“This is UHM case F16” - Filler Particles in Mono- and Bilingual Majority English Speakers

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Filler particles (FPs) such as *uh* and *uhm* in English, frequently called *hesitations* or *disfluencies*, have been related to the cognitive effort during speech production [1] and their appropriate use has also been associated with second language (L2) proficiency (e.g.[2]). On top of signalling hesitation and uncertainty FPs have been found to introduce new thought units, initiate repairs and regulate turn taking in conversation [3]. Yet, FPs are perceptually not very salient, i.e. reduced phonetic form e.g. reduced pitch level and level contour [4, 5]. Their frequency is therefore is not reliably estimated in perception and depends on segmental form and duration [6]. The acquisition of this phenomenon in a L2 therefore may depend on the amount of input. Heritage speakers (HS), bilingual speakers of a heritage language (HL) typically spoken at home and the majority language (ML) spoken in all areas of everyday life [7], are exposed differently in their two languages and have shown to differ from monolingual ML speakers in different areas of their grammar (e.g. [8]).

This study investigates the frequency and phonetic form of FPs produced by ML speakers of English, with and without a HL background. This is done based on data from the RUEG corpus [9] which contains semi-spontaneous narrations in formal and informal register of ML and HL speakers with different language background. A subset of 12 speakers (4 monolinguals, 4 bilinguals with Russian HL, 4 bilinguals with German HL; 6 male, mean age 15.75) each producing 2 narrations, was analysed in this study. There were 113 FPs realised in the 24 analysed narrations (19.78 min analyzed speech). The acoustic parameters duration, pitch level and pitch slope (f0max-f0min) were measured in Praat [10]. Additionally, FPs were annotated for their segmental form and pitch contour (as *falling*/*rising* with a slope $>$ 1 ST).

In productions by monolinguals the most frequent FP segmental form was vowel + nasal (VN: *uhm*) followed by vocalic forms (V: *uh*). The mean duration of FPs was 0.34 s with significantly longer VN than V forms. The pitch level of FPs tends to be lower in pitch than the speaker’s mean while falling and rising contours are equally frequent in monolinguals’ FPs. The slope of the rising contours was overall higher compared to the slope of falling contours (see Table 2). Overall the bilingual ML speakers analysed here show the same tendency in FP form as the monolingual ML speakers (see Table 1 & 2). There is a tendency for bilinguals to produce more V forms than monolinguals and the duration contrast between VN and V is less robust in bilinguals’ FPs. While all contours are produced by speakers from all groups, bilingual ML speakers show a preference for falling contours and produce fewer rising FPs compared to other contours. Russian bilinguals additionally produce the largest slopes for rising FPs, yet these speakers do not produce FPs with such a contour very frequently.

Overall bilingual English speakers’ to monolinguals’ productions show close similarity in FP form The differences between speaker groups regarding prosodic form need to be investigated based on more data and related to different signalling functions of FPs relating to a possible function form mapping. Another possibility is a high degree of inter-speaker variability in the use of FPs [4]. Since this analysis is based on the ML, the next step is to analyse the HL of the same bilingual speakers hoping to provide insight into the bilingual speakers’ use of FPs.

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Table 1: Distribution of filler particle types and their duration.

Speaker Group	"uhm"	duration (s)	"uh"	duration (s)
mono	23 (79%)	0.47	6 (21%)	0.29
bi-Russian	49 (57%)	0.34	14 (29%)	0.28
bi-German	22 (63%)	0.35	13 (37%)	0.25
Total	77 (68%)	0.38	34 (30%)	0.27

Table 2: Difference in means f0 (FP-Speaker) and distribution of pitch contours.

Speaker Group	delta mean f0	Fall	Level	Rise
mono	-0.81 ST	14 (48%)	3 (10%)	12 (42%)
bi-Russian	-0.36 ST	26 (51%)	18 (35%)	7 (14%)
bi-German	-1.03 ST	28 (82%)	3 (9%)	3 (9%)
Total	-0.69 ST	68 (60%)	24 (21%)	22 (19%)

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