntesként ezen a gátszakaszon.
'*What I feel very important is* that over 250 students are now volunteering at this stretch of the dam.'

(9) *Amit sajnálok,* hogy annak idején az eseményeket nem dokumentáltam.
'*What I regret is* that I did not document the events at that time.'

In (7), it is possible to observe contextualization in both coordinating and subordinating clause complexes (involving *és* 'and' and *hogy* 'that', respectively). (8) and (9), for their part, give evidence of a constructional change triggered by contextualization. In (8), the main clause is completely schematic (*az az* 'it is that', lit. 'that is that'), only featuring demonstrative pronouns with the function of schematically signalling the containment of, and (identifying) relation between the clauses. In (9), there is no main clause at all which would contain the subordinate clauses syntactically. In these patterns, the clauses introduced by relative pronouns foreground the speaker's attitude to the prominent scene (the voluntary work of the students and the absence of documentation, respectively).

5.2. The clause as a grounding predication

In the remainder of this paper, I focus exclusively on clause complexes involving *hogy* 'that'. The *hogy* conjunction is typically an optional element in these constructions. Within the scope of contextualization, those constructions are in the foreground of attention which are anchored to the speaker as a mental subject, objectivizing (putting on stage) her mental functioning.

(10) a. *Azt hiszem,* 14 lányból és tizenkét ifjúból állt a jókedvű csapat.
that think-1SG
'*I think* the cheerful team was made up of 14 girls and twelve boys.'

Such main clauses offer a point of departure for accessing the referential scene in the subordinate clause; they effect a grounding predication (Langacker 1987: 489, 549; 2008: 299; Pelyvás 2001, 2006). A grounding predication expresses the fact that the scene (in the example above, the content of the subordinate clause) can be accessed via the speaker's mental functioning. In (10a), *azt hiszem* 'I think' signals epistemic uncertainty with regard to the number of participants in a Swedish demographic programme, caused by the less than fully reliable functioning of memory.

Main clauses like this only receive temporary activation, with attention spreading on from them onto the target structure. They serve as bridges connecting a mental subject (identical with the speaker) who has some belief and the belief that is made observable ('it was made up of 14 girls and twelve boys') (cf. Pelyvás 2001, 2006). The utterance puts the "subordinate clause" into the centre of attention, its scene being the more prominent. This means that the pattern departs from the prototype of subordination. It follows from the prominence of the subordinate clause that the question tag (QTAG) *ugye*, historically derived from *úgy* 'so, that way' + the *-e* interrogative particle, can pertain only to this clause but not to the contextualizing main clause, as shown by answers A and B in (10b). The test was created by Péter Pelyvás.

(10) b. Azt hiszem, 14 lányból és tizenkét ifjúból állt a jókedvű csapat, *ugye?*
that think-1SG, 14 girl-ABL and twelve boy-ABL stand-PST the cheerful team, QTAG?
'I think the cheerful team was made up of 14 girls and 12 boys, isn't that the case?'
A: − ???Igen, azt hiszed.
'Yes, you do [think so].'
B: − (Igen/egyetértek,) pont/valószínűleg ennyiből állt.
'Yes, I agree, it was made up exactly/probably of 14 and 12.

The expression *azt hiszem* 'I think' typically opens up the conceptual domain of BELIEF, marking it on the cognitive verb (*hiszem* think-1SG) that the belief is anchored to the speaker, i.e. it specifies the mental path leading up to the belief. However, it is not the mental functioning of the speaker but rather the event represented in the subordinate clause which stands in the centre of attention. The temporality of the target event is also made accessible through the belief being anchored to the speaker.

Main clauses effecting a grounding predication (cf. Pelyvás 2001) can also follow their subordinate clauses (see (11)), or may be inserted (contained) in them (cf. (12)). The latter is not at all characteristic of clause complexes expressing a hierarchical relation.

(11) Bár akkoriban, negyven éve, negyvenmilliárd évvel ezelőtt ez valahogy több volt, nagyobb frusztráció lehetett, *azt hiszem*.
'Although at that time, forty years, forty billion years ago, it was somehow more, it could have been more frustrating, *I think*.

(12) Pénzem, *azt hiszem,* lesz.
money-PX.1SG, *that think*-1SG, be-FUT
'I think, I will have money'

Insertion and postposing iconically reflect the fact that the "main clause" has lost its prominence (cf. H. Molnár 1968: 52). At the same time, both sentence-initial and sentence-final positions are typically associated with contextualizing expressions (cf. Dér–Markó 2010: 137).

Main clauses effecting a grounding predication (cf. Pelyvás 2001) are as varied as the linguistically expressible mental operations that provide access to a target structure. Besides inference-making and belief, these also include remembering (cf. (10a)), which may be expressed by a specific mental verb as well (13).

(13) *Úgy emlékszem,* tízezer lejt vittem magammal, […]
that.way remember-1SG, ten-thousand lei take-PST.1SG myself-with
'I remember taking ten thousand lei with me'

Anchoring may hinge not only on the mental functioning of the speaker but also on the construal of shared knowledge and the organization of discourse. The main clauses of (14) and (15) have the function of construing shared knowledge through specifying the source of information (first-hand experience in (14) and information from others in (15)). The main clause of (16) highlights the process of assessing the availability of some information. Marking the source of information belongs to the semantic domain of evidentiality.

(14) Azt kellett volna mondanom, hogy „magyar teniszbravúr Ausztráliában", és ehelyett azt mondtam, hogy „magyar teniszbúvár Ausztráliában" úgy, hogy akkor észre sem vettem. *Csak azt láttam,* hogy a kollégám alig tud megszólalni, és *a fülesen keresztül hallottam,* hogy a többiek ordítva nevetnek a vezérlőben.
'I should have said "Hungarian tennis bravura in Australia" and instead of that I said "Hungarian tennis brave urea in Australia"[8] and I didn't even notice it. *All I could see was* that my colleague could barely speak, and *I heard through the headset* that the others were yelling at the controller in the studio.'

(15) *Mástól hallottam,* hogy az öregemnek a kisujjában volt a szakmája.
'*I heard from others* that my dad had his profession at his fingertips.'

(16) […] *mindannyian pontosan tudjuk*, hogy a kultúra az egyik legsikeresebb ágazat […]
'*we all know* that culture is one of the most successful sectors'

As the utterances in (17) and (18) demonstrate, the accessibility path may also involve a chain of reference point constructions so that one contextualizing clause is contextualized by another. Thus, the notion of elaboration (in the sense of Langacker 2016) may be applied to the strata of contextualizing clauses as well.

(17) *Azt hiszem, azt viszont mindannyian tudjuk*, hogy a budapesti polgárok számára a közbiztonság jelenlegi helyzete elfogadhatatlan: […]
'*I think we all know* that the current state of public safety in Budapest is unacceptable for the citizens'

[8] In the original Hungarian text *búvár* 'diver' was said instead of *bravúr* 'bravura performance'.

(18) *Azt gondolom, mindannyian tudjuk,* hogy egy autópálya-körgyűrűnek, illetve egy körgyűrűnek egy város életében többféle funkciója lehetséges.
'*I think we all know* that a motorway-ring or a ring road can have many functions in the life of a city.'

A contextualizing main clause may also put on stage the way in which the speaker wishes to embed the target structure into an ongoing discourse, for example as a surprising piece of information which is hard to integrate into existing knowledge/expectations in the case of (19). Furthermore, the main clause may also put on stage a conversational move by the speaker, such as topic shift in (20).

(19) *Meglepő volt számomra,* hogy az anyák egyike sem gondolja úgy, hogy családjuk a legszegényebbek közé tartozik. Valamennyien átlagosnak tartották életkörülményeiket.
'*It was surprising to me* that none of the mothers think that their family is one of the poorest. They all considered their living conditions to be average.'

(20) *Térjünk vissza az eredeti kérdésre:* […]
'*Let's go back to the original question:* …'

In Hungarian, the most basic way in which the conceptualizer may be objectivized is when anchoring to a person is symbolized by the finite verb; with the exception of (19), all of the data above belong to this type. A less direct device is when the mental subject is portrayed as an affected (more or less backgrounded) participant of the grounded process (see the expression *számomra* 'for me' in (19)).

In the above examples, the subordinate clause is not subordinated to the main clause in terms of prominence; on the contrary, the referential scene of the subordinate clause stands in the forefront of attention. In the case of contextualizing main clauses effecting a grounding predication (cf. Pelyvás 2001), the subordinate clause satisfies the criterion of completeness as it is not interpreted as part of a larger structure (cf. containment) but rather as a whole, and the entire construction can be reduced to it. Functionally speaking, a contextualizing main clause of this type is similar to clause-internal contextualizing expressions (vö. *úgy emlékszem* 'so I remember' ~ *emlékezetem szerint* 'according to my memory').

5.3. Subjectivized construal of the speaker's vantage point

In the examples of Section 5.2., it is made explicit by an objectivized mode of construal that the prominent scene becomes accessible through the mental functioning of the speaker (cf. 'individual access') or with the speaker accessing information together with others (see e.g. (16), cf. 'shared access'). However, the mental subject may also be left implicit, and in Table 2 below, a few examples are offered for illustrating this. Examples with a grey background represent objectivized construal, whereas those with a white background exemplify the subjectivized mode of processing (cf. subjectification, Langacker 2006: 18).

Table 2. Objectivized and subjectivized construals of the speaker's vantage point

The nature of grounding predication	**Examples for objectivized and subjectivized modes of construal**
inference, opinion	„[…] Amilyen érzéketlen és primitív lélek vagyok, számomra ez egyáltalán nem érződik neműnek" – mondtam, „de ha már tárgyról van szó, *valószínűnek tartom* [probable.DAT think.1SG], hogy semlegesnemű kell legyen." 'Being an insensitive and primitive soul, I wouldn't conceptualize it having a gender – I said – but talking about an object, *I think* [lit. probable-DAT hold-1SG] it should be neutral'
	Valószínű, hogy a ház tiltakozik ittlétem ellen. 'Probably [lit. (it's) *probable* (that)] the tenants are protesting against my presence.'
memory	*Úgy emlékszem,* tízezer lejt vittem magammal, […] 'I remember [lit. that.way remember-1SG] taking ten thousand lei with me'
	Úgy rémlik, még ez is benne volt abban a levélben. 'It seems [lit. that.way seem-3SG] that even that was in that letter.'
	Úgy tűnik, tegnap láttam már. '*It seems* that I saw that yesterday.'
perception	*hallottam,* hogy a többiek ordítva nevetnek a vezérlőben '*I heard* that the others were yelling at the controller in the studio'
	Hallatszott, hogy fütyörészve szorgoskodik. '*It could be heard* that he was whistling while he was busy'
	Mégis jól hallható, hogy a magyar szerző sajátos, egyéni hangra talált […] '*Still it can be heard clearly* that the Hungarian author has found his unique, individual voice'
report	*Mástól hallottam,* hogy az öregemnek a kisujjában volt a szakmája. '*I heard it from others* that my dad had his profession at his fingertips.'
	Belgrádban olyan találgatások hallhatók, hogy a bujanovaci akciót Slobodan Milosevic emberei szervezték […] '*In Belgrade such speculations can be heard* that the action in Bujanovac had been organized by the men of Slobodan Milosevic'
evaluation as 'unexpected; unusual, new' (mirativity)	*Meglepő volt számomra,* hogy az anyák egyike sem gondolja úgy, hogy… '*It was surprising to me* that none of the mothers think that…'
	Meglepő, hogy itt is minden harmadik-negyedik [gép] áll, nincs ember. 'It is surprising that here too, every third or fourth [machine] is standing still, there are no workers.'
discourse functions	*Itt most áttérek arra, amit Sümeghy képviselő úr mondott.* Igen, képviselő úr, […] *Here I move over to what my fellow MP Sümeghy said.* Yes, Mr Sümeghy, […]
	Erről annyit, hogy nehezen tudom elképzelni, ahogy [Politikus]t félrelökik, vagy kirángatják egy kocsiból. '*So much about this* that I can hardly imagine [this politician] to be pushed aside or pulled from a car.'

With subjectivized construal, some uncertainty of interpretation is caused by the fact that for each construction, and sometimes for each situation, it needs to be assessed separately whether access is individual or shared. Since in Hungarian, there are no grammaticalized markers of various types of source evidence, the evaluation of access may be a highly complex process (see Kugler 2015: 54). Even with inference-marking predications, contextual factors need to be taken into account when access type is (probabilistically) characterized. At the other end of the scale are expressions like *úgy rémlik* 'so it seems', which allow for anchoring to the speaker, e.g. with the *nekem* 'to me' satellite; however, even without this, the expression typically evokes the speaker's vantage point.

6. Summary

The paper explored the interaction between grammaticized schemas for construing clause complexes (especially subordination with the conjunction *hogy* 'that') and the operation whereby the speaker offers an access path for processing a prominent referential scene by progressively opening up attentional frames in the scene of joint attention. From this perspective, special attention was paid to clauses effecting a grounding predication which are anchored to the vantage point of the speaker as a mental subject. In terms of both access paths and modes of construal, a high degree of variability was found.

Acknowledgements

This paper was supported by the National Research, Development and Innovation Office of Hungary, project No. K-129040 (Verbal constructions in Hungarian. Research in usage-based construction grammar) and the Thematic Excellence Program of ELTE Eötvös Loránd University, Budapest, Hungary.

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PATTERNS OF COMPARISON: COMPATIBLE AND CLASHING SIMILES IN A CONTEMPORARY HUNGARIAN NOVEL

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Abstract

In this study, I investigate similes in the language of the narrator of a contemporary Hungarian novel applying the theoretical perspective of cognitive linguistics and the methods of corpus stylistics. The analysis aims at demonstrating that similes have a huge importance in the texture of the novel: through them, the text confronts its reader with serious challenges in cognition as well as in the narrative representation of events. My argument is that simile is not as simple as it is widely assumed to be in the stylistic literature. The present analysis, which adopts the principle of conceptual directionality and elaborates a fine-grained system of categories, aims at shedding new light on the cognitive potential of simile. The results of analysing the novel as a corpus demonstrate that more or less incompatible similes have almost the same frequency in the text as compatible structures. Consequently, one of the main strategies of the narration is to modify the process of construing analogical meaning expected by the reader.

Keywords: principle of directionality, compatible simile, clashing simile, texture, corpus stylistics

1. Introduction

"It is demon what I'm saying, but I mean something else of course"[1] – this is the emblematic sentence of the narrator in the Hungarian novel Kitömött barbár (The Stuffed Barbarian) by Gergely Péterfy, which can serve as a good vantage point for this study. Why does the narrator, Sophie Török (the wife of Ferenc Kazinczy, a famous author of the Hungarian enlightenment) use the word *demon*? Why does she use it even though she lets us know at the same time that it is not the appropriate expression for representing her thinking? And why does she explicate the figurative references of the noun *demon* (which is a metaphor considering its linguistic symbolization)[2] after creating it (1)?

[1] Translations from the Hungarian original are by the author of the present paper, Gábor Simon.

[2] Although there is a dividing line between metaphor and simile in the rhetoric tradition (see e.g. Huhmann 2007: 89; Thornborrow–Wareing 2005: 79), cognitive linguistics considers simile as a type of metaphor (see e.g. Shen 2008; Steen et al. 2010: 21; see also Nørgaard–Montoro–Busse 2010: 107 for the historical precedents of this view). Despite this theoretical vantage point, distinguishing between metaphor and simile has remained productive in the cognitive poetic literature. Peter Stockwell (2002: 15–107) considers the distinction useful since it draws attention to more than one possible realization of a conceptual configuration. Peter Crisp (2003: 106) reminds us that "[l]inguistic metaphor and simile are […] alternative ways of expressing conceptual (or) image metaphor linguistically". We can conclude that the more an analysis focuses on the linguistic structure of a con-

DOI: 10.5281/zenodo.3907344 ISSN 2732-1142

(1) He was humiliated by not being able to defeat the demons who had taken the power over his body away from him. It is demon what I'm saying, but I mean something else of course: they were the torturing memories of the prison, the awful recollections of closeness and humiliation, that could stop the flow of time (…).

In the passage above (Péterfy 2014: 61), the narrator uses a word (*demon*) metaphorically, then she details the figurative referents of it (the torturing memories of the prison, the awful recollections of closeness and humiliation), meanwhile, she expresses her doubt in the adequacy of her (metaphoric) language use. In other words, she both accepts and rejects the analogy created in language, maintaining it on the level of conceptualization in her explanation about the figurative references of the noun *demon*, but also withdrawing its expressing potentiality on the level of linguistic symbolization.

Two possible consequences can be drawn from this observation. The first refers to understanding metaphoric meaning in literature:[3] the passage directs the reader's attention to the possibility of developing an authentic reading without figuratively identifying the target concepts with metaphoric sources. The language used by the narrator affords the possibility of metaphoric conceptualization, but at the same time, it also distances the reader from obvious metaphoric meaning creation, i.e. from the conventional way of comprehending a literary text. The second consequence concerns the linguistic realization of metaphoric conceptualization: the analysis of figurative language must not be reduced to modelling metaphoric source and target, as well as mappings between them, i.e. to the conceptual structure motivating the linguistic expression. The way of expressing analogy in language becomes a central factor in a cognitive poetic investigation. Peter Stockwell (2009: 5) defines the endeavour of cognitive poetics as follows. "Fundamental to our extraordinal adaptability as a species and feats of soaring creativity, imagination and invention is the capacity for metaphorical projection that allows immediate objects to become transformed into ideas, speculations, rationalisations, hypotheses, and rich imaginary worlds. The business of cognitive poetics is not to reduce any of this to structural types or labels, but to understand its intricate workings and marvel at the new adaptations that our capacities continue to allow."

At this point, it is worth noting that there is another usage of the noun *demon* in the text referring to the brothers of the protagonist (Ferenc Kazinczy) but not as a linguistic metaphor (2).

(2) As he was lying in the room on that hopeless day in December while his brothers were walking up and down around his bed like two *demons* and they bit into him from time to time, Ferenc felt that the thought of knowing his mother's secret could not protect him (…).

The aim of figurative language use here is to represent the complexity of the feelings of the protagonist (Ferenc, the husband of the narrator). In this case, however, the narrator creates a

ceptualization the more it is considered fruitful to make a distinction between simile and metaphor. The present study adopts a corpus linguistic methodology with an emphasis on linguistic structure in order to find relevant data, thus I differentiate simile from metaphor regarding their linguistic realization, without rejecting that they share the common conceptual organization of cross-domain mappings and analogy.

[3] As Steen (1989: 118) puts it, "understanding metaphor in literature is approached as a special and specific subtype of understanding metaphor in general that is ruled by the general socio-cultural conventions regulating all literary discourses". The ambiguous attitude toward metaphoric language in the narration seems to be a reflection on the cultural conventions of metaphorization in literary works of art.

simile that does not claim that the brothers are demons; they only resemble demons. It is not obvious whether there are some physical attributes according to which the brothers look like demons or it is their behaviour (e.g. their gait or their aggression) which can be considered demonic. Moreover, it is also uncertain whether the impression comes from the perspective of the protagonist, it is shared with the narrator or it is the result of the narrator's imagination.

As it can be seen from the examples, the figurative language of the contemporary Hungarian novel sets the reader a big challenge. It comes not only from the dense metaphoricity of the text (considering the creativity and complex interpretation of the leitmotif in the title, the multiple meanings of being stuffed and barbarism) but also from the rich patterns of similes and other types of linguistic comparison in the narration.

In this study, I investigate the similes in Sophie's language applying the theoretical perspective of cognitive linguistics and the methods of corpus stylistics. The analysis aims at demonstrating that similes have a huge importance in the texture[4] of the novel: through them, the text confronts its reader with serious challenges in cognition as well as in the narrative representation of events.

In the retrospective narration of the novel, similes function as the poetic devices for reconstructing events from previous impressions. Creating similes, however, helps Sophie to reflect also on the multiple ways of construing and sharing meaning. As it is defined in handbooks (e.g. Thornborrow–Wareing 2005: 78; Simpson 2004: 43–44) a simile declares an explicit connection, a comparison between two concepts; moreover, it represents this connection in the domain of subjective consciousness. In other words, Sophie develops her language for representing the events of the text world.

Thus, the language of similes (i.e. the language of the female narrator in the novel) is apt for describing the feelings, impressions, and imaginations of not only her mind but also of the male characters: the two protagonists (her husband and his Afro-American friend, Angelo Soliman), her alchemist father and the other intellectuals of the era, as well as the political and familial enemies of her husband. Creating a new language to defeat the rivals in the field of culture is the explicit ideological aim of the husband, Ferenc Kazinczy in the novel; for Sophie, however, it is essential for telling a story about power and overcoming, about illusion and reality, and about the complexity of cognizing the world. The process of creating a new language has its metaphoric significance regarding the narrated events but it also has metanarrative importance in the act of narration itself.

Because of the explicitness of comparing two entities on the one hand, and since comparison always provides a subjective and hence autonomous point of view (from which a similarity of the two entities is perceived), similes can be considered the pitfalls of cognition. They offer the ease of comprehension and the illusion of imaginative liveliness but at the same time, they distance[5] the reader from directly experiencing the scenes because of the explicit reference to a cognizing perspective and an act of subjective representation.

Consequently, my argument is that simile is not as simple as it is widely assumed to be in the stylistic literature (see e.g. Simpson 2004: 80). According to this tradition (which goes back to Jakobson, Genette and Aristotle, see e.g. Bethlehem 1996) simile as an explicit com-

[4] In the study I use the term *texture* in a Stockwellian sense: "Readings consist of the interaction of texts and humans. Humans are comprised of minds, bodies and shared experiences. Texts are the objects produced by people drawing on these resources. Textuality is the outcome of the workings of shared cognitive mechanics, evident in texts and readings. Texture is the experienced quality of textuality" (Stockwell 2009: 1).

[5] Elizabeth Black (1993: 44) claims that simile can have a "distancing effect" for it belongs to a „more analytical mode of thought" than metaphor.

parison is considered the younger sister (or the maid) of metaphor: it is easier to identify, its linguistic variability is much more limited than the patterns of metaphor, and it serves as a testing device for distinguishing between metaphor and metonymy; thus it is a less sophisticated way of imagination than metaphoric language.

But some previous studies (see for example Black 1993), as well as recent investigations (Tartakovsky–Shen 2019; Tartakovsky et al. 2019), have drawn our attention to the both linguistic and semantic complexity of similes extending from conventional structures to non-conventional and creative ones. The present analysis aims at demonstrating the richness of comparisons in a contemporary Hungarian novel and shedding new light on the cognitive potential of simile, which deserves attention in its own right. In other words, I would like to release simile from its subordinate role.

The study scrutinizes the pattern of similes in the novel in five sections. After the Introduction, I provide the aspects and categories of the analysis adopted from previous works on similes in traditional rhetoric and cognitive poetics (2). Then the investigated material and the methods of the analysis are detailed (3). The fourth section demonstrates and discusses the results of the analysis: the types of similes in the novel and their distribution in the text (4). The study ends with concluding remarks (5) about the most important findings of the investigation.

2. Theoretical issues in simile analysis

2.1. Simile, similarity, figurativity

A simile is "a way of comparing one thing with another, of explaining what one thing is like by showing how it is similar to another thing, and it explicitly signals itself in a text, with the words *as* or *like*" (Thornborrow–Wareing 2005: 78). It is clear from this definition that simile is one of the devices of expressing an act of comparison, and on the other hand it is a similarity that motivates the meaning of a simile. Though the latter would seem to be tautological, in fact, similarity is a complex cognitive phenomenon. It can extend from the literal resemblance of two entities to a felt quality of partial analogy between things, ideas, events, etc.

Thus, not every simile is based on factual similarity: there is plenty of creative (or non-literal) expression which creates (and not expresses) an analogy between entities (for example the wind is as sharp as a knife), and the perceptual and/or conceptual distance between them (or their dissimilarity) can serve as one of the basic factors of the simile's figurativity.

Bethlehem (1996), as well as Fishelov (1993) register the following semantic factors as constituting a figurative (non-literal) simile: the polysemous or abstract nature of the ground of comparison (what does sharp mean in the example above), the semantic density (or the linguistic elaboratedness) of the topic of a simile (e.g. the wild west wind carrying new weather), the unfamiliarity of the entity to which something is compared, to mention only some of them. (For a more detailed discussion see 2.2.)

These studies make it clear that the figurativity of a simile is motivated by the relationship between the compared entities: it can be an abstract quality, a less salient (or even non-comprehensible) property of one or another (*La terre est bleue comme une orange* 'the earth is blue like an orange' as the passage from Éluard's poem claims), a polysemous meaning of the terms (and hence semantic vagueness in the comparison), a metonymic link between the entity and the ground of comparison (e.g. *crook as Rookwood* (in Australian English), in which *Rookwood* refers to a cemetery in Sydney, and this reference motivates metonymically the act of comparison). Moreover, one can easily find a metaphoric interpretation of the ground in

colloquial English similes: *as busy as a bee*, *as cold as a cucumber* or *as free as a bird* – these expressions can only be comprehended if one interprets the property metaphorically.

Consequently, similes are by no means confined to expressing literal resemblance. They provide various ways of establishing analogy, therefore their conceptualizing and symbolizing potential goes far beyond the function of making metaphors explicit. In this study, I regard simile as an autonomous process of figurative meaning creation, which has some overlapping characteristics with (conceptual) metaphor and metonymy (namely a complex link between the compared entities based on a shift in a conceptual frame or on conceptual mappings), but it can be reduced neither to literal resemblance nor to an elaborated form of metaphor. Whether we treat metaphor and simile as two kinds of expressing metaphorical (or non-literal) similarity (see Ortony et al. 1985), or consider them opposing categories (as Black (1993) or Fishelov (2007) does), we need further empirical data and fine-grained analyses about the semantic variability of similes in poetic texts. The present paper contributes to this endeavour.

2.2. Structure and categories

As it became clear in the previous sections, simile theory has a long historical tradition with numerous approaches in it. To begin with an ancient predecessor: Cicero argues that comparison (which is a broader category than simile) has three subdivisions (De Inventione I, 49, see Cicero 1968: 89–90; Lausberg 1960: 232): parallel (*imago*), which relies on the resemblances between people or things; example (*exemplum*), i.e. some kind of analogy with a historical event or character; and similitude (*collation*), which expresses a likeness of individuals or events motivated by experiences. The differentiation elaborated in ancient rhetoric shows that the figure of simile is far from being homogenous and simple. Because of rejecting literal similarity as the motivation of figurative meaning in similes, and for the sake of generalization, I narrowed down the focus of my investigation to similitudes (or non-literal similes) occurring in the narration of Sophie Török, omitting both parallels and examples from the examination.

A non-literal simile creates a partial similarity or resemblance (and hence implies a partial asymmetry) between two entities, which is motivated by a limited identification of two things; as Kocsány (2008: 267) defines it, in this type of comparison "an inference arising from a known relation of things is recognized as valid for new relations that need to be illuminated".

The canonical structure of a simile is A is as G as B (Tartakovsky et al. 2019: 185) or A be X / do X like B, where A and B are the compared entities and G is the ground of comparison. According to Fishelov (1993: 5) simile is constituted by four components: the topic (or target: T, "the thing about which the speaker speaking"), the vehicle (or source: V, "the image brought into the discussion because of its being analogous to T"), the simile marker (M, "some sort of explicit marker that directs us to construct analogies (…) between T and V") and the ground (or tertium comparationis with an ancient term, G, "the aspect(s) shared by T and V, that is, the basis of the analogy between T and V").[6] In a prototypical simile, every component becomes explicated.

(3) [Ferenc's enemies] disappear in the ceased dimension like the pigeon in the magic box of the magician

[6] The components of a simile are termed in different ways in the literature. In order to harmonize with the cognitive linguistic terminology I use the terms *source* and *target* instead of *vehicle* and *topic* in the paper.

The expression in (3) compares the enemies of the protagonist with the pigeon in a spectacle, the ground expressed by the event of disappearing and the marker of the simile is the conjunction *like*. Since the ground is explicit, the simile is motivated (using Zalabai's term, see Zalabai 1981: 141), or closed (in Beardsley's term, see Beardsley 1958: 137–138) contrary to unmotivated (or open) similes that only imply the basis of the analogy (4).

(4) time must become ripe like the cedar tree for splitting

Motivatedness (or closeness) is no doubt a promising and productive aspect of simile analysis; nevertheless, it raises difficult questions since in expressions including an adjective (5), the explicitness of the ground has a different degree than in expressions with a verbal form (6).[7] Thus, first of all, the scale of explicitness or motivatedness would need to be clear as a prerequisite of the analysis. Such a preliminary study is beyond the scope of this paper.

(5) The peasants […] were wild and cruel like children

(6) [Pietro Angiola] hooted, crouched down then jumped up […] like a chimpanzee

Another aspect of the organization of a simile is its cognitive path (Fishelov 1993: 6, Kocsány 2008: 272–273), i.e. which component becomes foregrounded in the expression: the target or the source. In this respect, the default arrangement in the investigated novel is the target > source order: only 8% of the analysed data deviates from this pattern. Thus, inversion is not a typical solution in the narration, and hence cognitive path proved not to be a productive factor for the analysis.

However, if we direct our attention to the directionality of conceptualization instead of the linear order of the components, new categories of simile can be established, and they can give an account of the complexity of narrative voice. As Shen (2008: 296) points out, the principle of directionality is the main organizing basis for both metaphorical conceptualizations and the meaning of simile. According to this principle, the source domain of the conceptual structure (i.e. the vehicle in similes) is conceptually more accessible (more concrete or salient) than the target domain (the topic in similes). In other words, the entity to which the target is compared is more embedded into our everyday experience: we have direct knowledge about it, and hence it can serve as the vehicle of an analogy (see also explicitness, salience, and familiarity in non-poetic similes in Fishelov 1993).

Yet there are similes that diverge from this tendency: they are clashing similes (CLS) in which it is the target that is more concrete or salient, as opposed to compatible similes (COS) which are organized on the basis of the directionality principle (Shen 2008: 297). In terms of Cognitive Grammar (Langacker 2008), the directionality principle helps us describe the semantic schema of similes: COSs are the instantiations of the schema with no extension, whereas an increase in the elaborative distance from the schema yields CLSs.

The notion of conceptual directionality as well as the categories of COS and CLS make it possible to analyse the cognitive acts of comparisons in Sophie's narration and to describe the ways of conceptual access to the entities of the discourse world. Nevertheless, the binarity of conceptual organization in the model cannot provide us an elaborated scale for pattern analysis,

[7] In a recent corpus-based study of poetic similes, expressions that include verbs or adverbs were considered closed similes because of the sufficient explication of the ground (see Tartakovsky–Shen 2019: 210). It suggests that closeness is a matter of degree and the grammatical structure of similes needs to be taken into consideration.

since there is more than one possible way of deviating from the directionality principle. Fishelov (1993: 6–14), describes several types of non-conventional similes.[8] A simile can become peculiar if it details the source rather than the target, for it directs the reader's attention to the former despite the fact that a "simile's communicational goal is giving information about the target [topic] via the highly compatible source and ground" (Tartakovsky et al. 2019: 188; addition is mine). A simile turns more prominent if the reader's knowledge about the source is insufficient or less than about the target: in this case, understanding the simile requires special encyclopaedic or linguistic knowledge. The most complex type of non-conventionality is when the source of the comparison is unknown: Fishelov (1993: 9) calls it "emptying the source", his example is (7).

(7) John is eating like something I cannot imagine.

The various degrees of the accessibility of the source in Hungarian similes are demonstrated in a similar way by Kocsány (2008: 276–279): in her dataset, the source can be insufficiently explicated or too general; it can be more abstract than the target; another case is when the source does not exist and cannot be experienced in everyday life; or one of the components is metaphoric or metonymic. Thus, the present analysis has elaborated precedents in both international and Hungarian linguistics. However, my aim is not only to recapitulate and adopt the previous findings and categories in a new research but also to refine the category system of non-conventional similes in order to gain a more comprehensive view of their patterns and to provide a better understanding of their function in the texture of a novel.

2.3. The categories of the present analysis

One of the important conclusions that can be drawn from the literature is that binary categorization (compatible versus clashing similes) is not apt for a fine-grained qualitative analysis: several intermediate cases can be assumed in between the two extreme types. Consequently, in this study, I establish a scale from conventional (COS) similes to unconventional (CLS) ones. Moreover, I deal with the non-conventional types of simile in Péterfy's novel as subtypes of COS, considering an expression CLS if and only if the vehicle is completely inaccessible or non-salient from the perspective of the everyday knowledge of the reader. I elaborated the following system of categories.

[8] It is worth noting that the category of non-conventional similes has been termed differently in the literature: though Fishelov (1993) calls it *poetic simile*, Shen (2008) proposes the term *clashing simile*, whereas Tartakovsky et al. (2019) and Tartakovsky–Shen (2019) uses the expression *non-standard simile* (with *non-standard poetic simile* as its subcategory). The difference between the terms depends on the definition of non-conventionality (e.g. the prominence of the vehicle as opposed to the topic, the deviation from the directionality principle or the salience of the ground in relation to the vehicle). Since I basically adapt the directionality principle proposed by Shen (2008), I use the term *clashing simile* in this study.

Category	Description	Example
i. Conventional similes or **COS**s	The members in this category are motivated by the everyday knowledge of the reader, thus the reader is familiar with the source and the ground is salient in relation to it.	[in the course of dissection] *the eye of the scientist reads them* [the signs on the surface of the body] *like a pupil reads the alphabet*
ii. **COS TA** (Topic Accessibility)	The target is more detailed and elaborated hence more accessible than the source.	[the wings of the butterfly] *came together with the scale in the corner of the tissue paper like ash*
iii. **COS SSpec** (Source Specificity)	In this category, the comprehension of the source requires specific and non-conventional knowledge of the world.	[The gaze of Ferenc] *became dim and doubtful, then it separated mine like when the mating ladybirds split up suddenly in the air and fly on alone*
iv. **COS R** (Role)	In this category of similes, the source represents a specific social role and the comparison can be construed through taking over the vantage point offered in the situation.	*Like in animals, which have a presentiment of an earthquake, a deep alarm ringed in me*
v. **COS M** (Metaphor)	The source of the simile (*the hell of the prison* in the example) is a linguistic metaphor in itself.	*they had made his life a much darker hell then it had been the hell of the prison*
vi. **COS Mn** (Metonymy)	The meaning of the source in the simile is construed metonymically.	[The story on Angelo] *burst him* [Ferenc] *as time bursts the old rafters*
vii. Clashing similes or **CLS**s	The source is inaccessible, hardly accessible, not concrete or unknown.	*we* [Ferenc and Sophie] *mean both the sole and perfect solution at that for one another, like the elements desiring one another in the symbolism of alchemy*

One end of the continuum is the subcategory of compatible similes. Although the topic, the process of dissection is a very specific experience, every reader has some experiences on having been a pupil, thus the vehicle of the simile is concrete and accessible. The category of COS TA is based on asymmetry between source and target: as opposed to conventional similes it is the target which is more elaborated (and hence more familiar for the reader). The examples above also demonstrate that there is no rigid boundary between categories. In the case of COS and COS SSpec, for instance, the source of the latter refers to an event or act which cannot be considered a shared experience: it refers to specific and/or individual observations in this case.[9] It is important to note that in similes organized around a role the source can be diverse: from well-known and typical positions to the perspectives of non-human or other specific characters. In the example above, it is the role of a fleeing animal that is presented in the expression for elaborating the state of mind of the narrator. The subtle distinction between a specific source and a role-based source is that the latter is motivated by taking over another perspective (which is not that of the narrator or one of the characters), thus it exploits our mentalizing capacity.

Probably the most complex categories are the metaphorical and metonymic similes, or – to be more accurate – those expressions in which the source is a linguistic metaphor or metonymy. In section 2.1., I argued that simile cannot be reduced to expressing a metaphor, and though there is a common conceptual base in the background of both phenomena (namely the principle of directionality and some kind of metaphorical similarity), I do not consider simile a subtype of metaphors. From this it follows that a simile can be motivated by other cross-domain mappings, in other words, the source can be metaphorical in itself.[10] For example, *the hell of the prison* is inherently metaphoric (based on the conceptual metaphors of PRISON IS HELL and EVIL IS DARK), and processing these conceptualizations is the prerequisite of the comprehension of the simile, which compares the metaphoric darkness of the actual life to the former phase of it. We can use the metonymic category in a similar way: since the bursting of the rafters is the consequence of the progress of time, thus there is a metonymic conceptualization (THE RESULT OF A PROCESS STANDS FOR THE PROCESS) in the background of the source.

At the other end of the continuum of similes, we find the domain of clashing similes. In the example above, the knowledge of alchemy is rather specific; furthermore, it becomes unreliable and available only for the initiated in the novel. Therefore, clashing similes make not only the narration expressive but also the process of reading unstable and difficult.

The elaborated system of similes is detailed and sophisticated enough to explore the pattern and functioning of comparisons in the narration. Although there are other aspects of non-conventionality in simile analysis, I have preferred the notions of conceptual accessibility and directionality as central factors of the examination. The next section discusses the process of data collection, the number of analysed expressions as well as the methods of the study.

[9] It depends partly on the reader's experiences what counts as a familiar or specific source. However, the aim of this categorization is a qualitative exploration of the semantic variability of similes in a novel, and not elaborating a schema of annotation for a corpus-driven investigation. The latter would need a more consensual distinction between the categories.

[10] In the study I use the notions of metaphor and metonymy in accordance with the standard conceptual theory elaborated by George Lakoff and Mark Johnson in cognitive linguistics (see e.g. Lakoff 2006). I use the terms metaphor and metonymy in reference to conceptualizations and distinguish linguistic metaphors and metonymies from them. However, the cognitive poetic perspective of this study implies that the linguistic realizations of conceptual structures are not of secondary importance, and this theoretical vantage point has the consequence that I do not subsume similes under metaphors.

3. Material and methods

Using the terms of corpus stylistics the novel consists of 115119 tokens and 30661 types.[11] Focusing on the prototypical simile marker of Hungarian, the *mint* ('like' or 'as') conjunction the data support the reader's assumption that similes are one of the basic figures in the narration. The conjunction occurs 519 times in the text, it is the 13th most frequent type of the corpus (only other grammatical words, e.g. articles, the negative particle, the conjunctions *és* 'and', *hogy* 'that', *de* 'but', as well as preverbal elements and particles have precedence over it). Though not every occurrence of the conjunction *mint* serves as simile marker (it is one of the essive-formal case markers in Hungarian), moreover other acts of comparison (resemblances, examples) are among the data, the frequency of the conjunction *mint* is still notable: in the printed edition of the novel every page contains one simile on average. The distribution of the conjunction is demonstrated in Figure 1 with the concordance plot made by AntConc.

Figure 1. The distribution of the conjunction *mint* in the novel

In the Figure above the vertical lines count as the occurrences of the conjunction, consequently the thicker the line the more frequent the word in that part of the text. Although it illustrates the distribution of *mint* before manually filtering the sample, one can conclude from it that the frequency of the conjunction is even in the whole novel, with denser areas at some points of the narration.[12]

In addition to the prototypical expression of simile in Hungarian (i.e. with the conjunction *mint*), two other structures were investigated (without aiming for a comprehensive exploration of the linguistic variability of similes in Hungarian): the use of the case marker *-ként* ('as', see Rounds 2001: 116) and the use of the conjunction *akár* ('just like'). The former occurs 171 times in the novel but most of them function as essive-formal case markers (*transzcendentális birodalom nagykövet-e-ként*, transcendental empire ambassador-POSS-ESS 'as the ambassador of a transcendental empire'), as (distributive-) temporal case markers (*reggel-enként* morning-DIST 'in the mornings'), as distributive markers (*egy-enként* one-DIST 'one by one', *csepp-enként* drop-DIST 'drop by drop'), or in lexicalized expressions (*egyébként*, 'anyway'). After thorough manual filtering only 16 expressions with *-ként* remained among the data.

Finally, the occurrences of the conjunction *akár* were analysed in order to compare the proportion of it with the prototypical form of a simile. However, the conjunction has only one occurrence in the novel (*a mag, akár a férfitest magja* 'the nucleus just like the sperm of the male body') which functions as identifying two entities with each other: it illustrates the total identity of the basic principles of alchemy and physiology in the explanation of the narrator's father (who is one of the leading alchemists in the world of the novel). As a parallelism (or imago/parallel with the term of Cicero) this expression was omitted from the pattern.

[11] A general introduction to the field of corpus stylistics: Gibbson–Whiteley (2018: 285–300). For processing the novel as a corpus, I used the AntConc software (v. 3.5.8 (Windows) 2019).

[12] I do not dwell on the relationship between the distribution of similes and the structure or development of the narration in the paper, but it can be another interesting aspect for further analyses.

After the process of data collection, a qualitative analysis was accomplished in order to obtain the non-literal similes from the data. First, those expressions were removed which do not express similarity but other aspects of entities (e.g. their state or manner: *az egész testvér-szerelem nem volt más, mint egy kétségbeesett kiáltás azért, hogy apám figyeljen rá* 'the whole love between the brother and the sister was not else than a desperate cry for help in order to gain my father's attention').

Since a real analogy expresses only partial similarity (in contrast to identification), and since in a non-literal simile also the ground is (re)interpreted in relation to the source or the target or both (Tartakovsky et al. 2019: 187), the expressions of identification were not relevant in the study. This was the reason why the constructions of essive-formal case were filtered out from the data. Bare comparisons were also removed since they express the identity of two entities/scenes based on a particular property, e.g. (8–10).

(8) He [Ferenc] desired this metamorphosis as others desire the state of drunkenness or opium

(9) he [Angelo] was attached to it [his prepared crocodile] as others to their favourite dog

(10) the minerals tell the same story as the horrible and wonderful fate of Isis and Osiris

The last set of expressions left out from the data were constructions with the conjunction *mintha* ('as if'): these expressions are in a greater epistemic distance from the act of comparison, insofar as they do not claim the analogy of two entities, rather they express its possibility. On the other hand, the use of *mintha* represents doubt in the process of construal; in a further investigation it will be worth comparing the proportion and distribution of the expressions of *mintha* to the expressions of *mint* whit the aim of shedding some light to the dynamic process of (re)construing and representing the events, but the present paper does not discuss this issue.

As a result of the manual filtering, I obtained 233 similitudes. The next phase of filtering was a semantic categorization. I divided the whole sample into three groups according to the type of comparison. The first group includes those similes which are connected to perceptions, impressions, like (11–13).

(11) [The thoughts of Ferenc] swam in the air one by one like the bands of sentences coming from the characters' mouth in illustrations

(12) The man who I had known before remained in the skin, which now hung from the flesh as a wet blanket

(13) His [Born's] lungs […] hardly took any air whistling and rattling like an old iron stove

There is great variability in this group of perceptual expressions. They do, however, have it in common that the source of the analogy as well as its ground is based on previous visual (or audial) impression and felt quality. Thus, they do not initiate the reinterpretation of the ground or the source in relation to the target. I categorized 40 expressions altogether as expressions of perceptual resemblance. In the novel, they function first and foremost in describing the process of the preparation of the body of Angelo (one of the protagonists) and the symptoms of cholera. Both targets are considered specific experiences from the perspective of an 18th century woman narrator, thus they can be represented only through expressing a resemblance to

everyday entities or scenes. Since the focus of the analysis is on non-literal similes of the novel, the members of the first group were removed from the sample.[13]

The second group comprises examples, i.e. similes in which the source is related to a famous character of historical or cultural traditions (14–15).

(14) [Angelo] asked also the assistants not to allow him to the near of the door, if they would perceive that he had got cold feet, like Odysseus when he had himself fastened to the mast of his sheep being eager to hear the song of the sirens

(15) we lived here once as Goethe had lived in Weimar, as Gessner had lived in Zurich, as Cicero had lived in Tusculanum and as Horace had lived at the foot of Soracte

18 examples (or illustrations) were separated and omitted from the sample in total.[14] Some of them are mixed with literal resemblances (e.g. *Only the white of the eye of her* [Zsuzsanna Bossányi] *was visible as the eye of the mad Lady Macbeth in engravings*) forming a transition between the two categories (mentioning a famous character but also creating a ground of impression). These were categorized as parallels, belonging to the first group above.

The third group contains non-literal similes selected for closer analysis. After a precise filtering, 175 expressions were classified as non-literal similes altogether: these data made up the whole sample for the investigation. In the close analysis, the key aspect was the conceptual accessibility of the source and the target (i.e. the principle of directionality and the deviations from it). The following section goes into the details of the results.

4. Similes as the pitfalls of cognition: results and discussion

4.1. Clashing similes in the novel – the cases of incompatibility

In this study, I make an attempt to explore the rich and complex pattern of non-literal similes in a contemporary Hungarian novel avoiding any binary classification. I formed numerous categories between the opposite extremes (COS and CLS) on a scale extending from the different ways and degrees of elaborating the source and from its metaphorical or metonymic construal to the better accessibility of the topic (the target of the simile). As a consequence of focusing on scalarity rather than dichotomy, only those expressions were tagged as CLS in which the directionality principle proved to be inaccurate. Since creating an analogy through clashing similes is the most radical (and perhaps the most figurative) way of comparing two entities, I put a special emphasis on the members of CLS at first in order to tackle the idea of incompatibility.

(16) [the plants at Széphalom] produced runted shoots with miniature leaves like stubble growing on a corpse

[13] Nevertheless, there are several similes of this type in the novel which initiate the reinterpretation of the ground (e.g. *living in a world which is as colourful as the windows of the Stephansdom* – in this case the ground of COLOURFULNESS can be interpreted as physical attribute and as abstract variability as well). When comprehending a simile required more than one interpretation of the ground, it was accepted as similitude.

[14] Only those illustrations were accepted as non-literal similes in which the ground offers more than one interpretation as in the following example*: I will struggle in this place like the half-mad elephant of Schönbrunn, who in the end only watches the opportunity to take revenge on one of the unguarded children*. In this expression it is the ground of the animal behaviour which is reinterpreted as human attitude in order to form an analogy between the two situations.

In (16) the source of the simile is an uncommon experience: the reader presumably does not know much about the physiology of cadavers (except if s/he has a special profession). Moreover, the linguistic structure of the source, the participle with *-ing* form profiles the process implicating the direct observation of the biological changes of a body after its death.

Example (17) shows a different kind of incompatibility: the abstract and underspecified source (*the beginning of something*) makes the simile clashing, and it requires more mental effort in comprehension than other partly compatible conceptualizations.

(17) it [the process of building the new house] was fresh and full of hope like the beginning of something

There is little difference between an underspecified source and those similes in which it is an imagined or a mythical entity (as *manna* in 18).

(18) the peasants bought them [amulets and fragrant fractions] of course like they would be manna

There are similes among those which use mythical entities or creatures as the source, in which the target is mentally more accessible than the source thanks to direct observation. Thus, in e.g. (19) more than one factor make the simile clashing (the appearance of a legendary creature and the better accessibility of the target which is Angelo's figure in the moonshine).

(19) In the moonshine, he [Angelo] was really like the vagarious elves of tales

In addition, there are similes in the narration in which the complex target is compared to an entity being impossible according to our everyday knowledge. (The simile in (20) is cited by Sophie from her father's alchemistic explanation.)

(20) mercury is a mixture of cold air and heat. Like something which is woman and man at the same time.

The source of the simile does not exist regarding the physiology of a human body; therefore, the expression initiates the reinterpretation of the quality of mixedness.

A simile can be considered especially clashing when the narrator herself declares the (partly) unknown nature of the source (21–22).

(21) the cadaver laid on the centre of the stage like the protagonist in an unknown Greek tragedy

(22) inserting my palm into his [Angelo's] hand made me feel like putting my hand through a fist-sized hole into an unknown box, from which I'd heard an odd noise. Like putting my hand into muddy water which is full of unknown life.

Finally, there can be colloquial expressions in similes that cause remarkable incompatibility. In (23) an idiom in Hungarian[15] occurs *mint akit elevenen nyúznak* 'like who is skinned alive'

[15] In the Hungarian National Corpus (MNSz2, v. 2.0.5, http://clara.nytud.hu/mnsz2-dev/bonito/run.cgi/first_form) the word form *nyúz-nak* skin-3PL has 120 occurrences, 19 of them (15.83%) belong to the construction *mint aki-t*

expressing a hyperbolic feeling of being analysed or investigated thoroughly with anger or aggression.

(23) He [Angelo] felt himself [during portraying] like being skinned alive

The simile compares the subjective emotions arising from being portrayed to non-accessible experiences in everyday life. On the one hand, knowing the idiom makes the reader familiar with the linguistic expression; on the other hand, however, the conceptual organization defamiliarizes the meaning of the simile because of representing an unprecedented field of experience as the source of the comparison.

4.2. Function and proportion of simile categories in the narration

From the examples above it can be concluded that the narration in the novel develops the following strategy in representing the text world: it creates the illusion of familiarity through similes in the reader, but then it alienates her from the world of the discourse because of the incompatibility of the source and the target. A simile can raise the reader's expectation that the actual topic of the discourse will be elucidated expressively through analogy. However, it is not fulfilled by a clashing or a more or less non-compatible simile since the vehicle, the source of the comparison is proved to be hardly accessible or unknown. Moreover, a CLS can lead the reader in the domain of impossibility, mysticism or estrangement from the common experiences of the human body. Using CLSs and other deviations from a compatible simile can be considered an essential **strategy of representation** in the novel as evidenced by the proportions of simile types in the investigated sample.

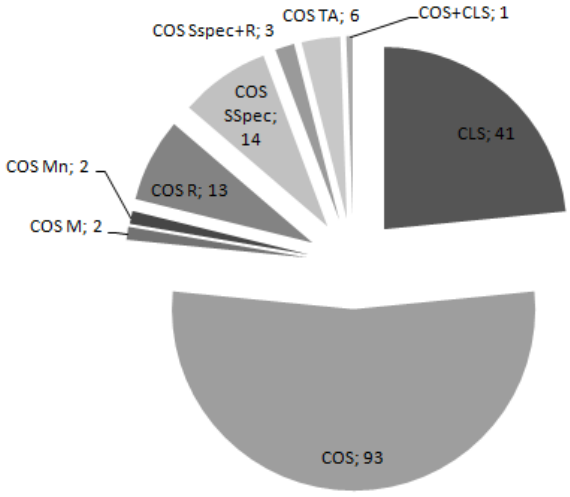

Figure 2. The distribution of simile types in the novel

nyúznak like who-ACC skin-3PL 'like who is skinned'. There is one data of the expression *mint aki-t él-ve nyúz-nak* like who-ACC live-PTCP.ADV skin-3PL 'like who is skinned alive'. The other form of verb with verbal prefix (or coverb, see Rounds 2001: 65–81) *meg-nyúz-nak* PRFX-skin-3PL has 28 occurences in the corpus, 3 of them have the adverbial modifier *elevenen* 'alive'. Though these data do not demonstrate obviously the idiom-like nature of the expression, but it is worth mentioning that the strongest collocate of the word form *megnyúznak* is the *elevenen* adverbial modifier (with 5.969 logDice measure). Thus, though the expression occurs in usage with more than one version, there are evidences of its idiomacy.

There is a total of 41 CLS-similes in the novel, hence this type runs to almost one-quarter of the sample (23%). And if this proportion is compared to the number of other types of COS-similes, it becomes clear that compatible expressions occur only twice more often than non-compatible ones.

The pattern can be detailed further taking the categories of non-compatible similes into thorough consideration. Source specificity (COS SSpec) dominates the sample in this respect (8%). The group can be characterized by a source of scientific phenomena (diseases, geological, physical and chemical processes), exotic creatures (*like a tropic bird*), or unusual situations (being like an embryo in the womb, eating disgusting but elegant and exclusive dishes). They cannot be separated rigidly from CLS-data in the analysis; nevertheless, the elaboratedness of the source, as well as the specific but not unknown domain of knowledge in the source can help to identify the instances of the subcategory.

The second most frequent subtype of COS-similes is COS R. It compares the target of the expression to situations in everyday life and/or to one of the typical social roles/positions in them, with an additional act of perspectivization. From 13 occurrences in total (7,4%) there are 6 in which the behaviour of a character has its analogy with a childish role (playing a game or perpetrating some bad acts). In 4 expressions the role in the source belongs to the realm of arts (the source represents e.g. an actor, an author or a knife-thrower), but there are similes with less familiar situations as their source too (for example the role of an explorer staying in the prow, or the perspective of animals having a presentiment of an earthquake).

There is no rigid boundary between COS R and COS SSpec.[16] The similes relating to a specific role, however, can be placed closer to COS on the scale: though they represent the target of the simile from an uncommon perspective, the situations themselves in which the perspective can be processed are not totally unfamiliar in more than half of the expressions.

Another extension of the conventional schema of compatible simile can be described as the emergence of a conceptual asymmetry between the components in favour of the target: instead of explicating the source or the ground of the simile in details, the expressions of COS TA category (which run to 3,4% of the whole sample) elaborate the target, the actual topic of the discourse as a scene that is directly observable by the narrator and the reader, e.g. [the wings of the butterfly] *came together with the scale in the corner of the tissue paper* [like ashes].

There are instances of the category in which the target is related to the subjective state of mind of the narrator or a character's consciousness represented by the narrator; consequently, the active perspective of conceptualization belongs to the target component of the simile (and hence it can be accessed directly in the process of reading).

For example, the father of the narrator explains a situation to his daughter as follows: *[t]his is the reason why you always feel yourself like someone who has lost her way.* Beside the underspecified nature of the source (i.e. where, in which domain has lost someone her way?) one can notice the explication of mental content in the target: it is the feeling of the narrator (attributed to her by her father) emerging as a felt quality in the course of the narration. Since the target of the simile is more accessible in the process of reading than its source, the

[16] Three similes occur in the text which can be labelled with both of the subcategories: in the first one the way one of the protagonists feels is compared to the emotions of a recently painted and framed oil painting; the second creates an analogy between the relationship of the two protagonists and the rivalry of a sparrow and a bird of paradise; in the third one the narrator regards herself as a barbarian in the company of her husband, Ferenc. In these cases, the reader not only construes a specific and detailed source for processing the simile but also s/he takes one of the perspectives of the source situation. Therefore, these data amalgamate the properties of the two simile types.

expression rearranges the conceptual path of the figure and its foreground–background alignment, keeping the target in the foreground of the reader's attention.

The last categories of non-compatible similes are realized by metaphorical or metonymic sources; their proportion in sum is slightly more than 2%. One example of the former is that Ferenc's brother rolled him [Ferenc, with his words] up into spittly threads like a spider. In this expression both the entity in the source domain (the spider) and the ground (the activity of the spider) have to be interpreted metaphorically (with the conceptual metaphors an intriguer is a spider and intriguing is spinning a net in the background).

For the other category, the following expression counts as a metonymic simile: Ferenc considers his child as being in control of words as his books. The conceptual metonymies word stands for language, or – more accurately – word stands for the act of using language motivate the meaning of the expression.

Beside CLS-similes, presumably these data require the most mental effort of conceptualization from the reader, as s/he has to process not only an analogy but also a metonymic shift from a source concept to a target or metaphorical mappings between the source domain and the target domain – within the source of a simile or relating it to the ground.

Summarizing the proportions of the subcategories, the pattern of similes in the novel can be described as follows: besides the total of 93 compatible similes (53%) the narration includes 82 similes (they account for 47% of the sample) which extend one or another way from the COS schema, and half of non-compatible similes belong to the CLS category.

Relying on the qualitative and quantitative analyses I argue that similes function as pitfalls of cognition in the process of reading. One can disregard them because of their conventional linguistic structure and their mixing with other types of comparison (literal resemblances, illustrations, and examples). Sophie's similes give the impression that the narrator wants to understand the world around her, but she does not have the linguistic repertoire rich and subtle enough to represent the complexity of the events authentically. Therefore, she creates analogical conceptualizations and expresses them with the figure of simile in order to get closer to her experiences and on the other hand to the exceptional events happening in the life of her husband (Ferenc) and his friend (Angelo).

However, the reader can have a different kind of experience: the majority of the similes counts as pseudo-analogy or non-literal resemblance, rendering it more difficult to construe imaginatively the world of the text. Hence, they alienate the reader from the narrated events. The (more or less) non-compatible similes confuse the reader in forming a coherent representation of the plot, for the source conceptualizations of the similes as analogies remain unelaborated, unknown. hardly or non-accessible. Initiating a now prominent, then backgrounded process of comparisons, as well as forming the analysed pattern of similes can be regarded as an act (and the product) of language generation: it results in a particular coding system that departs from the conventions of meaning creation through resemblances. And it seems to be the narrator's reflection on her own experiences: this strategy symbolizes on a metalevel of linguistic behaviour that unusual events can be represented only by non-conventional coding.

5. Conclusions

In this paper, I investigated the figures of simile in the narration of a contemporary Hungarian novel Kitömött barbár (The Stuffed Barbarian). The qualitative and quantitative analysis dwelled on the key aspects of examining the conceptual organization of similes; their amount

and distribution in the text of the novel; their types and subcategories according to the principle of conceptual directionality; finally, their function in cognition and narration.

The study argues that similes facilitate and hinder the process of reading at the same time since they provide the familiar structure of an analogy, but they also extend the conceptualization in non-compatible ways as well as modify the conceptual path and direction of the configuration in a significant proportion. Therefore, similes can function as the pitfalls of cognition.

In order to gain empirical evidence for the central assumption of the study, a corpus-based methodology was adopted focusing on the conceptual schema of compatible similes and its extensions. The directionality principle claims that the source of a simile tends to be concrete and conceptually accessible whereas the target of the figure is more abstract and less accessible. The expressions realizing the principle count as compatible similes (COS), as opposed to clashing similes (CLS) which contradict the idea of conventional conceptual organization. There are relevant categories of non-compatibility between the two extremes on a scale.

The results of analysing the novel as a corpus demonstrate that the extensions of conventional simile have almost the same frequency in the text as COSs. Consequently, one of the main strategies of the narration is to modify the process of construing analogical meaning expected by the reader: Sophie's narrative work reverses the direction of comprehending an analogy, or at least it makes the process vague and unstable. Since non-compatible instantiations are mixed with conventional similes in the text, and since there are other, less sophisticated ways of expressing resemblance in the novel (parallels and examples), Sophie's verbal activity is both fluent and complex.

Moreover, similes represent an attitude towards the narrated events: the narration provides only the minimal level of conceptual availability of the topics of the discourse from time to time. In other words, the reader can have the impression that despite the analogies s/he cannot become familiar enough with the world of the text. This is the poeticization of the experience of strangeness and estrangement at the level of the texture. Thus, the pattern of compatible and non-compatible similes symbolizes the central theme of the novel in the formation of the text.

Acknowledgements

This paper was supported by the National Research, Development and Innovation Office of Hungary, project No. K-129040 (Verbal constructions in Hungarian. Research in usage-based construction grammar) and the Thematic Excellence Program of ELTE Eötvös Loránd University, Budapest, Hungary.

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STUDIA LINGUISTICA HUNGARICA 32 (2020): 109–120. http://ojs.elte.hu/slh

ON THE PERSPECTIVAL NATURE AND THE METAPRAGMATIC REFLECTIVENESS OF CONTEXTUALIZATION

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Abstract

This paper offers a detailed discussion of the notion of contextualization in a social cognitive pragmatic approach (cf. Tátrai 2017: 927–951), maintaining a discursive relation with syntactic approaches to contextualization (see Imrényi 2017: 743–758; Kugler 2017: 844–848, 874–878). For the interpretation of the notion of contextualization, the paper takes perspective, and within its scope the functioning of context-dependent vantage points as a point of departure. The paper builds upon a model of context-dependent vantage points according to which in the intersubjective context of joint attention, the discourse participants' (i) spatio-temporal position, (ii) socio-cultural situatedness, and (iii) stance of consciousness are the key factors in the construal of the referential scene (Tátrai 2018: 313–315). Focusing on Hungarian, the present paper argues that different types of contextualizing relations peculiar to clauses (see Imrényi 2017: 743–758) can be fruitfully related to the functioning of particular context-dependent vantage points: situating the grounded process in space and time pertains to the functioning of the speaker's spatio-temporal position, anchoring to a person or thing concerns the functioning of the speaker's socio-cultural situatedness, and finally, the marking of epistemic modality, evidentiality, and evaluative attitude and the marking of co-textual relations are closely linked to the functioning of the speaker's stance of consciousness. Moreover, contextualizing main clauses appearing in complex sentences can also be interpreted from the speaker's stance of consciousness. Under the present proposal, contextualizing constructions which give evidence of the speaker's stance of consciousness as a context-dependent vantage point – within a clause or even with regard to a clause –, thus marking the functioning of this vantage point, are interpreted as explicit metapragmatic signals (see Tátrai 2017: 1038–1053).

Keywords: context, contextualization, perspective, context-dependent vantage points, deixis, subjectification, perspectivization, intersubjectivity, reflexivity, metapragmatic awareness

1. Introduction

Social cognitive pragmatics offers a global perspective for the description of language which presents the employment of linguistic symbols in the context of people's adaptive language activity (cf. Verschueren 1999; Verschueren–Brisard 2009), describing it as social cognition based on the ability and functioning of joint attention (cf. Tomasello 1999; Sinha 2005, 2014; Croft 2009). This also implies that linguistic constructions – as structural schemas uniting formal and semantic properties (see Goldberg 1995; Diessel 2015; Imrényi 2017) – are addressed with respect to their discursive, contextual instantiations (cf. Sanders–Spooren 1997; Verhagen 2007; Langacker 2008). Thus, social cognitive pragmatics highlights the importance of the

DOI: 10.5281/zenodo.3907347 ISSN 2732-1142

process of contextualization which is described (i) on the basis of the functioning of joint attention, (ii) by taking the organization of the overall discourse as a point of departure, (iii) and by focusing on its role in the dynamics of meaning generation.

In this paper, the issue of contextualization is set against the perspectival nature of the generation of context. It is integrated in the study of context-dependent vantage points adopted by discourse participants during the activation of relevant background knowledge (2). Under this interpretation, the paper discusses the consequences of the deictic nature (2.1) and the subjectivity (2.2) of referential orientation in the process of contextualization. Afterwards, the relation between contextualization and metapragmatic awareness is discussed, concerning the processing of sentences in discourse (3). In this section, the paper considers particular features of contextualizing constructions in the clause (3.1) and in the complex sentence (3.2). Finally, the paper ends with concluding remarks on contextualization (4).

2. The perspectival nature of contextualization

From the perspective of social cognitive pragmatics, context is not a kind of reality given in advance and existing regardless of discourse participants; on the contrary, it is much rather a dynamic system of relationships which includes participants and their mutually activated knowledge (cf. Verschueren 1999: 75–114; Auer 2009). Context, interpreted as an intersubjective system of relationships, is generated by the joint attentional scene (see Tátrai 2017: 927–931). In discourses functioning as joint attentional scenes, participants' attention is directed to certain events of the world involving things. The joint conceptualization of these referential scenes – that is the grounding of referential scenes in the joint attentional scene – is promted by the use of linguistic symbols.[1] However, this also implies that in order for discourse participants to successfully ground referential scenes, it is required that – simultaneously with the processing of linguistic symbols (cf. Sperber–Wilson 1986) – they activate relevant knowledge which derives from the shared processing of their physical, social and mental worlds. The physical world includes spatio-temporal relations processed by discourse participants, the social world involves the socio-cultural relations processed by participants, and the mental world of the context comprises mental relations processed by participants (for details see Tátrai 2017: 927–952).

Thus, the intersubjective context is not simply a system of background knowledge, but rather it is a ground which supports joint attention to referential scenes with things and processes in them (cf. Brisard 2002). Furthermore, the intersubjective context is a process which sets the scene for participants to activate relevant knowledge about their physical, social and mental worlds which allows for the successful referential interpretation of linguistic symbols. In fact, the latter process is the generation of context whose dynamic nature is foregrounded by the notion of contextualization (see Tátrai 2017: 947–949; cf. also Auer 2009; Kecskés 2014; Németh T. 2019).

In view of the above, contextualization is the activation and application of relevant knowledge anchored to the participants' perspective. More specifically, the speaker's perspective has a fundamental influence on the grounding of referential scenes. This influence derives from the way in which the speaker directs her discourse partner's attention, exploiting the perspectival nature of linguistic symbols which always construe experiences from a certain vantage point (see Tomasello 1999; Verhagen 2007, 2015; cf. also Levinson 1983; Németh T. 2015). The functioning of the speaker's perspective can be described with a combination of three context-dependent vantage points (see Tátrai 2018: 314):

[1] Nevertheless, it must be emphasized that the joint conceptualization of referential scenes cannot only be mediated by means of linguistics symbols but also by nonverbal symbols and some other kinds of behaviour.

(i) In the physical world of the context – a system of relations in which participants interpret themselves and each other as physical entities –, the speaker's *spatio-temporal position* functions as a context-dependent vantage point during the intersubjective construal of the referential scene.

(ii) In the social world of the context – a system of relations in which participants interpret themselves and each other as social beings –, the speaker's *socio-cultural situatedness* functions as a context-dependent vantage point during the intersubjective construal of the referential scene.

(iii) In the mental world of the context – a system of relations in which participants interpret themselves and each other as mental agents –, the speaker's *stance of consciousness* functions as a context-dependent vantage point during the intersubjective construal of the referential scene.

The above model of context-dependent vantage points was inspired by the cognitive linguistic interpretation of perspective elaborated by Sanders and Spooren (1997). Sanders and Spooren (1997: 86–95) distinguished between two types of so-called non-neutral vantage points: referential centre and subject of consciousness. According to the baseline, the referential centre is defined by the speaker's person and her spatio-temporal position. Besides, the subject of consciousness is specified by the subject who takes responsibility for the validity of information. It is also the actual speaker, according to the baseline, whose mental stance assigns the subject of consciousness who, however, may shift this vantage point – likewise the referential centre – to other entities (see also Tátrai 2008, 2017: 940–942). Under the proposed model, phenomena encompassed by the referential scene is revised by the introduction of the notions of spatio-temporal position and socio-cultural situatedness, while phenomena encompassed by the subject of consciousness is re-interpreted by the notion of stance of consciousness.

2.1. The deictic nature of contextualization

In fact, the referential centre functions as a complex vantage point for deictic orientation. Specifically, the referential centre involves several vantage points which supply context-dependent reference-points from the participants' physical and social worlds for the joint observation and interpretation of the spatio-temporal and socio-cultural relations of the referential scene (see Tátrai 2017: 953–935).

In the physical world of the context, the spatio-temporal position of the speaker, who is interpreted as a physical entity, functions as a complex vantage point itself due to the fact that it plays a crucial role in time-marking as well, besides its key role in space-marking (for details see Tátrai 2017: 931–935).

(1) Alattunk a tenger, szemben a nap zuhan.
(Tibor Kiss: Autó egy szerpentinen)[2]
'Under us is the sea, facing us the sun is falling'

[2] Examples deriving from Hungarian lyrics only intend to illustrate theoretical assumptions, the implications of apostrophic fiction characteristic of this discourse-type fall beyond the scope of the paper (for the discussion of the issue see Tátrai 2015a, 2018).

In example (1), the spatial disposition of the two characters of the scene accessed linguistically – the location of *tenger* 'sea' and *nap* 'sun' – can be processed with respect to the spatial position of the speaker. In the former case, the deictic reference-point is objectified by being anchored to a person (*alattunk* 'under us'); however, in the latter case, the speaker's spatial position functions as a reference-point without the speaker being objectified as a character of the scene (*szemben* 'facing' vs. *velünk szemben* 'facing us'). Generally, it can be stated that the speaker's spatial position supplies reference-points for the processing of spatial relations in the referential scene. Nonetheless, it is also essential to emphasize that the location and movement of things can also be determined with respect to the location and movement of other things (e.g. *lába alatt* 'under his feet' / *szemben vele zúgott a tenger* 'facing her the sea was roaring'), or it can even be defined in an absolute way (e.g. *nyugaton a nap zuhan* 'in the west the sun is falling') (see also Tolcsvai Nagy 2017: 424–430). Similar remarks can be made about time-marking. The speaker's temporal position also induces reference-points for the processing of temporal relations in the referential scene. In (1), the elliptic construction of the first clause, the absence of any verb, and the present tense of the second clause's verb (*zuhan* 'is falling'), respectively, indicate that the time of the observed scene coincides with the time of the observation. Nevertheless, the time of events can also be specified compared to the time of other events (e.g. *megérkezés után a tengerparton sétáltak* 'after arriving, they walked along the seashore'), or even in absolute terms (e.g. *2019. április 24-én 18 és 19 óra között a tengerparton sétáltak* 'on 24th April 2019, between 6pm and 7pm, they walked along the seashore') (see also Tolcsvai Nagy 2017: 436–446).

In the social world of the context, the socio-cultural situatedness of the speaker – who is regarded here as a social being – functions as a context-dependent vantage point, which can be characterized by a certain duality: it involves reference-points not only for person-marking but also for the marking of social attitudes (see Tátrai 2017: 968–974). The deictic operations of person-marking accomplish the identification of characters in the referential scene, grounding them to the intersubjective context of the joint attentional scene (cf. Tolcsvai Nagy 2017: 430–435). First and second person deictic constructions objectify the participants of the joint attentional scene (the speaker and the addressee) as characters of the referential scene. Additionally, third person constructions indicate those participants of the referential scene who cannot be identified either by the speaker or by the addressee, or, to be more precise, by their present, past or future "self" made observable by linguistic symbols. In the meantime, social deixis also foregrounds the participants' socio-cultural attitudes. The deicitic marking of socio-cultural attitudes can be bound up with any form of person-marking, but socio-cultural attitudes may also prevail independently of person-marking.

(2) Ne akadj horogra! Maradj! Nekem / Bármily szar is, ez szerelem!
(Szabolcs Tariska: Zöld hullám)
'Don't get hooked up! Stay! For me / Even if it's like shit, this is love!'

In example (2), the Sg2 verb phrases *ne akadj horogra* 'don't get hooked up' and *maradj* 'stay' objectify the discourse partner, whereas the Sg1 personal pronoun *nekem* 'for me' objectify the speaker as a character of the referential scene. In the meantime, *szerelem* 'love' is construed as a third person entity. Moreover, Sg2 verb phrases express the speaker's social attitude as they construe a colloquial relationship between participants by means of T-forms. However, the marking of socio-cultural attitudes is not necessarily bound up with person-marking. The speaker's socio-cultural situatedness functions as a context-dependent vantage

point during the intersubjective construal of the referential scene beyond person-marking (see Tátrai 2017: 935–938). For instance, the expression *szar* 'shit' in (2) foregrounds the speaker's direct, colloquial attitude towards his discourse partner without objectifying her by a vocative, or even by a T-form. What is more, through the employment of this expression, not only the speaker's attitude to his discourse partner, but also his attitude to the overall formation of discourse and his attitude to the language variety, that is to the norms of the register of the discourse is foregrounded. Hence, the utterance might be widely regarded as casual, everyday, rough or even slang. Consequently, the marking of socio-cultural attitudes – which is not articulated by Sanders and Spooren (1997) within the scope of the referential centre – links up linguistic constructions with socially grounded and culture-specific expectations concerning adequate construal, with the speaker's socio-cultural situatedness serving as a vantage point. This means that social deixis is an open-ended category which does not exclusively involve the identification of characters in the referential scene, but it may subsume the operations of style attribution as well (see also Tátrai–Ballagó 2020).

In summary, in the course of the activation of relevant contextual knowledge, a key role is played by deictic operations which allow the speaker's spatio-temporal position in the physical world of the context to function as a context-dependent vantage point for the marking of spatial and temporal relations, and also allow the speaker's socio-cultural situatedness in the social world of the context to function as a context-dependent vantage point for the marking of personal and socio-cultural relations.

2.2. The subjective nature of contextualization

As it was already mentioned above, during the intersubjective construal of the referential scene, it is not exclusively the speaker's spatio-temporal position and socio-cultural situatedness but also his stance of consciousness which functions as a context-dependent vantage point. Specifically, in the intersubjective context of the joint attentional scene, the participants do not only interpret each other as physical entities and social beings, but they also process each other as mental agents who are capable of attributing mental states (knowledge, intentions, desires and emotions) to each other (see Tátrai 2017: 938–942). However, the functioning of such a context-dependent vantage point does not draw our attention to the deicitic nature of the referential orientation, but to the fact that the functioning of this vantage point is anchored to a subject interpreted as a mental agent (cf. subjectivizing reality, Bruner 1986: 27).

Both the speaker and the recipient take part in the discourse as conscious subjects who are aware of being conscious. From this perspective, "[c]onsciousness is an active focusing on a small part of the conscious being's self-centred model of the surrounding world" (Chafe 1994: 28; cf. 2009).[3] In discursive situations, it entails that the speaker makes her experiences linguistically accessible by filtering them through her own mind. Thus, according to the baseline, it is the speaker who happens to be the subject of consciousness to whom the active functioning of consciousness (perception, thinking, will and – last but not at least – saying) is anchored regarding the information conveyed, who therefore primarily takes the responsibility for the validity of the words said or written (see Sanders–Spooren 1997: 86–95).

[3] Remarkably, the term awareness – which is closely related to the notion of consciousness – here refers to the controllable nature of mental processes as well as the ability of reporting mental processes (that is people are aware of what they do). The awareness peculiar to cognitive processes of meaning generation can be described by the degree of their controlled and routinized character (cf. Verschueren 1999: 173–200).

(3) Mari nem itt él.
(Tibor Kiss: Mari)
'Mary doesn't live here.'

As it is illustrated in (3), the speaker does not need to mark that her consciousness is active while she directs her discourse partner's attention by means of linguistic symbols. However, the speaker can mark and reflect on her actual stance of consciousness (e.g. *Valószínűleg / Állítólag / Szerencsére Mari nem itt él* 'Mary probably / supposedly / fortunately doesn't live here'). This case is known as subjectification (cf. Langacker 2006: 18; Tolcsvai Nagy 2017: 306–309, 462–466), means of construal when the conceptualizer's (the speaker's) subjective attitude to what is conceptualized remains offstage, i.e. the speaker does not objectify herself as a mental agent observable in the referential scene (cf. e.g. *Máshol akarok élni* 'I want to live elsewhere'; *Látlak, Mari* 'I see you, Mary').

Nevertheless, there exists a broader interpretation of the notion of subjectification according to which construals with the speaker's stance of consciousness becoming marked or reflected as a separate scene can also be regarded as subjectification (cf. Sanders–Spooren 1997: 86–95, see also Kugler 2015: 15–37; Tátrai 2015: 28–33). In these cases, the scene in which the speaker is objectified as a mental agent accomplishes the contextualization of another scene.

(4) Hülye voltál, mondom magamnak, majd ha ez elmúlik
(András Lovasi: Szívrablás)
'You were stupid, I'm telling myself, later when this is over'

In example (4), firstly, it may seem that in the clause *mondom magamnak* 'I'm telling myself' the speaker is objectified as a mental agent, expressing her subjective attitude to the conceptualized scene of the clause *Hülye voltál* 'You were stupid'. However, in the clause following *mondom magamnak* 'I'm telling myself' (*majd ha ez elmúlik* 'later when this is over'), it becomes obvious that in the contextualizing main clause, it is not the actual speaker but rather her future self who is objectified as a mental agent. Cases when the subject of consciousness is shifted from the actual speaker to another mental agent are called perspectivization by Sanders and Spooren (1997: 88–91). The reason why this operation is possible is that the speaker – besides considering herself and the others as mental agents – is capable of identifying with other subjects, thus, capable of illustrating the mental states of others (even her own past or future mental states) or evoking their discursive activity. Hence, the speaker can shift this type of context-dependent vantage point to other entities – similarly to spatio-temporal position and socio-cultural situatedness –, to other subjects, or even more precisely, to other entities construed as subjects.

3. The metapragmatic reflectiveness of contextualization

In the above description of contextualization, a key role was attributed to intersubjectivity, a characteristic feature of adaptive language activity. Intersubjectivity implies that people regard others as intentional and metal agents like the self, who are capable of engaging in triadic interaction (i.e. referential triangle) and by means of linguistic symbols, they direct their partners' attention to certain events of the world involving things (Tátrai 2017: 907–911; see also Tomasello 1999). However, the adaptive satisfaction of communicative needs does not only require people to have a "theory of mind" but it is also a demand that they have a

reflexive attitude to their own and others' minds and mental functioning. Thus, people do not simply share knowledge but also they are aware of sharing knowledge (for details see Verschueren–Brisard 2009: 29–38). Consequently, intersubjectivity and reflexivity are twin phenomena which together serve as a basis for explaining the adaptive emergence of human language and its main characteristic feature.

The notion of metapragmatic reflexivity highlights the crucial role of reflexivity in the dynamics of meaning generation (see Verschueren 1999: 187–199; Tátrai 2017: 1038–1052; cf. also Lucy 1993; Silverstein 1993; and Mertz–Yovel 2009). Discourse participants' metapragmatic awareness indicates their capability of having a reflexive attitude to particular linguistic constructions and the associated cognitive processes and socio-cultural conventions, both as speakers and recipients. However, metapragmatic awareness does not simply involve the employment of linguistic signals used by the speaker, but also discourse participants' reflexive attitude – of various qualities and degrees – to the dynamic meaning generation unfolding in the context of their language activity. This type of reflexive attitude may have observable linguistic traces. Among explicit signals of metapragmatic awareness (cf. Verschueren 2000: 447), we may recognize contextualizers which – by linguistic elaboration – give evidence of the functioning of the speaker's stance of consciousness as a context-dependent vantage point.

In the pragmatic literature, linguistic signals indicating the process of contextualization are called contextualization cues which serve the relevant contextual interpretation of the discourse as a whole, or certain segments of it (Gumperz 1982; see also Tátrai 2017: 949–951). Below, I focus on contextualization cues occurring in the clause and in the complex sentence, discussing the issues of perspective and metapragmatic reflectiveness.

3.1. Contextualization in the clause

In Imrényi's multi-dimensional model of the clause, a clause is not exclusively interpreted as expressing a grounded process (D1) and a communicative act (D2) but also as a message embedded in a context (D3) (see Imrényi 2017). According to the model, contextualizing devices involve parts of the clause "which serve to aid the more fluent processing and/or more accurate interpretation and evaluation of the information expressed, which is placed in the focus of attention" (Imrényi 2017: 744–745). We can distinguish between several types of contextualizing relations within the clause. Contextualizing the message in the clause may happen by (i) situating the message in place and time, (ii) anchoring it to a person or thing, (iii) marking epistemic modality, evidentiality and evaluating attitude and by (iv) marking relations between distinct parts of the discourse as well (for details see Imrényi 2017: 745–752).[4]

The functioning of contextualization in the clause points at the interdependence of system and usage by the fact that particular contextualizers can be linked to the functioning of particular context-dependent vantage points.

(5) Visz a vonat, megyek utánad, / talán ma még meg is talállak
(Attila József: Óda)
'The train is taking me, I am going / perhaps I may even find you today'
(Attila József: Ode [transl. by Tamás Kabdebó])

[4] The present paper does not aim at drawing a picture of the contextualizing role of clause-initial type markers and contextualization in appositive constructions (see Imrényi 2017: 752–754, 756–758).

In the clause, the information in the focus of attention may be situated in place and time with respect to the speaker's spatio-temporal position functioning as a context-dependent vantage point (cf. 2.1). In (5), concerning the spatial situation of the message, the speaker's actual position (which is processed or seems to be processable by the participants) plays a crucial role in the course of contextualization which, however, remains unmarked. Though the speaker's spatial position may become marked itself (*itt* 'here', *ide* 'here', *innen* 'from here'), situating in place characteristically becomes linguistically elaborated when it becomes relevant during contextualization: if the given information is situated in a place further from the speaker (see e.g. *Alattunk a tenger, szemben a nap zuhan* 'Under us is the sea, facing us the sun is falling'), or if it is not situated directly with respect to the speaker's spatial position (see e.g. *Hegyek között, völgyek között zakatol a vonat* 'Amongst the hills, amongst the vales, the train is clattering'). In example (5), in the first two clauses, there is no lexical evidence that the information is linked to the speaker's temporal position, while in the third clause, this contextual factor becomes linguistically marked (*ma* 'today'). Similarly to the spatial situation of a message, situating it in time can also involve temporal reference-points further from the speaker's actual temporal position (e.g. *holnap* 'tomorrow', *jövőre* 'next year') or moments that are independent from the speaker's actual temporal position (e.g. *vihar után* 'after the storm', *zenehallgatás közben* 'during listening to music').

Among contextualizing relations, anchoring to a person or thing depends on the speaker's socio-cultural situatedness as a context-dependent vantage point during the intersubjective construal of the clause (cf. 2.1). Specifically, the contextualizing linguistic device which anchors information (put in the focus of attention) to an entity conceptualized as a thing, is necessarily construed as a first, second or a third person, i.e. construed as a result of a deictic operation. In Hungarian, anchoring to a first or a second person can consistently remain unmarked; the former case is illustrated by each of the three clauses in (5) while the latter case can be detected in (2) and (4) (cf. *Ne akadj horogra! Maradj!* 'Don't get hooked! Stay!', and *Hülye voltál* 'You were stupid'). Anchoring to a third person typically remains unmarked when a coreferential relation is construed between an entity of the given clause processed as an anaphora (or cataphora) and between another entity of another clause in which the antecedent (or postcendent) is construed as a nominal (see *Mari nem itt él* 'Mary doesn't live here') (about the relationship between deixis and coreference, see Tátrai 2017: 956–958).[5]

Contextualizing relations in the clause also include the marking of epistemic modality and evidentiality, and the marking of evaluating attitude as well. The common trait of these two relations is that both mark the speaker's subjective attitude towards the conceptualized (see Kugler 2015: 25–37; also cf. Langacker 2002: 15–23); thus, they both activate the speaker's stance of consciousness as a context-dependent vantage point (cf. 2.2). In (5), it can be witnessed that in the first and second clauses, the speaker's stance of consciousness does not become marked, it only happens to be marked in the third clause by the marking of epistemic modality (*talán* 'maybe'). However, contextualizers revealing the functioning of the speaker's stance of consciousness as a context-dependent vantage point substantially differ from contextualizers implementing the other two types of context-dependent vantage points. Such contextualizers as situating in time and space, and anchoring to a person or thing are integral parts of the grounded process construed in the D1 dimension of the clause, while contextualizers expressing subjectifying attitude are not parts thereof. All these phenomena symptomatically highlight the fact that

[5] Nevertheless, socio-cultural situatedness does not exclusively play a crucial role in contextualization when it comes to person-marking but its functioning is also fundamental for the marking of social attitudes as well (see for example the stylistic difference between (2) and (5) both addressing a similar topic).

contextualizing devices functioning as explicit metapragmatic signals – contrary to situating in time and place, and anchoring to a person or a thing – do not take part in the linguistic representation of a scene; but rather, they express the speaker's reflexive attitude to the linguistic representation. In other words, by the employment of these contextualizers, the speaker does not share her experiences about the world; instead, she makes explicit metapragmatic reflections on the sharing of experiences (see Tátrai 2017: 1045–1046).

A further type of contextualizers, the marking of relations between distinct parts of the discourse is also bound up with the speaker's stance of consciousness functioning as a context-dependent vantage point. These contextualizers direct our attention to the contextualizing role of coordinating relations (see Kugler 2017: 854–880), and to the fact that the coherence of a discourse is not only referential but also relational in nature (cf. Sanders–Spooren 2001). Linguistic devices specifically highlighting this comprise metapragmatic signals functioning in the processing of relations between distinct parts of the discourse. These signals include discourse deictic expressions and various types of discourse markers (cf. Laczkó–Tátrai 2015).

3.2. Contextualization in the complex sentence

As it was already mentioned before, the speaker may express her subjective attitude towards the conceptualized by objectifying herself as the context-dependent vantage point (cf. 2.2). This process may take place within the clause (see e.g. *Szerintem / Nekem / Számomra ez nem jó* 'According to me / For me this is not good'; cf. Kugler 2015). However – as illustrated by the main clause *de látom* 'but I can see' in (6) –, the speaker's subjective attitude may also be construed as a separate scene.

(6) de látom, hogy nálad még be van ragadva a kézifék
(Tibor Kiss: Mari)
'But I can see that on your side the handbrake is still stuck'

In these cases, the referential scene unfolds at two stages. In example (6), at one of the stages, joint attention is directed to the discourse partner's metaphorically construed state of mind, who is objectified as a character of the referential scene. Meanwhile, at the other stage, the speaker objectifies her own metal activity when directing attention to the joint attentional scene itself (cf. Tátrai 2017: 1048). The latter is expressed by a contextualizer clause (for details, see Kugler 2017: 844–848, 874–878), which serves as background for the successful referential interpretation of the following clause. Similarly to contextualizers in the clause which support the easier interpretation and more accurate understanding of the contextualized parts, main clauses functioning as contextualizers facilitate the understanding and the interpretation of the subordinate clause (cf. Halliday 2014: 109; Imrényi 2017: 744–745).

Contextualizing clauses – construing the speaker's or other subjects' mental activity/agency as a separate scene – may also contain contextualizing devices: for example, in the main clause of (6), the conjunction *de* 'but' contributes to the processing of the relationship between different parts of the discourse. Indeed, other types of contextualizing relations may also occur in contextualizing clauses (see e.g. *Sajnos most már én sem tudom, hogy…* 'Unfortunately even I don't know now if...').

Contextualizing clauses characteristically – but not exclusively – give evidence of the functioning of the speaker's stance of consciousness. In (6), for example, the scene is grounded to the actual speaker's person and time as indicated by the Sg1 present verb *látom* 'I can see'.

However, it is not only the speaker's stance of consciousness which can be construed in the contextualizing main clause, but also the stance of consciousness of other subjects (cf. e.g. *Hülye voltál mondom/mondod/mondja, majd ha ez elmúlik* 'You were stupid, I am / you are / she is saying, later when this is over'). In these contextualizing clauses accomplishing perspectivization, the mental activity is grounded to another person and/or time (cf. 2.2). Moreover, in certain contextualizing clauses, mental activity/agency is in the focus of attention without being anchored to a person (see e.g. *Mindezek után nem / nem lesz / nem volt meglepő, hogy…* 'After all this it is / it won't be / it wasn't surprising that...'). However, the common trait of the listed contextualizers is that they all highlight the functioning of the speaker's (or other subjects') stance of consciousness as a context-dependent vantage point in the form of explicit metapragmatic reflections.

4. Conclusion

Focusing on the perspectival nature of language activity and on metapragmatic reflectiveness, we have argued that contextualization, understood as the dynamic generation of context, (i) allows for the easier interpretation and more accurate understanding of the referential scene or specific parts of it (ii) as an integral part of the intersubjective directing of joint attention, (iii) by the activation of relevant background knowledge grounded to the participants' perspective, and (iv) by the exploitation of the reflexive nature of the employment of linguistic constructions. This functional cognitive approach to the notion of contextualization is aimed at the harmonization of syntactic and pragmatic standpoints.

Acknowledgements

This paper was supported by the National Research, Development and Innovation Office of Hungary, project No. K-129040 (Verbal constructions in Hungarian. Research in usage-based construction grammar) and the Thematic Excellence Program of ELTE Eötvös Loránd University, Budapest, Hungary.

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DYNAMISM IN THE HUNGARIAN PREFIX: A COGNITIVE LINGUISTIC APPROACH

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Abstract

The paper gives a cognitive semantic analysis of the Hungarian prefix *fel* 'up'. The prefix *fel* 'up' expresses a dynamic upward direction in real space in its primary meaning, with simulational subjective temporality (as Hungarian prefixes in general denote dynamic directionality). This prefix, as all the others, forms a composite structure with the main verb. The paper discusses (i) the general features of the prefix *fel* 'up', (ii) it argues that the directional meaning of Hungarian prefixes is processed by mental simulation, whith this imaginative simulation as subjective motion including backgrounded temporality, closely related to the inner section of the path, (iii) gives some basic details of the spatial variants of the prefix *fel* 'up' with self-motion verbs, focusing on the verb *felmegy* 'go up', in particular.

Keywords: direction, dynamism, Hungarian, path, prefix, simulation, upwards, verb

1. Introduction

The Hungarian prefix and the prefix + verb construction has been a hot topic in linguistics for almost two centuries. The seemingly transparent, but highly complex structure has been discussed and described in several theoretical frameworks with various methodologies, still struggling with the difficulties coming from the abundance of the types within the general category. While most earlier descriptions approached the construction from the 'building block' perspective, the present overview applies a usage-based and holistic framework. The Hungarian prefix expresses spatial direction in its primary and historically earliest meaning. This directional meaning is connected to a stem verb, forming together a composite structure (in the sense of Langacker 1987). The prefix + verb structure expresses not only a direction + temporal process semantic content, since (to mention only the important factors) (i) the prefix has obtained other functions, among these is its aspectual role: it turns an imperfective verb into a perfective one; (ii) the individual prefix + verb constructions have metaphoric extensions in polysemous networks; (iii) Hungarian prefixes are the products of grammaticalization changes, being at different levels at the moment.

The present paper focuses on (i) the simalutive temporality and (ii) the physical spatial characteristics of the Hungarian prefix *fel* 'up'. I propose that the backgrounded temporality of the prefix is a necessary feature to conceive it expressing space, a path in particular, in a dynamic way, in order to specify the temporal process denoted by the stem verb. The paper gives an introductory analysis of *felmegy* 'go up' in its primary meaning of self-motion, also

DOI: 10.5281/zenodo.3907353 ISSN 2732-1142

showing some variants with respect to the nature of the path and the mutual elaboration processes. The analysis presents the prototypical features of the construction in the theoretical and methodological framework of Cognitive Grammar (Langacker 1987, 2008), cognitive semantics (Talmy 2000; Heine 1997), with certain references to psychology (Pöppel 1997).

2. The spatial semantics of the Hungarian prefix

The general semantic features of the Hungarian prefix are as follows:

- its meaning is schematic,
- it expresses a spatial relation, direction in particular (in its primary meaning),
- its conceptual system has a topological nature,
- it is dynamic, i.e. it is processed by imaginative simulation.

The default meaning of the Hungarian prefix is schematized to a great extent. It is construed of the spatial relations of two schematic figures within the basic concept of direction. One figure, the primary one, i.e. the trajector with the conceptual content PHYSICAL OBJECT is placed in the focus of attention. The spatial position of this figure, as a schematized physical object, is construed according to its own dynamic direction UPWARDS, DOWNWARDS, INWARDS etc. in space. Within this attentional frame, the trajector is related to a complex secondary figure, the landmark. This landmark is construed as a specific spatial structure, more precisely a directional spatial extension of the SOURCE–PATH–GOAL cognitive model.

To give one example, detailed below: *fel* 'up' denotes an upward direction: a path is construed as a spatial sequence of component states, each a bit higher related to the spatial position of the conceptualizer (the speaker in the default case), as in (1). This is called subjective motion by Langacker (2012). In the second part of the paper I argue that this subjective motion includes conceived time.

(1) fel 'up'

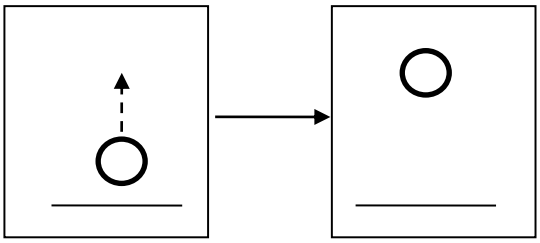

Figure 1. The starting and end point of the prefix *fel* 'up'

In the default case, the prefix forms one component structure with a verb as the other component, together in a composite structure. The baseline here usually is motion: in an everyday event a physical object is construed as moving along a path upwards, as demonstrated in (2–3).

(2) felmegy
up go

(3) A lány felmegy a lépcsőn.
the girl-NOM up-go-PRES.3SG the stairs-SUPERESS
'The girl is walking up the stairs.'

In (3) the agent (the girl) is staying at the lower end of the stairs at the starting phase, at the end phase she is at the upper end. The upwards direction of the motion event along the path is construed by the *fel* 'up' prefix, in a composite structure with the verb *megy* 'go, walk'. In the prototypical case, this direction is conceptualized in a reference frame. The speaker is the central reference point, staying on the spatial level of the starting point of the motion event; while the starting spatial position of the path is another reference point.

In this sense, direction is not a line viewed from one end by the conceptualizer in a static manner, but processed as a path with a starting and endpoint, processed by mental imagination, simulating the passing of the course (the intermediate configurations) along the path. The path, expressed as a substructure in the prefix, directed towards a certain (variable) direction is situated with respect to the spatial position of the conceptualizer who serves as a reference point at the moment of conceptualization. This reference point is also perceived by the same conceptualizer in a self-reflexive way, at least in the default case.

For the experiential interpretation of direction, the term directionality would be the better term. In the technical sense, direction is interpreted as dynamic direction in the present paper. This view harmonizes with the Oxford English Dictionary, entry direction, meaning no. 9: "The particular course or line passed by any moving body, as defined by the part or region of space, point of the compass, or other fixed or known point, towards which it is directed; the relative point towards which one moves, turns the face, the mind etc.; the line towards any point or region in its relation to other lines taken as known" (OED 735).

Many types of spatial relation can be construed by *fel* 'up'in the physical domain, even with self-motion verbs, depending on the verb type and the spatial position of the conceptualizer. But first the dynamic nature of the Hungarian prefix should be discussed. Dynamism here is connected with temporality.

3. Temporality and the dynamic nature the prefix

Linguistic expressions denoting direction are researched extensively, prepositions in English and other Indo-European languages in particular. Still, the temporal content of these grammatical units has remained out of focus, with most researchers focusing on the atemporal nature of prepositions. Langacker, however, has described temporality in prepositions, in relation to sequential and summary scanning, and conceived and processing time, in his Cognitive Grammar. Hungarian prefixes show some similarities to English prepositions, but also significant differences. One such difference is dynamism based on simulated temporality that prevails in prefixes. This feature is described as follows.

Temporality in linguistic expressions is based on the human mental experience of time. The notion of temporality as a system of discrete temporal sampling phases and the subjective feeling of temporal continuity has been worked out by Pöppel (1994, 1997). In view of Pöppel's investigations, "the apparent continuity of time is a secondary phenomenon – actually an illusion – which is only made possible by discrete information processing on different temporal levels […] Experimental evidence suggests the existence of at least two processing systems employing discrete time samplings. These presumably independent processing systems are hierarchically linked with each other" (Pöppel 1997: 107). One of these processing systems is "a high-frequency processing system generating discrete time quantita in the domain of approximately 30 milliseconds", its temporal unit is the primordial event (Pöppel 1997: 107–108), the other one is "a low-frequency processing system, which is operative in the domain of 2 or 3 seconds" (Pöppel 1997: 108), this domain being the perceptual moment. It is also

relevant how the shortest temporal durations are distinguished: "to establish distinct events that are related to each other such that their temporal order can be indicated, the shortest temporal interval is observed in the domain of approximately 30 milliseconds" (Pöppel 1997: 109). „While the high-frequency mechanism discussed above is thought to organize distributed neuronal activities and to implement "primordial events", a low-frequency mechanism appears to integrate successive events within a temporal window of approximately 2 to 3 seconds" (Pöppel 1997: 113).

Perhaps it is not a kind of overgeneralization to propose that the temporal features and sequentiality of Pöppel's primordial units correspond to the processual structure of Langacker's sequential scanning, the component states of conceived time.

Approaching the temporal nature of the Hungarian prefix, I start out from Langacker's notion of time and scanning. There is a definite difference between conceived time and processing time (see Langacker 2008: 79). Conceived time is the temporal content of the construed scene (e.g. in a clause), while processing time is the time needed for the mental processes of comprehension. The two are related not only via epistemic grounding, but also through the differences between the durations.

Langacker's Cognitive Grammar posits two ways of processing, related to processing time (Langacker 2008: 111): sequential scanning and summary scanning. Temporal events are processed sequentially, i.e. the component states of the event are processed through processing time, in the order of their occurrence. On the other hand, things and atemporal relations are processed by summary scanning: while the states of the things or relations are accessed in a "natural sequence", these states "are mentally superimposed, resulting in their simultaneous activation".

For English prepositions, the static – dynamic alignment is described by Langacker by reference to simplex or complex relationships: "In the case of spatial expressions, a simplex preposition specifies a single location: in the garage; under a tree; near the exit. In contrast, a complex preposition describes a series of locations amounting to a spatial path: into the garage; along the river; through a tunnel" (Langacker 2008: 117). Nevertheless, prepositions are processed by summary scanning here, since the preposition construes the component states (whether it has one or more) atemporally, temporality is absent or in the background: "In expressions like the road into the forest, the spatially extended trajector (the road) simultaneously occupies all the specified locations vis-a-vis the landmark. Here there is no development through time, since the entire spatial configuration obtains at any one instant. (The expression does tend to evoke the idea of something moving along the road, but this is tenuous and unprofiled.)" (Langacker 2008: 118, fn 23).

Langacker's explanation of the English prepositions does not give the real answer to the dynamic nature of the Hungarian prefix. One solution lies perhaps in imaginative simulation. Conceptualizers often build up scenes mentally through imagination, when simulating an event. As Gibbs and Matlock suggests (2008: 164): "people can readily, and mostly unconsciously, create simulations of real-world events as they communicate with others, hear stories, solve problems, and even perceive motionless displays. Psycholinguistic studies also demonstrate the importance of embodied simulations in ordinary language understanding". It also worth to note that "embodied simulation may not be something restricted to creating and understanding ad hoc categories, which include novel metaphors but are applied when common taxonomic categories are accessed as well" (see Barsalou 2003, 2008; Matlock 2017). Through mental simulation the conceptualizer runs along an event as an imaginative process.

The imaginative processing focuses on events taking place in conceived time, i.e. in the sequence of component states. Direction as construed and schematized in Hungarian prefixes

is a special case of imaginative processing: the mental simulation has a serial nature, and not only in processing time, but in conceived time, too. The simulative scanning of the path with dynamic directionality includes the simulated temporal sequence of its component states. This temporal nature is not profiled (cf. Langacker 2008: 118, fn 23), but it has its function in the construal of directionality. There is no moving object, no real motion, no real velocity, but all these are imagined, simulated. In many cases even the path itself is not visible, bounded and fixed (as a footpath, a corridor or a motorway): the region of human body motion is air, 'empty space', and while motions of a hand, for instance, do have paths, these are not perceivable in advance, only in entrenched types. That is the very nature of Langacker's serial subjective motion, at least, in the case of Hungarian prefixes.

Certainly, a path can be processed as a Gestalt, through summary scanning. But in that case the path construed so does not imply directionality.

(4) The footpath in the park is popular for joggers.

But this is not the type we have in the case of Hungarian prefixes. The difference can be demonstrated by the concepts IN and INTO. The English preposition *in* profiles the state of being inside, within a bounded space without any change, and with no suggestion of a previous state (e.g. being out of that bounded space). Conceived time has no relevance here, if only the existence of that state is within the scope of attention. This relation is processed by summary scanning.

The preposition into profiles the dynamic path that leads from an outer space into a bounded space, through its border ('being directed into something'), including the simulated passing along a path with starting point, intermediate phases and endpoint. Conceived time has relevance here, this simulated passing is construed by temporal sequence, though in the background.

Hungarian case suffixes have a topological nature, most of them denote some spatial relation (including inessiv *-bAn* 'in' and dativ *-nAk* 'to, towards, for'), and are closely related to prefixes, both etymologically and semantically. With respect to dynamics, case suffixes have two distinct groups, one static (as in (5)), and one dynamic (see (6)), in the case of inessiv *-bAn* 'in' and illative *-bA* 'into'.

(5) házban
house-in
house-INESS

(6) házba
house-into
house-ILL

With prefixes only dynamic construal is used, as in (7), with the same semantic content of 'in':

(7) bemegy
into-go
PREFIX-VERB

4. The spatial variability of the prefix *fel* 'up'

The prefix *fel* 'up' is a highly frequent and productive grammatical unit. This prefix has a rich polysemous network, with the academic Hungarian dictionary (Pusztai (ed.) 2003: 355) listing fourteen senses. Also, since every prefix is used with verb stems in composite structures, the dictionary lists 685 *fel* + verb entries, which is still far from their totality. This abundance comes mainly from the spatial relation between the *fel* prefix and the different verbs used with it. The spatial variability of *fel* 'up' has been investigated in detail by Fazakas (2007) with the prefixes *le* 'down' and *alá* 'below', adopting a version of cognitive semantics, elaborated by Szilágyi N. (1996). Her research analyses data taken from a huge historical corpus, setting up categories according to certain parameters: the direction of the motion, the bounded or unbounded feature of the region, the physical properties of the path, and the nature of the moving object (the latter roughly in the sense of Langacker's trajector). Szili (2009) gives a taxonomic overview of the prefixes *fel* 'up' and *le* 'down', using a classifying structuralist semantics, combined with Lakoff and Johnson's metaphor theory.

According to the short description in Section 1, the prefix *fel* 'up' denotes an upward direction: an entity (the trajector) is directed in physical space upwards on a path. The trajector is at the lower end of the path at the starting phase, and it is at the upper end at the end phase. The position of the starting point of the path (the landmark) is low, the end point is high, the path ascends from the lower starting point to the higher end. In the sense of physical space, this is a unidirectional direction (just as in the opposite case of *le* 'down'). In the default case, the starting point is the lowest point of the path as physical space, a firm surface, while the end point is rather an open space (e.g. air, even in a larger bounded space, in a room, hall, any roofed space), within the reachable spatial domain for the motion or object manipulation. The trajectory is a physical object, it can move or it is movable.

Also, the physical spatial directionality of *fel* 'up' is processed in the current reference frame (cf. Heine 1997). This reference frame comprises at least two reference points. One is the cardinal one, verticality. The other one is the conceptualizer, the speaker in the default case. These reference points function in scenes where the fel 'up' prefix stands for a complete answer, in an informal dialogue like (8):

(8) A: Hová mégy?
'Where are you going?'
B: Fel.
'Up.'

The answer implies something like 'going upstairs' or 'going up the attic'. In (8) the interlocutors have the necessary knowledge of the spatial conditions of the current discourse space. For instance, they are staying in their family house, at the ground floor or the ground level in the garden. Within this frame of reference, the path along which speaker B is moving up starts on the ground level, and ends upstairs or up in the attic. Although the interlocutors know the way up well, the processing of the current upward motion goes through simulative imagination, since the action of going up will be completed only after the dialogue, and speaker A does not necessarily perceive the action itself.

I give some details of he spatial variability of *fel* 'up' in two respects: frame of reference and motion expressed by the verb.

The typical instances of the prefix *fel* 'up' according to the types of reference point are as follows (based on Heine 1997).

a) The reference point is the human body of the conceptualizer, the upward direction is related to the canonical upright position of the human body, from the lower part to upper one (over the head), the trajector of the motion (direct object in the clause) is part of that same body:

(9) felemelem a kezemet
up-lift-PRES.1SG the hand-POSS.1SG
'I lift my arm.'

b) The main reference point is the human body of the agent (the trajector), the primary landmark of the motion (direct object in the clause) is the book (the physical object moved by the hand belonging to the same body):

(10) felteszi a könyvet a polcra
up-put-PRES.3SG the book-ACC shelf-onto
'She puts the book on the shelf.'

c) The reference point is a physical object or landmark, conceived within the frame of reference:

(11) Péter felmegy a dombra
Peter up-go-PRES.3SG the hill-onto
'Peter climbs the hill.'

d) The reference point is a cardinal:

(12) az expedíció felmegy északra
the expedition up-go-PRES.3SG north-onto
'The expedition heads towards North.'

Since the upward direction in the prefix *fel* is construed on a highly abstract and schematic level, it is the verb and also the clause that elaborates, specifies the upward path, while the prefix elaborates certain constraints of the process, too. The upward direction is elaborated first by the verb stem. Concentrating only on motion verbs, let's take first one of the most frequent verbs, *megy* 'go' with the prefix *fel.* In the case of self-motion, the primary participant of the clause with *felmegy* 'go up' is prototypically a human being, accomplishing a walking motion with change of location in physical space based on inner will and energy source. This feature precisely matches to the schematic semantic content of the trajectory of the verb as the nominal elaborates the trajector in the clause. The primary meaning of *felmegy* is: [someone] gets herself to a higher position by walking from a lower position in physical space based on her own volition and energy source.

(13) a. felmegy
up-go

b. A gazda felment a padlásra.
the farmer-NOM up-go-PAST.3SG the attic-SUBL
'The farmer went up to the attic.'

c. A gazda a létrán felment a padlásra.
the farmer-NOM the ladder-SUP up-go-PAST.3SG the attic-SUBL
'The farmer went up the attic on the ladder.'

The semantic description of the primary meaning of the verb (i.e. prefix + verb unit) *felmegy* is presented as follows:

- the manner of motion: active, human walking motion based on inner will and energy source,
- speed: average, nonspecific,
- temporal duration: non-specific,
- temporal starting and end points: the starting point of the process is outside, the end point is within the immediate scope (the profiled semantic part),
- the force dynamic structure of the motion: it comprises the average physical effort needed for upwards (tilted, not vertical) human motion by walking,
- spatial starting and end points: the starting point of the process is outside, the end point is within the immediate scope.

The *fel* 'up' prefix has some specific features within the *felmegy* 'go up' unit in the construal:

- the physical nature of the path: there is physical support from below, though in the background, not profiled (ground support for motion designated by *megy* 'go' is inherent; the prefix *fel* does not schematize support), has a schematic endpoint, unspecified by the sides, and the physical medium of the path is unbounded from above;
- direction of the path: ascending, with varying degress of steepness between mild ascent and the almost vertical rise;
- the direction of the upward path is mentally processed with simulated temporality (subjective motion);
- the inner section of the path is continuous, only the seriality of the episodic steps of walking divide it into parts (if at all) – this is the point where the simulative sequential but backgrounded temporality of the prefix meets with its spatial character, activated by the motion verb;
- the construal features of the path are adjusted to the verb and to other complements in the clause by elaboration processes.

The features listed above function in a spatial reference frame as a default, with the conceptualizer as the primary reference point. The accessible operation schemas of cognition determine the parameters of this spatial reference frame, and not the geometric (physical) coordinates. The spatial reference frame is set up from a human perspective; the direction upwards, the imagery path is related to the position of the human body (the conceptualizer's body) as experienced when standing on the ground (the floor) (c.f. Heine 1997; Fazakas 2007: 40). The primary meaning of *felmegy* 'go up' instantiates this reference frame, as in (13b) and (13c): in these situations the attic is related higher to the spatial position of the speaker (the conceptualizer) while uttering the clause, when construed within the real or imagined spatial vicinity of the event.

The verb *felmegy* 'go up' has semantic varieties when adjusted to specific spatial positions serving as the end point (the goal) and consequently manners of the motion. In (14–16) the

manner of motion differs from mere walking. (14) includes steep walking or climbing, often on a ready-made path with diverse degrees of steepness. (15) implies a ladder and climbing, no walking, the path is steep. The motion expressed in (16) needs grasping and stepping the path is (almost) vertical, along the trunk of a tree.

(14) felmegy a hegyre
up-go the hill-SUBL
'climb the hill'

(15) felmegy a tetőre
up-go the roof-SUBL
'climb the roof'

(16) felmegy a fára
up-go the tree-SUBL
'climb the tree'

In the clauses (14–16) the implied nature of the divers paths show their role in the construal: the inner section of the three paths differ in the episodic steps (component states) of climbing. These component states are conceived sequentially in the simulation, but differently, related to the same verb *felmegy* 'go up'. Stated above first, now demonstrated in direct examples, this is the point where the simulative sequential but backgrounded temporality of the prefix meets with its spatial character, activated by the motion verb, since the motion itself varies, expressed by the same verb, but adjusted to the imagined path.

In other cases, the type of the path itself is expressed as a complement of *felmegy* 'go up'. A ladder has an average steepness requiring feasible effort for upward human motion, with regular steps for walking; that is the semantic content of the path in (17). The scaffold demands a special upward climbing, even when provided with (steep) ladders.

(17) felmegy a lépcsőn
up-go the ladder-SUPERESS
'step up the ladder'

(18) felmegy az állványon
up-go the scaffold-SUPERESS
'step up the scaffold'

Verbs of self-motion other than *megy* 'go' also have some role in the construal of upward motion, where the upward direction is expressed by the prefix *fel* 'up'. In (19) the verb expresses the extra effort needed to climb the (steep) ramp, while in (20) the verb implies that the moving body has to grasp parts of the prototypically vertical wall in order to get higher.

(19) felkaptat az emelkedőn
up-climb-slowly the ramp-SUPERESS
'climb slowly up the ramp'

(20) felkúszik a falon
up-climb the wall-SUPERESS
'climb up the wall'

These features demonstrate that the components of the Hungarian prefix + verb composite structure form a complex grammatical (semantic and morpho-syntactic) unit. Both components have some influence on the other, and both are adjusted to the other, at the same time.

5. Summary

The paper presented a cognitive semantic analysis of the Hungarian prefix *fel* 'up', concentrating on the basic factors and features. As it was demonstrated, the prefix *fel* 'up', as Hungarian prefixes in general, expresses a dynamic direction in real space in its primary meaning, upward in this case, with simulational subjective temporality. This prefix, as all the others, forms a composite structure with the main verb. The paper discussed (i) the general features of the prefix *fel* 'up', (ii) it argued that the direction in Hungarian prefixes is processed by mental simulation along the path, scanning the component states, whith this imaginative simulation as subjective motion including backgrounded temporality, (iii) gave some basic details of the spatial variants of the path expressed by the prefix *fel* 'up' with self-motion verbs, focusing on the verb construction *felmegy* 'go up', in particular, and also mentioning other constructions specifying the features of the path and the manner of motion.

Acknowledgements

This paper was supported by the National Research, Development and Innovation Office of Hungary, project No. K-129040 (Verbal constructions in Hungarian. Research in usage-based construction grammar) and the Thematic Excellence Program of ELTE Eötvös Loránd University, Budapest, Hungary.

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Information for Authors

Manuscripts are to be submitted electronically to Szilárd Tátrai at tatrai.szilard@gmail.com.

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Highlighting: in the body of the text, use italics for linguistic data, small caps for names of concepts, and bold face for emphasis. Numbered examples (containing words, phrases, clauses, or longer excerpts) should be set in regular font style, intented, and numbered with a single list throughout the paper.

(1)
(2) a.
b.

Hungarian examples, especially those with relevant internal morphosyntactic structure, are to be supplied with interlinear morphemic glosses and translation, as in the example below:

(1) A fiú becsukta az ablakot.
the boy-NOM PERF-close-PAST.3SG the window-ACC
The boy closed the window.

For in-text citation, use the following conventions:
... as Kocsány (1996: 55) explains, ...
... as Kocsány (1995: 287–289, 1996: 55–59) explains, ...
... the main points are as follows (see e.g. Langacker 1987, Barlow–Kemmer 2000, Geeraerts–Cuyckens eds. 2007)

Use footnotes, not endnotes.

In the list of references, follow the conventions illustrated below.

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