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THE QUESTION OF CONTROL IN BILINGUAL SPEECH PRODUCTION IN DIFFERENT LANGUAGE MODES

INTRODUCTION

The study of bilingual speech processing is tightly connected to the presumed storage theories. Attempts have been made to clarify whether bilinguals store information about a word and its associations separately for each language or they process words in terms of their semantic meanings and represent them in one memory store, independently of the language in which they appear. More recently, language fluency has been taken into account when considering the above question, and as a result, according to the hierarchical model of bilingual memory representation (Kroll/Stewart 1994), the single- versus dual-store differentiation has been resolved. It has been found that less fluent bilinguals appear to have a dual-store, and the more fluent ones, a single-store conceptual representation. This model proposes that the conceptual store is connected to both L1 and L2 lexicons. However, the connections between the L1 lexicon and the conceptual store are strong and direct, whereas the connections between the L2 lexicon and the conceptual store are weak. Thus, the subject's L1 is more likely to access the conceptual store directly than the subject's L2. Heredia in his Second Revision (R-2) Hierarchical Model suggests using MDL (more dominant language) and LDL (less dominant language) instead of L1 and L2 based on the simple fact that in many cases L2 becomes more dominant than the earlier acquired L1. In this way, MDL has a stronger and more direct connection to the conceptual store regardless whether it is the L1 or the L2.

The natural flow of speech is always checked by a monitoring mechanism (Levelt 1989), i. e. speakers can detect their own speech errors by parsing their own inner and overt speech in the same way as they parse the speech produced by others. Thus monitoring is an integral part of the production process concerning lexical selection, phonological encoding, structural building, stylistic selections, resolving semantic ambiguities, etc. If an error is detected in the speech production process, further processing is cancelled, or at least suspended as long as the error is repaired. According to the "hold-up" type of monitoring, all errors are repaired covertly, i. e. before articulation (Laver 1980). In contrast, Levelt (1989) argues for a flow-through monitor, which allows for the production process to go on, and thus, prearticulatorily detected errors may become overt. Levelt's Main Interruption Rule (MIR) poses that the flow of speech is interrupted as soon as error has been detected, and the time between the cutoff and the repair is used for planning the self-repair. Blackmer/Mitton (1991) observed no cutoff

time before the repair, which implies that the planning of the repair must have occurred during the flow of speech. Van Hest (1996) demonstrates that in fast speech the monitor is able to keep up with the increased speed of conceptualizing. Certain disfluencies, i. e. filled pauses and repetitions, are regarded as by-products of covert repairs, resulting from errors detected at an early time when the error does not become overt. Concerning the disfluencies in the spontaneous speech of Hungarian monolinguals, see Gósy (2002).

In bilingual speech production, another concern is in the focus of attention regarding to what extent the language mode (Grosjean 1995) the bilingual is in determines the monitoring mechanism. Is there a difference between the fluencies of speeches delivered in the monolingual and the bilingual language modes?

In what follows, the speech production of bilinguals in both language modes will be analyzed with a special emphasis on code-switching and types of disfluencies. The working hypotheses are as follows:

(i) the number of code-switches will be bigger in the bilingual language mode;
(ii) the number of hesitations, silent and filled pauses and repetitions will be bigger in the monolingual mode;
(iii) the number of speech errors will be bigger in the bilingual mode;
(iv) speech rate will be faster in the bilingual mode.

All the assumptions are based on the principle that in the bilingual language mode, due to the less control, speech is more fluent, and the speaker is not expected to monitor his/her speech as strictly as in the monolingual one.

SUBJECTS AND METHODS

Twenty-two bilinguals (13 female and 9 male, age 8–68, average age 29) living in Hungary participated in the experiment. The subjects did not have any speech or hearing disorders. They were all bilinguals, whose L1 or L2 was Hungarian. However, they are not homogeneous in terms of the onset of bilingual acquisition: some belong to the bilingual first language acquisition category, whereas others became bilinguals at later ages. All are fluent speakers of both of their languages, though some of them have some accuracy and appropriateness deficiencies.

The subjects were shown four series of comics, each consisting of six pictures and were asked to make up a story based on each series in both of their languages, respectively. 11 of them were in the monolingual, and 11 were in the bilingual language mode. The narratives were audio-taped, transcribed, and analyzed. Speech rate measurement was based on spoken syllables per second, types of speech errors; disfluencies and repetitions were studied

in both languages. Code-switching was in the focus of attention as well, and boundaries at which self-repairs started were also analyzed.

RESULTS. DATA ANALYSIS

Speech rate

Time was measured from the onset of the first syllable to the offset of the last syllable, and the number of syllables was determined. Speech rate was calculated as the number of syllables per second. Pauses were not excluded.

There were more syllables uttered per second in the Hungarian texts on average, i. e. the Hungarian narratives were all faster than the ones produced in the other language. A paired samples *t*-test showed some differences in speech rates between the narratives uttered in the different languages. It demonstrated a significant difference in stories 1a and b [$t = 2.168$; $df = 22$; $p = 0.041$], where the average syllable/s was 3.421 in Hungarian and 2.929 in the other language, and in 4a and b [$t = 2.636$; $df = 22$; $p = 0.015$], where the average syllable/s was 3.233 in Hungarian and 2.751 in the other language. However, the differences in stories 2 and 3 are not significant.

The Pearson correlation test demonstrated a significant correlation [$p < 0.05$; $r = 0.51$] between the numbers of spoken syllables per second in the two texts, i. e. if they uttered more syllables in L1; they did so in L2, too. Although in speech rate L2 is left behind, the lag between the two speech rates is proportional. However, no correlation can be observed in the ages of the subjects and their speech rates (cf. Gósy 1988; Kassai 1993). It is neither the youngest nor the eldest subject whose speech rate is the slowest, and the data in the light of age are rather diverse.

Number of disfluencies: silent, filled pauses, repetitions and self-repairs

As a working hypothesis, subjects in the bilingual language mode were supposed to make more mistakes, the number of repetitions, self-repairs and hesitations were expected to outnumber the ones in the monolingual language mode. *Tables 1* and *2* distribute the results in terms of speech disfluencies according to the appropriate categories.

Subjects in the monolingual language mode uttered fewer words but they also made fewer hesitations and disfluencies than those in the bilingual mode. The difference in the total number of words uttered in the two language modes is significant, as is demonstrated by the Independent sample *t*-test with the average number of words 706.72 in the bilingual and 532.9 in the monolingual modes [$t = 2.118$; $df = 20$; $p = 0.047$]. This suggests that subjects in the monolingual mode process the language more slowly, and the slower speech

rate allows for constant monitoring covertly, i. e. in a way that they do not need to break their flow of speech as often as those in the bilingual mode do. The amount of cutoff is 5.27 % in the bilingual and 4.58 % in the monolingual mode.

Name	L2	mode	repetition	pause	Self-repairs	Total No. of disfluencies	Total No. of words	%
Lóri	Serbian	bilingual	1	11	5	**17**	570	**3**
Erika	English	bilingual	2	23	0	**25**	836	**3**
Nagyezsda	Russian	bilingual	0	16	4	**20**	567	**3,52**
Christa	German	bilingual	6	35	2	**43**	977	**4,4**
Irina	Russian	bilingual	3	36	8	**47**	765	**6,1**
Galina	Russian	bilingual	1	44	7	**52**	774	**6,7**
Tim	English	bilingual	1	61	10	**72**	1036	**6,9**
Olivia	English	bilingual	5	27	7	**39**	520	**7,5**
Mark	English	bilingual	3	65	0	**68**	777	**8,75**
Christopher	English	bilingual	10	32	12	**54**	570	**9,5**
Tamás	English	bilingual	2	60	1	**63**	382	**16,5**
Total			**34**	**410**	**56**	**500**	**7774**	**6,4**

Table 1: Rate of speech disfluencies in the bilingual mode

Name	L2	mode	Repetition	Pause	Self-repairs	Total No. of disfluencies	Total No. of words	%
Kriszta	Serbian	monolingual	2	11	4	**17**	887	**1,9**
Katalin	Romanian	monolingual	1	16	6	**23**	724	**3,2**
Zorán	Croatian	monolingual	2	12	10	**24**	560	**4,3**
Gabi	Croatian	monolingual	0	14	3	**17**	386	**4,4**
Anna	Serbian	monolingual	4	17	1	**22**	499	**4,4**
Tibi	Russian	monolingual	1	14	3	**18**	336	**5,4**
Janic	Croatian	monolingual	0	31	3	**34**	516	**6,6**
Emese	Serbian	monolingual	2	22	4	**28**	387	**7,2**
Szása	Russian	monolingual	20	35	9	**64**	734	**8,7**
Julianna	Croatian	monolingual	10	56	4	**70**	514	**13,6**
Szabina	Croatian	monolingual	3	41	5	**49**	319	**15,3**
Total			**45**	**269**	**52**	**366**	**5862**	**6,2**

Table 2. Rate of speech disfluencies in the monolingual mode

Results concerning the average number of disfluencies in speech do not differ significantly in the two language modes with an average of 45.45 in the bilingual and 33.27 in the monolingual modes.

Out of the total amount of disfluencies occurring in the two language modes, 11.2 % in the bilingual and 14.2 % in the monolingual were self-repairs. They emerged due to phonological uncertainties (six in each mode, respectively), accuracy, and appropriateness deficiencies (38 in the bilingual and 40 in the monolingual mode). Accuracy problems concerned mainly uncertain case-marking, number agreement, use of prefixes. Gender processing difficulties were also met, but the major problem was that of semantic character. Owing to the presumed stricter accuracy and appropriateness control, subjects in the monolingual mode were expected to have made more self-repairs. However, it was not the case. The total number of self-repairs are almost equal (38 vs. 40) in the two language modes.

Repetitions occurred in 6.8 % in the bilingual, and 12.29 %, almost twice as many, in the monolingual mode. This might be due to different strategies in speech production. Repetitions, just like pauses, are used to gain time for planning. Subjects in the monolingual mode rather repeat the words, thus trying to keep themselves in the same language context, whereas the ones in the bilingual mode cut off their flow of speech presumably to search in the lexicon in order to match the words with the concepts. Subjects in the bilingual mode do not need to stick to one language because of the loose language control.

Code-switches

There were 11 subjects, who did not code-switch at all in any of the narratives: 5 of them in the monolingual, 6 in the bilingual language mode. 7 people switched once (4 in the bilingual, 3 in the monolingual), one person being in the monolingual mode switched three times, and three people switched four times, three times in the monolingual, and once in the bilingual language mode. In the Hungarian version of the first story, there were two code-switches, both from Hungarian to the other language – both subjects were in the bilingual mode. At the same time, in the same narrative uttered in the other language, there were four code-switches, all from the other language to Hungarian, and the subjects were all in the monolingual mode. In the second story, two code-switches occurred in the bilingual mode, and four in the monolingual mode. However, among the latter ones, two were due to erroneous retrievals from the 'wrong' lexicon. The subject in the monolingual mode and in the Hungarian context, switched to Croatian because of the phonological similarities of the target and the intrusion. (see further on in the Discussion). In the third story, there were two switches in the bilingual and one in the monolingual mode, whereas in the fourth story two code-switches occurred in the bilingual and five in the monolingual mode. All the switches from Hungarian to the other language occurred in the bilingual mode, and all the switches from the other language to Hungarian happened in the monolingual mode except the two mentioned above. When telling the story in Hungarian, it was only the ones in

the bilingual language mode who code-switched. However, when using the other language, only three code-switches happened in the bilingual, as opposed to 12 in the monolingual mode. As the number of code-switches is very small, it is assumed that the base language of the interview also influences the subjects' language behavior.

DISCUSSION

In the present study, a systematic investigation was made of the control during bilingual speech production in both the bilingual and the monolingual language modes. One of the goals was to find out how speech rate differed in the subjects' production in both of their languages. The general assumption is that the speech rate was faster when making up the stories in Hungarian. The exceptions to this are bilinguals who may be considered dominant in their other language. Christa, Galina, Nagyezsda and Mark became bilinguals in their twenties. Although they have been living in Hungary for over twenty years, they use their first language more often than Hungarian. They were all in the bilingual mode during the test. The proportion of disfluencies in their speech ranged from 3.52 % to 8.75 %. These subjects used the same strategies: the fewer pauses they made, the smaller was the number of repetitions and self-repairs, as well. However, the number of different disfluencies does not correlate in Mark's speech: he made the biggest number of pauses, but hardly ever any repetitions, and there were no self-repairs at all. He takes time while accessing the required word and the retrieval process is not filled by any forms of hesitation. Only two of them code-switched for one word: *DEBRECENI sausage*, and *зовёт их быстро: SZÁLLJATOK BE!* In the first case, it is a kind of Hungarian sausage, and in the second one, the people sitting in the car call the others standing in the rain to get in, in Hungarian. It is a situational code-switch; the subject puts the whole story into a Hungarian context, even though she is telling the story in Russian.

Balanced results were obtained from three subjects, Erika, Irina and Tim, who were also in the bilingual mode. Tim has the second biggest number of pauses and self-repairs. Erika code-switched four times (*LOOKS LIKE a kutya haragszik* = looks like the dog is angry; *hozza neki a HOT DOG-ot* = brings him the hot dog; *he goes and brings a WIENER for the doggie; OH MY GOD, valami helyre megy …* = oh my God, he goes to some place …) but Tim and Irina did not code-switch at all. In Erika's code-switches, two are names of the sausage, and two are phrases at the beginning of the stories.

In all the other cases, the average number of syllable per second was bigger in the Hungarian texts than in the other language. There were especially big differences in Janiè's, Julianna's, Gabi's and Emese's cases. Julianna and Emese are members of the Hungarian minority in Croatia and in Serbia, respectively. They are Hungarian dominant bilinguals; they themselves acknowledge that they have a lower proficiency in their other language, especially

now that they study in Hungary. Gabi is a member of the Croatian national minority in Hungary. Although she studies Croatian at college and speaks in Croatian at home, she is also a Hungarian dominant bilingual. Interestingly enough, Janič, who is a Croatian living in Hungary, seems to have balanced means in the two language performances in spite of the fact that he has been speaking the Hungarian language for only 6 years. His language competence seems to be even better in Hungarian than in Croatian, but this may be because his being in the monolingual mode, he may have thought that nobody would check whatever he was saying in his other language. For these people the motivation in speaking good Hungarian is bigger than it is in the other language because they wish to adjust to the Hungarian society.

The reason why the speech rates of the Hungarian texts were faster must have been in connection with the settings, too. This was a part of several experiments, all conducted in the Hungarian language. Although the subjects were not restricted in language choice, i. e. they were allowed to use either of their languages in the other parts of the test; the interviewer used Hungarian as the base language.

Finally, it is interesting to note that the fastest narratives were uttered by the Serbian and Russian bilinguals, all are young adults. On the contrary, the slowest ones were uttered by English and Croatian subjects. The Croatians and one of the English were Hungarian dominant, but the other two English subjects were children (ages 8 and 10), which supports Gósy's finding (1998) that children in general have a lower speech rate than adults. However, there is no straightforward answer to the question of age and speech rate in our corpus. As a result, it can be stated that speech rate might be influenced by the language type and, to some extent, the subject's age as well.

In terms of disfluencies, it can be claimed that fewer syllables per second generated much fewer disfluencies in the monolingual mode. The most frequently occurring disfluencies were silent or filled pauses in both modes, though those in the bilingual mode outnumbered the ones in the monolingual (500:366). During the bilingual mode, both languages are activated, and so the path the subjects are to go along for the retrieval of the correct word, for phonological encoding or the selection of the required grammatical structure must be much more complicated to get through. Along this path, monitors are distributed. If an error is detected during one of the stages of the speech production process, further processing is cancelled. Some disfluencies like pauses and repetitions are regarded as by-products of covert repairs detected and corrected at such an early point that the error does not become overt (Oomen/ Postma 2001). Another suggestion is that disfluencies are the result of planning or temporal problems in speech production. At this point, it is hard to determine whether disfluency in overt speech has resulted from covert repairing activities or from other planning difficulties.

When fluency breaks down in speech, speakers frequently repeat words. Au-Yeung, Howell/Pilgrim (1998) have shown that word repetition happens on function words, in

general, and thus function words have a similar role to pausing. Fluency failures on content words may occur when the speaker commences saying the word when only the first part of the plan is ready (Howell et al. 1999).

Contrary to Au-Yeung, Howell and Pilgrim's findings, in our data, repetition concerns content words, too. *Table 3* distributes a list of repetitions and restarting where content words are much more involved than function words. In some cases, repetition includes segment, part-word (e. g. *barát- barát*ságban, *бросила бума-бумажки*, *cu-cu*caka, *pi-pi*ano), word (e. g. *муж-муж хозяйки*, *könyörög…könyörög neki*, *i brzo otišao otišao kući*, *otthon hagyta … hagyta ő*), and phrase repetition (e. g. *a kutya … a kutya*, *a man … a man*). These stuttering-like repetitions on content words occur when the speaker is not totally ready with the planning process (Howell/Sackin 2001).

Parts of speech	**Repetition, restarting**	
	Monolingual mode	**Bilingual mode**
Nouns	*Barát- barát*ságban vannak;	*Egy ko-, egy ko*lbászt.;
	*A kuty… a kut*ya meglátja;	*Pi-pi*ano;
	*Opera… opera*énekesnő;	*A man, a man* sees it;
	хо-хо-хозяин;	*A kutya, a kutya* egy másik autóval utazik.
	*Cu-cu*caka	*Szerencsé-szerencsé*re;
	женщи-женщина;	бросила *бума-бумажки*;
		муж-муж хозяйки;
Verbs	*показ- показила*;	I brzo *otišao otišao* kući;
	Könyörög…könyörög neki;	*Néz-né*zegeti az akváriumot;
	Otthon *hagyta… hagyta* őt;	*Éne-éne*kelni;
	и на пианине *попробовает* и *попробовает;*	*Go-go*es away;
	изо- изо - изображена;	*Odame-, odamegya, odamegya* az úr;
		To ha- to have a walk;
Function words	*Do do* na mjesta;	The man thought *that the that the* he forgot that the dog … he;
		And, and the dog's in a different car.;
		The dog thinks that he is *a wrong …, a wrong* person;
		*Ra-ra*ther startled;
		To the … to the coathanger;
		Into into the bath;
		in into the bath;
		runs *out out of* the house;

Table 3: Repetition and restarting in the two language modes.

The process of speech production consists of message generation or conceptualization, formulation and articulation (Levelt 1989). Lexicalization occurs in two stages: first lemmas are accessed, which are an intermediate level of abstract lexical items. Only then can the phonological forms be accessed. There is no consensus now, as to whether the two stages of processing are discrete or overlap. Errors may occur at both stages, and whole-word substitution speech error studies (Harley/MacAndrew 2001) distinguish two types of errors: one where the target and the intrusion are related in sound and another where they are related in meaning. Lexical access may fail and may result in a word substitution in two ways. An incorrect branch of the semantic net may be chosen, and so a semantic associate of the target is erroneously selected leading to a semantic paraphasia. Alternatively, if the final pointer to the target phonological form slips, a nearby item will be substituted, leading to a phonological paraphasia.

In our data, self-repairs were the biggest number of filled disfluencies, in both language modes. Self-repairs are made in order to correct errors detected by the monitor at the conceptualization, formulation stages of production. If the error emerges as early as accessing lemmas from a semantic-conceptual input, semantic errors will have to be repaired or substituted. Harley/MacAndrew (2001) distinguish between associative and shared-feature semantic substitutions. Shared-feature errors are those where the target and the intrusion are from the same semantic field or are hierarchically related. Associative errors are those where there is only an association between the target and the intrusion.

Word substitution errors are important because they provide a window on the processes of lexicalization.

— FILLING IN THE OMISSION: e. g. *Da bi se, da bio KUPA se*; *cuc … SVOJU cucku*; *пригласил свою па- СОБАЧКУ на подушку*;

— SEMANTIC PARAPHASIA, appropriateness repair: e. g.
  – *GOSTITELJICA* – an associative error, the word 'restaurant' is substituted for the word 'waitress';
  – *In the VAN, in another CAR, in a some kind of a STATION WAGON or SOMETHING*. The mapping of the mental lexicon can be traced when an English-Hungarian subject searching for the word 'caravan', for example, enumerates several coordinate intrusions to the target word (*van, car, station wagon*), and when finally the lexical access fails, he substitutes the word with the indefinite pronoun *something*.
  – *KIA- SIKOLTOZNI vagy mi … KIÁLTANI;* Another subject can retrieve the searched word only after some synonyms have interfered (KIA-SIKOLTOZNI vagy mi … KIÁLTANI = ye-scream or what … shout).
  – *JEDNOMU DRUGOMU čovjeku* (= a man, another man);

- *НЕСУТ, ВЕДУТ* – in Russian, verbs of motion may have different lexical forms, but their semantic meanings are very similar. In these two verbs, only the manner of motion makes a difference between the two verbs. Both mean 'to take' but the first one indicates taking something somewhere in your hand, i. e. 'to carry', and the second one means taking something or someone somewhere by the hand, by car, etc. Both notions have one lexical item in the Hungarian language, and Hungarian learners of Russian find it very difficult to distinguish between the two meanings. Our subject may have made some semantic overgeneralization across the languages; this is why he missed the target word.
- *HÁT NEM ASSZONY, … A HÖLGY*; the semantic features of 'a lady' as opposed to 'a woman' are emphasized when the word 'woman' is corrected and substituted for 'a lady'.
- *SA PRIKOLICOM, KAMKUČICOM*; both vehicles are attached to the car but the first one on the side, the second – at the back.
- *КАК* НУЖНО, *ЧТО* НУЖНО СДЕЛАТЬ (= how is needed to, what is needed to be done);
- *KOCSIHÁZ, vagy fogalmam sincs hogy van ez magyarul;* creating neologism; making up a compound for caravan (= car house).

— PHONOLOGICAL PARAPHASIA:

- *KUĆA nincs velünk* (= the house is not with us)*; Naslov je bio šetnja SA KUĆA, KUTYA, SA PSOM* (= with the house, dog (in Hungarian), with the dog (in Croatian). Due to feedback connections between the phonological and lexical units, phonological similarity between two words, which do not show any semantic relationship, may trigger phonological paraphasia (Askari 1999), as in the above examples. The Croatian word 'kuća' means 'house', and its phonological shape is very similar to the Hungarian word 'kutya', which means 'dog'. This example of cross-language word substitution supports the single-store and, partially, the hierarchical model of bilingual language representation. Both lexicons are tapped, and the substitution happens not because of the semantic, but rather due to phonological similarity. There seems to be a common semantic and phonological system in balanced bilinguals, which could be tapped independent of language.
- *az ORRÁT, a DURCÁT*. The phonological similarity causes the word substitution, this time the retrieval concerns only one language.

In course of the formulation stage, some competing structures might interfere, causing errors in the surface structures, as in the following examples:

- *A KÖZÖNSÉG PEDIG, A KÖZÖNSÉGNEK PEDIG*; two structures (a közönség pedig élvezte, a közönségnek pedig tetszett) are competing, the second wins. The first is interrupted by the second one.

- *KIMEGY AZ AJ- …, A. A KUTYA AZT HISZI, HOGY MENNEK SÉTÁLNI.*; For some reason, some kind of uncertainty, the first structure is interrupted, and a new one is being built thus changing the topic.
- *they wanted to THE DOG TO have a bath;* by bringing in the accusative with the infinitive structure, it becomes clear who wants what.
- *Что хочет ЕЁ погулять, С НЕЙ*; both pronouns are correct in their own right, but not together in the same sentence.
- Number, gender agreement problems emerged in the speech production of Slavic-Hungarian, and the Romanian-Hungarian bilinguals. The substitutions for number agreement are not evidence of grammatical incompetence; they are rather slips of the tongue. However, the gender related problems might be due to the influence of the Hungarian language that does not differentiate genders, only at the lexical-semantic level in some words.
- Case-marking errors come up in the speeches of bilinguals in whose language suffixation is a productive way of combining words into sentences. They may show some shortages in the grammatical competence of the speakers, as in *a kutyára vagy -hoz vagy -nak*; *Pod jednom, pod jednim*; *u drugim u drugom*; *Jednom, jednime prikolicama*. In these examples, there are faulty agreements between nouns and numerals or adjectives. However, there are examples of planning problems, too, like in *amivel, amiből kiugatott a kutyája; собака уже, собаку уже,* which are not the results of insufficient grammatical knowledge but rather a faulty choice in the semantic planning.
- Prefixes change the meanings of verbs, and their wrong selection may lead to slips of the tongue: *be-, megmutassa neki* (= 'introduce' – 'show him'); *выходит или заходит* ('goes out' or 'pops in'); *el … kinthagyták* ('was abandoned' … 'left out'). In the Hungarian examples right after the prefixes are uttered, the errors are corrected, so the repair occurs sooner than in the Russian example, where the whole verb is uttered by the time the error is detected.
- Errors in phonological planning may be of different character, too. In the following two examples errors in the formulation can be detected: the incorrect use of the past participle form: *sértődően tá / sértődötten távozik*; and the subjunctive mood: *hogy légy szíves bocsálja meg, bocsásson meg*; but in both cases the erroneous forms are substituted by the correct ones. The uncertainty about the initial sound is supposed to be the case in the example: *hongorázni? Zongorázni*; in which, thanks to the interviewer who whispers the correct sound when seeing the subject in trouble, the correction occurs and the correct word is learned by the subject. The next example is partly semantic, partly phonological: *Kínálva a kolbászát … kolbászt a tányérján* (= offering his sausage … the sausage on his plate). In any other language studied in this paper, this error would be

merely of semantic character. However, in Hungarian it might be the case that the subject is in trouble concerning the morphophonological rules, and is not sure as to whether to allow for a consonant cluster at the end of the word, or rather put a vowel in between, like in example: *beülte, beült, ööö ööö, beülött.*

	Self-repairs	
	Monolingual	**Bilingual**
Semantic repairs	Da bi se, da bio *kupa* se	felbasz-felbosszantotta (style) (in the Serbian text uzjebala domačice (=felbaszta az agyát));
	Megérkezik a … megérkezik egy ember;	van *egy*, van *az* idős férfi megint és van a kutya;
	Úgy mond … úgy döntött;	In the *van*, in another *car*, in a some kind of a *station wagon* or something;
	Что *один* че-, *другой* человек;	kezet csókol a *vala-, ja, énekesnőnek*;
	Показтъ одну, исполнитъ одну мелодию;	*Как* нужно, *что* нужно сделать;
	А зрителям оченъ понравилось, *когда, как* собака лаяла;	rohan a … rohan haza;
	ahonnan a pótkocsis autó, *ja bocsánat, nem pótkocsis autó, hanem utánfutós;*	*go goes to see … goes to the table;*
	kad je kad vidi jednomu drugomu čovjeku cuc … svoju cucku	hogy jö-, hogy menjen bele a vízbe;
	prošao jedan auto sa prikolicom pored njih a stvari s akolima to je neki *auto sa adriom, adriom sa sa kolima*;	kia-sikoltozni vagy mi … kiáltani;
	pokazi mu da skoči u vodu, kaźe mu da skoči u vodu;	az egyik ember gondo- …, azt mondja;
	sa prikolicom, kamkučicom;	hát nem asszony, … a hölgy;
	gostiteljica (= restaurant) háziasszony értelemben;	*несут, ведут*, мальчик поймал собаку
		egy vendég, nem is vendég, hanem férje asszonynak;
		Показывает, что *вот тут, вот так* надо;
		Сбросила *ну … ноты, вот но* …, забыла;
		he asked them to come in to *the the his* car;
		пригласил свою *па- собачку* на подушку;
		kocsiház, vagy fogalmam sincs, hogy hogy van ez magyarul;
Syntactic repairs	ak- jedan akvarijum;	Что надо … разде …, он граздевается;
	ez a koncert kicsit túl hangosra, meg idegesítővé válik (elliptic);	nagyon ne-, nagy nehezen visszahozta a kutyát.;

	a gazda, a gazda, a kutyus gazdája;	kimegy az aj- …, a. A kutya azt hiszi, hogy mennek sétálni.;
	A közönség pedig, a közönségnek pedig;	Что хочет *её* погулять, *с ней*;
	ez egy hang … ez a kis képregény egy hangversenyen van;	they wanted *to the dog to* have a bath;
		tati se se tata seca de se psa zaboravili;
		Вся семя бежит *до под дождём к* машине;
Number agreement	Gdje je bila, gdje su bili;	
	mellettük, mellette elrobogott egy autó;	
	za stenovanje *primetili su da primetio* je da je pas;	
Gender agreement	pe o pe un scaun	Неболъшая, неболъшой;
	despre un, despre o serata;	
	infuriat … infuriata;	
	zaboravila, zaboravio;	
	jedan, jedna … źena;	
Case-marking	u to … u tu vodu;	i pas pas psu se vidala
	Собака уже, собаку уже	a kutyá*ra* vagy *-hoz* vagy *-nak*;
	Pod jednom, pod jednim	most hölgy leült zongorá-… és akkor zongorázik;
	amivel, amiből kiugatott a kutyája;	
	u drugim u drugom;	
	Da je svoj pas, da se svoju pasu	
	Jednom, jednime prikolicama	
Prefixation	el-, megpróbálja elvinni;	*За*стал, *до*стал сильный дождъ;
	el … kinthagyták;	*be-*, *meg*mutassa neki;
		*вы*ходит или *за*ходит;
Phonological	Elmenetek, elmentek;	hogy légy szíves *bocsálja meg, bocsásson meg.*;
	Kínálva a kolbászát … kolbászt a tányérján;	*vide-, vise-, viselkedése* miatt;
	Kuća nincs velünk	most jutalma …, jutalomra adja a kutyának virslit;
	Naslov je bio šetnja sa *kuća, kutya, sa psom;*	mert az ember rálépett a f …, ja nem, mert az ember rálépett a farkára.;
	sértődően tá/ sértődötten távozik;	*h*ongorázni? Zongorázni;
	… szétdobálja a papírjait, levágja *az orrát, a durcát;*	beülte, beült, öööö öööö, beülött;

Table 4: Self-repairs in both language modes.

Forty percent of the semantic type of errors was observed in the monolingual and 60 % in the bilingual mode, i. e. subjects in the bilingual mode detected and corrected more errors. In the formulation process, 58.3 % of errors were in the monolingual and 41.6 % in the bilingual mode. It implies that accessing the lemma level can create bigger problems for subjects being in the bilingual mode, and the accurate grammatical formulation is harder in the monolingual mode. There was no number agreement, hardly any gender agreement or case-marking problems in the bilingual mode while there were some in the monolingual one. In the phonological formulation, there were equal numbers of errors, which means phonological awareness is not dependent on the language mode.

CONCLUSIONS

Our results have shown that the speech rate is influenced by the base language of the test. The speech rate of the Hungarian narratives in general – with the exception of just a few – was faster than that of the other languages. However, it is also influenced by the individuals' own speaking habits since there is a significant correlation between the speech rates of the two languages. Slower speakers of Hungarian were slower in their other language, too. Age may play an important role in the speech rate, though there is no straightforward evidence for it in the analyzed corpus. Although children were among the slowest speaking subjects, there were also young adults whose speech rate was even slower than the children's were. In addition, the oldest subject is in the middle of the group ranked by the speech rate. Finally, the type of language may affect the speed since the fastest speakers are all from the Slavic language group, mainly speakers of the Serbian and Russian languages, as can be seen in *Table 2*. Speech rate is not in the least influenced by the language mode.

On the contrary, depending on the language mode, there were differences in terms of total number of words and speech disfluencies. There were significantly more words uttered in the bilingual mode (7774) than in the monolingual one (5862). However, there were no significant differences in the number of speech disfluencies, which means the bigger number of words do not imply the bigger number of disfluencies. No correlation was observed between the number of words and that of disfluencies.

In the bilingual mode 88.8 %, in the monolingual one 85.29 % of disfluencies are pauses and repetitions. Consequently, speakers in both language modes used approximately the same amount of time for the semantic planning of their speeches, in the way of pausing or repeating words in order to gain time. The rest of the disfluencies are self-repairs: 11.2 % in the bilingual and 14.2 % in the monolingual mode.

As for self-repairs, semantic errors occur more often in the bilingual mode, whereas the formulation ones emerge rather in the monolingual mode.

Language mode	Total number of words	Total number of disfluencies	Pauses (%)	Repetitions (%)	Self-repairs (%)	Code-switches (Number)
Bilingual	7774	500 (6.4 %)	82	6.8	11.2	8
Monolingual	5862	366 (6.2 %)	73	12.29	14.2	14

Table 5: A comparison of data in the two language modes.

To sum up, it can be concluded that there is no particular difference between the speech productions in the two language modes in spite of the fact that there is allegedly a much stronger control of the language in the course of the speech produced in the monolingual language mode. Due to the looser control, subjects in the bilingual mode speak more. Errors detected in the bilingual mode reflect much more the problems of semantic planning, whereas errors in the monolingual mode emerge in the formulation process. Phonological planning does not seem to be under the influence of the language mode. Code-switching may occur in both language modes. However, switches are more frequent in the monolingual mode, when the subject speaks in the language the interviewer does not understand, so the direction of switches is from the other language to Hungarian.

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