1. MATERIALS (González et al. 2007)

1.1 Type II test sequences: Paired pronunciations of fricatives, produced by a unique subject: one in an actual word, containing either [z] or [s], and the other in a parallel pseudoword, with the voiceless alveolar [s] replacing (in the same segmental context) the original [z] or [s] sounds (usually, [k] takes a transitional on-glide [j] after a vowel in Valencian, but not in the Alacant variety under study here):

\[
\begin{align*}
\text{Actual word} & \quad \text{Parallel pseudoword} \\
\text{[k]za} & \quad \text{[k]sa} \\
\text{cosa} & \quad \text{thing'} \\
\text{[k]za} & \quad \text{[k]sa} \\
\text{mateix} & \quad \text{same'} \\
\text{[k]za} & \quad \text{[k]sa} \\
\end{align*}
\]

1.2 ACOUSTIC CHARACTERIZATION OF THE CONTRASTS

2.1. PROCEDURE AND ANALYSIS

2.1.1 Tokens analyzed:
- 34 pseudo-minimal pairs of [z] vs. [s], always in onset position: e.g., [k]za-[k]sa
- 16 pseudo-minimal pairs of [z] vs. [s], mostly in word-final codas: e.g., [m]ata-[m]ates

2.1.2 The acoustic analysis was carried out with Praat (Boersma 2001). Segmentation and labeling of the target sibilants were done manually, based on spectrogram and waveform.

2.2. CONTRAST [z] VS [s]

2.2.1 PREDICTIONS: In accordance with the literature, we expect the voiced sibilant [z] to be shorter and to have higher HNR. We do not expect, though, significant differences in the spectral moments.

2.2.2 Duration & HNR: Tests yield a significant effect of the variable ‘segment’ on duration, with minimal differences (\[t(24)=2.938, p<0.01, \eta^2=0.11\]), and HNR (\[t(24)=4.433, p<0.01, \eta^2=0.56\]), indicating that the voiceless segment tends to have a slightly stronger concentration of energy in the lower frequencies (cf. Jongman et al. 2000: 1257).

2.2.3.1 PERCEPTION TESTS

2.2.3.2 Task: ANOVA yields a main effect of ‘duration’ (\[F(1,20)=24.393, p<0.001, \eta^2=0.84\]) in the expected direction: a greater hit rate in the [z]–[s] test (response accuracy among speakers is also higher in the [z]–[s] test; the sample means are displayed in the figure on the right):

\[
\begin{align*}
\text{HRshort} & = 68.65\% & \text{HRlong} & = 90.73\% \quad \text{F(1,19)=37.493, p<.001,} \\
\text{HNR} & & & \text{F(1,19)=5.443, p<.05,} \\
\text{Distance} & & & \text{F(1,19)=2.938, p=.058.}
\end{align*}
\]

2.2.4 In the same line, listeners’ response time for the [z]–[s] test is statistically slower than for the [ʃ]–[s] test, the sample means are displayed in the figure on the right:

\[
\begin{align*}
\text{Response time} & = \text{shorter in the [z]–[s] test} \\
\text{F(1,19)=2.652, p=.122,} & \text{vs. short in the [ʃ]–[s] test.}
\end{align*}
\]

3. CONCLUDING REMARKS

3.1 Acoustic analysis: The acoustic measures support the presence of a double contrast /z/-/s/ and /ʃ/-/s/ in Valencian Catalan, although with a narrow margin in the last pair.

3.2 Open issues: To investigate to which extent the contrasts are maintained in normal speech throughout the Valencian variety & to analyze if the attested patterns tend to enlarge or to reduce the distance between each pair of fricative sibilants.

3.3 Perception: The perception of the contrast ([z]-[ʃ]) is clearly poorer than the perception of the contrast ([ʃ]-[s]), which could explain a certain tendency towards the neutralization of the first pair.

3.4 References


Barcelona: Publicacions de l’Abadia de Montserrat.


Lisbon: Universidade Católica de Lisboa.

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