In search of the default Spanish vowel – evidence from perception

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Assumptions:

- syllable-timed language
- all vowels have the same length
- very limited variability
- stressed/unstressed: no significant difference
- not a very 'crowded' vowel space: /i, e, a, o, u/

H1: language's stress pattern and the nature of its vowel inventory are strictly connected with the freedom of reduction

H2: disruption of the stress pattern might inhibit comprehension and speech perceptibility

AIM:

- account for speakers' sensitivity to stress shift and unstressed vowel quality and duration changes
- to what degree the changes in quality and duration of the unstressed vowel would affect its perceptibility and how the reduced vowel would be interpreted with respect to the native inventory

RESEARCH QUESTIONS:

- Are centralised vowels perceived by native speakers, and if so, how they are identified with respect to native vocalic segments?
- Are Spanish words modified in terms of stress and vowel reduction identifiable i.e. retrievable from the lexicon?

1st EXPERIMENT

sensitivity to stress shift and vowel quality / duration changes

2 TESTS consisting of audio stimuli

TEST 1

1. MINIMAL CONTEXTUAL INFORMATION

(stimuli presented in the form of sentences; 30 sentences with stimuli presenting stress shift, vowel reduction to schwa, /i/, /u/; double change; control items)

2. NONCE WORDS RESEMBLING SPANISH LEXICAL ITEMS

(in context, multiple choice answers; 15 phrases with stimuli: all imitating Spanish syllable and word structure, all with vowel weakening)

TEST 2

NO CONTEXTUAL INFORMATION

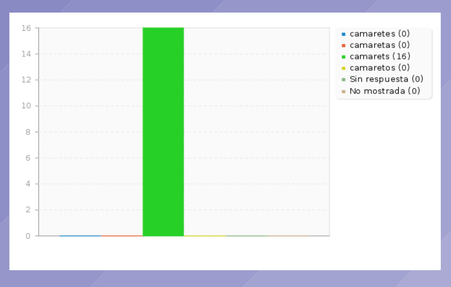
(bare audio stimuli, individual words, 43 single word stimuli, as above)

PARTICIPANTS

37 (32) Spanish native speakers
ideally no knowledge of Catalan/Galician/Portuguese (7)
aged 18-60 (mostly 25-40)

EXAMPLE

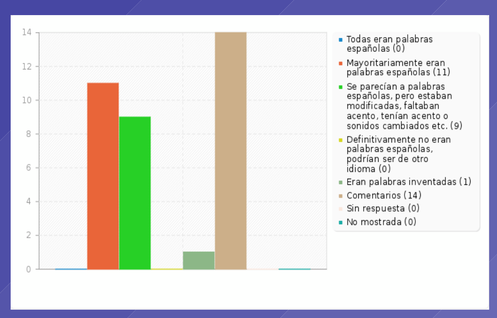
Quieres un par de ***camaret's***?
'Do you want a pair of ***camaret's***?'

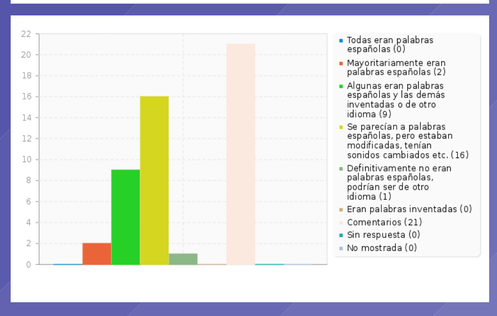


RESULTS

- Spanish speakers ~correctly~ identify stress in unfamiliar words
- in modified existing words stressed syllable identification not that reliable; word identification/stress perception discrepancy
- reduced vowels either identified or not perceived (mean 62% success rate)
- predominant mid vowels /e, o/; pretonic/initial syllable: /e, o, u, a/
- possible bias toward a default default vowel /e/ (70% of the total of 113 identified stimuli; vs /a/ 9,7%, /o/ 16%; *pres's* → /e, o/ *presas* 'dams', *presos/as* 'prisoners')
- raising does not pose a problem (either perception or identification)

OPINIONS

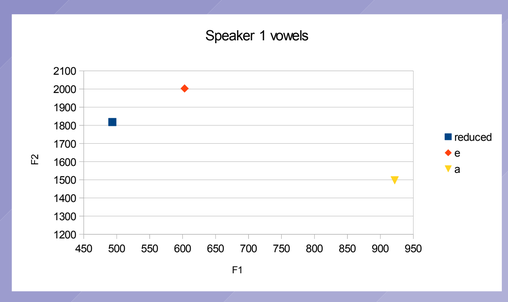




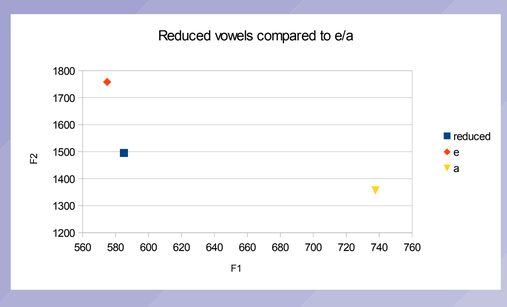
RESULTS 2:

- default vowel status not confirmed
- strong bias toward /a/ (sometimes lexical but not only)
- high rate of lexicon retrieval (forms least likely to be heard, control items with native vowels, negative bias *perfores* → *perforas*)
- one consistent effect: /e/ after the palatal affricate
- /e/ is the most likely minority option
- 4 cases where no lexicon or other bias is there for the e option: *eliciente, preses, netifico, demestico* (/e/ answers despite lexicon)

SPEAKER 1:



SPEAKER 2:



2nd EXPERIMENT

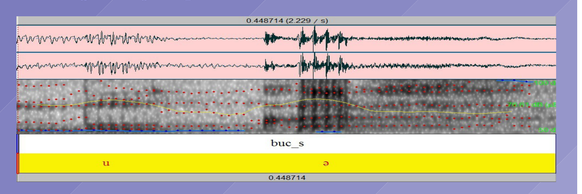
Focus: vowel reduction of the centralising type + word identification

Controls: consonantal contexts, syllable position (initial, pretonic, post-tonic), morphological and lexical predictability, word frequency, possible multilingual or L2 effects

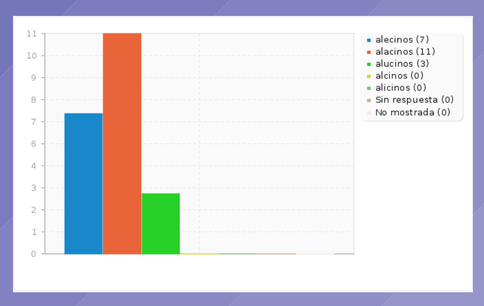
Research question: does a default vowel emerge in reduction contexts?

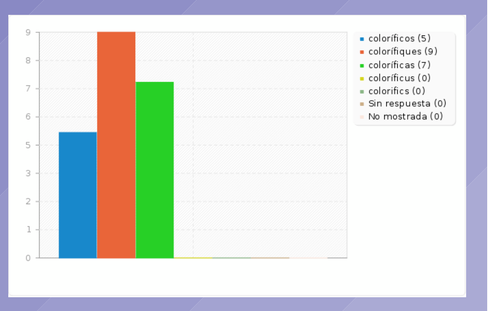
H3: reduced vowel not heard, inhibits comprehension; if heard, identified as /e/ as a majority option across contexts

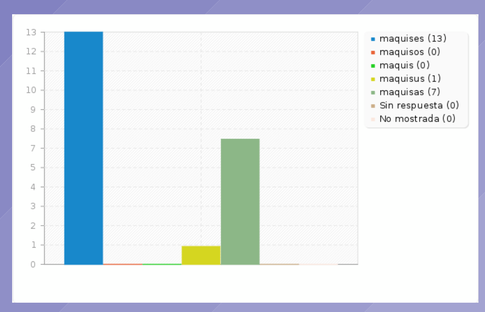
Again: 2 separate tests
21+28 participants
16+22+52 stimuli

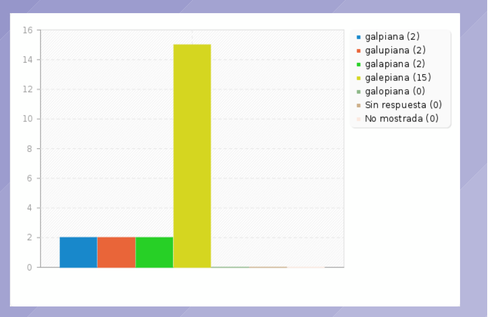


SOME EXAMPLES:



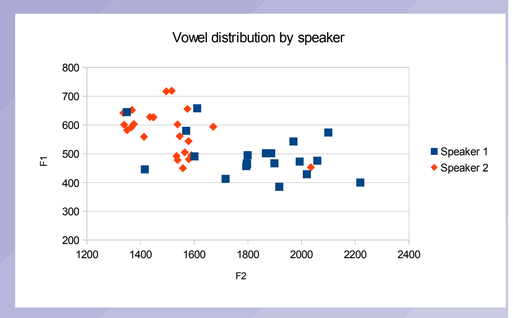


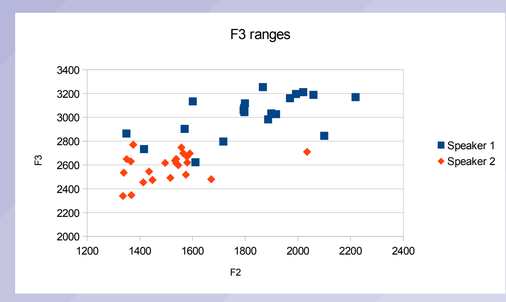




POSSIBLE EXPLANATION

S1 – S2 vowels
~production
~perception





GENERAL CONCLUSIONS:

EXPERIMENT 1

- STRESS SHIFT INHIBITS COMPREHENSION
- CENTRALISATION INHIBITS COMPREHENSION
- RAISING DOES NOT INHIBIT COMPREHENSION

EXPERIMENT 2

- Lexicon retrieval (**tusoro** → 4x tesoro, paluche → 2x peluche, manataner → mantener, perfores → 28x perforas, cumpadre → 4x compadre, apratar → 14x apretar)
- Nonce words indicate a possible bias toward /e/ in some cases, esp. initial/pretonic, absolute final possibly not heard (min. eliciente, preses, demestico, maj. netifico, pesar, apretar, unheard: desmido, pluche); /e/ as a minority option (possibly lexicon-based)
- Results by context: s_s, ch_s → /e/? (requires further study) , _N, N_s (nasal contexts → /a/?)
- Strong /a/ bias: colonas, perforas, radondo, famando, demandan, peritas, ambutido, saplicar (apart from possible lexicon retrieval cases)
- Non-recognition of reduced vowel rare, but confirmed in pretonic & absolute final position

GENERAL

H3 not confirmed, word comprehension facts not confirmed, native token data not reliable (lexicon bias), response times not reliable, no sociolinguistic effects, non-measurable results