

Perception of Accent Placement in Croatian

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The Croatian standard language is described as having a pitch-accent system characterized by four distinct accents, as well as post-accentual length and shortness. This four-accent system is realized in many local and dialectal varieties of Croatian, particularly in the eastern region and the southern region. In addition to the pitch-accent system, a stress-accent system also (co)exists in Croatian. Within the stress-accent system, the position of the accent within a word is the primary relevant feature, and it often differs from that found in the pitch-accent system. It is precisely this difference that most clearly distinguishes the two systems at the perceptual level. The stress-accent system is primarily associated with urban varieties in the western and northern regions. All of these speakers—those realizing the pitch-accent system as well as those realizing the stress-accent system—participate in public communication in which the standard variety is expected. When speaking using the standard, speakers are thus confronted with the need to make accentual choices in their speech, and they also form attitudes toward the speech choices of others in the same context. In recent times, errors in accent production, accent placement and hypercorrections have once again come into focus, as we are increasingly surrounded by speech synthesized by TTS (text-to-speech) models. However, before assessing how hypercorrections produced by speech synthesis models are perceived, it was interesting to re-examine how speakers of the Croatian language evaluate hypercorrections in their own speech. The retraction of rising accents toward the beginning of the word, as a consequence of linguistic insecurity in standard pronunciation, is a mechanism driven by analogy and referred to as hypercorrection. According to its original definition, it arises when a speaker attempts to use linguistic forms associated with higher social status or a more prestigious variety, thereby introducing incorrect changes into the structure of the word (Labov, 1966). This sociolinguistic phenomenon is, of course, not limited to the orthoepic norm, nor is it exclusively tied to social status. Hypercorrect realizations are observed in formal communicative situations and among educated speakers who strive to achieve the prescribed standard and pitch-accent system, but who come from areas with a stress-accent system. It is therefore a phenomenon that arises from the contact of two systems.

This paper presents the results of a sociophonetic study on the perception of Croatian accents, focusing specifically on accent placement, as it constitutes the most perceptually salient difference between the two accent systems coexisting within the Croatian-speaking area. It also provides an overview of the extent to which hypercorrection appears in synthesized speech (in TTS models and multimodal AI models). The study was conducted using an online questionnaire (for the overall results concerning the perception of accent placement, tone, and duration, cf. Matešić et al., 2026). A total of 308 participants listened to sentence recordings presented in random order, comprising 28 sentences in total (i.e., 12 sentences, each produced in two accent-placement variants, and 2 sentences with hypercorrect realizations), and evaluated each sentence according to categories related to social status and social solidarity. The sample included a total of 83 listeners who, according to their regions, belong to the pitch-accent system, 145 listeners who, according to their regions, belong to the stress-accent system, and 80 listeners from mixed regions (for whom, as previously stated, it is assumed that they are influenced by both accent systems). The study employed the *matched-guise* technique. The technique is particularly suitable for investigating attitudes toward language varieties. The sentences were read by a Croatian Radiotelevision (HRT) announcer, while the recordings were made and processed in an acoustic studio in three variants.

Variant 1 contained accent placement prescribed by the standard language and characteristic of the pitch-accent system; Variant 2 contained accent placements specific to the stress-accent system or newer shifts toward word-initial position; Variant 3 contained hypercorrect accent shifts frequently found in the public speech of speakers from the stress-accent system attempting to speak the standard language (i.e. the pitch-accent system), specifically in two groups of prefixed verbal forms: infinitives and participles. Accent placement was the only dependent variable, while all other variables potentially affecting perception were controlled for and kept constant (prosodic features of interpretation, as well as all other word accents not relevant to the focus of the study). The independent variable relating to listeners, on the basis of which the hypotheses in this paper were formed, was the regional affiliation of the listeners. It was hypothesized that members of different regions would evaluate the pronunciation of the sentences (stimuli) differently with regard to social status and social solidarity (attractiveness). The bifactorial structure of status versus solidarity is common in matched-guise experiments. Each sentence was evaluated using seven semantic differential scales: correctness, stylistic markedness, regional markedness, temporal status, personal production preference, social liking and perceived prestige. The aim of the study was to answer three fundamental questions: whether standard accent placements are recognized as prestigious, i.e. associated with social status; whether listeners identify more positively with realizations closer to their own speech; and whether hypercorrect realizations are perceived as incorrect.

With regard to the regional variable, the overall evaluation of sentence pronunciation in Variants 1 and 2 was relatively balanced. The attitudes of all listeners combined toward the pronunciation of the two variants of the 12 sentences (excluding the hypercorrect examples) did not differ; namely, listeners rated the pronunciation of words in Variant 1 ($M=4.56$) and Variant 2 ($M=4.51$) as equally desirable. Regional differences were further examined using one-way analysis of variance, which revealed differences among individual regions. The results showed that participants rated more highly the pronunciation that was closer to their own speech; specifically, participants from regions with the pitch-accent system (the eastern and southern regions) gave lower ratings to the pronunciation in Variant 2, which contained realizations not characteristic of that accent system. Listeners from regions with pitch accent recognize the normatively prescribed accent placement, consider it correct, and confirm it in their own speech, since standard Croatian itself is codified as a pitch-accent language. However, listeners from regions with the stress-accent system (with the exception of Zagreb) considered not only the normatively prescribed realizations but also the hypercorrect ones to be correct, even assigning slightly higher ratings to the hypercorrect forms than to the prescribed accent placement. Perceptually, they index these realizations as correct and standard. Previous research on accent placement has indicated the occurrence of hypercorrect realizations in the production of speakers from the stress-accent system, while the present study demonstrates that such hypercorrect accent placements have become a perceptual signal of standardness, signaling social status and being positively evaluated by listeners from the stress-accent system. On the other hand, longitudinal monitoring of speech synthesis models (LLM/TTS models) has shown that hypercorrections are becoming increasingly rare and that today these systems generate accent placement that is prescribed and specific to the pitch-accent system of the Croatian language.

References:

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