The Influence of Non-Native Accent on Sentence Processing and Information Recall

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Background: Previous research has shown systematic differences in the recall of information from written sentences [1, 2]. Studies on Czech [3, 4] indicate that subjects and direct objects are recalled more easily than verbs, attributes, or adverbial adjuncts expressing time and place, suggesting selective attention to central over peripheral information in line with good-enough processing approach [5]. However, much less is known about recall from spoken language and the role of non-native accent. Experimental evidence suggests that accented speech increases cognitive load and may reduce recall accuracy [6, 7]. A pilot study in Czech further indicated that foreign-accented speech may particularly impair recall of less salient information [8], but the study relied exclusively on AI-generated accented stimuli. The present study therefore investigates how non-native accent influences immediate recall of sentence information in Czech adults, using stimuli recorded by non-native Czech speakers. Specifically, we ask the following research questions: (1) Does non-native accent affect selective attention during sentence processing and information recall? (2) Are less salient sentence elements more affected by non-native accent than salient ones? and (3) Does recall accuracy relate to perceived accent intensity and likeability?

Method: The experiment uses recordings of Czech sentences read either by native Czech speakers or by non-native speakers of Ukrainian origin. Each sentence recording is followed by an open-ended comprehension question targeting a specific sentence element. Forty experimental sentences adapted from previous Czech studies [4, 8] were constructed in two types (see Table 1). Type 1 sentences are followed by questions targeting either the direct object or the adjective that modifies the locative adjunct (Table 1, 1a-b). Questions following type 2 sentences target either the direct object or the temporal adjunct (Table 1, 2a-b). Together, the two sentence types contrast information previously shown to be easier to recall (direct objects) with information that is less salient and harder to retrieve (temporal adjuncts, adjectives). An additional 42 filler items probe the recall of subjects and verbs. All 82 sentences were recorded by 8 Ukrainian non-native speakers and 4 native Czech speakers. The recordings will first be evaluated by Czech listeners in an online rating study assessing perceived accentedness, intelligibility, and likeability. Based on these ratings, a final stimulus set will be selected for an online recall experiment with approximately 150 Czech adults. Data collection for the rating study is planned through May 2026, followed by the recall experiment in June.

Expected results: The recall accuracy of each type of sentence information will be analyzed and compared across the native vs. non-native sentence types using logistic generalized linear mixed-effects models. We hypothesize that non-native accent will reduce recall accuracy overall, with higher error rates emerging in answers to questions targeting information that has been previously reported as harder to recall. We also expect that the higher the perceived intensity and unlikeability of the foreign accent of a sentence, the more participants will be distracted by it and the less accurately they will recall the information, with less salient information disbenefitting from this more than the more salient ones. This study will provide a systematic investigation of how non-native accent affects information recall from sentences.

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Figures and Tables

sentence	question	stimuli type
V půl deváté v přeplněné tramvaji upustil Michal Žitný černá sluchátka. *At half past eight in the overcrowded tram dropped Michal Žitný black headphones.*	Co upustil? *What did he drop?*	1a
V půl deváté v přeplněné tramvaji upustil Michal Žitný černá sluchátka. *At half past eight in the overcrowded tram dropped Michal Žitný black headphones.*	Jaká to byla tramvaj? *What was the tram like?*	1b
Tereza v pondělí v restauraci úplně omylem vylila horkou kávu. *Tereza on Monday in the restaurant completely by accident spilled hot coffee.*	Co vylila? *What did she spill?*	2a
Tereza v pondělí v restauraci úplně omylem vylila horkou kávu. *Tereza on Monday in the restaurant completely by accident spilled hot coffee.*	Kdy se to stalo? *When did it happen?*	2b

Table 1: *Types of sentence stimuli and comprehension questions*