Investigating a gradual metathesis: Production and perception of /s/-aspiration in Andalusian Spanish
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Metathesis has often been described as abrupt and thus as an exception to neogrammarian sound change (e.g. Wang 1969), while others suggested metathesis to be gradual, phonetically based developments (e.g. Blevins & Garrett 1998; Wireback 2002). Andalusian Spanish provides an opportunity to study this issue. As in many other Spanish varieties, in Andalusian Spanish, syllable final /s/ is usually weakened to [h] or even deleted (pasta ‘paste/pasta’ [ˈpahta] vs. pata ‘paw’ [ˈpata]). Traditional dialectological or sociolinguistic studies used to transcribe medial /sp, st, sk/ as pre-aspirated stops [hp, ht, hk] or geminates [pː, tː, kː]. However, post-aspirated stops [ph, th, kh] have recently been reported for West Andalusian Spanish (WAS; Parrell 2012, Torreira 2012). The result of this hypothetical sound change from pre- to post-aspiration can be described as a metathesis: /sC/ [hC] ⟷ [Ch].

We carried out an apparent-time production and perception study in West and East Andalusian Spanish (WAS and EAS) in order to address the following research questions: 1) Is there an on-going sound change from pre- to post-aspiration in Andalusian Spanish? 2) Does this change also affect speech perception? 3) Is this process favoured by phonetic factors and/or lexical frequency? We analysed 4 words with medial /st/ (e.g. destino) and 2 /t/-words (e.g. retira) per vowel context _i, _a, _u, pronounced by 48 speakers (24 from East, 24 from West Andalusia; each divided two age groups). The acoustic measurements included VOT-duration, occurrence of pre-aspiration and closure duration. For the perception study, a continuum between /pata/ [pata] and /pasta/ [patha] was synthesized by manipulating postaspiration duration in 9 steps (15ms-55ms). 79 listeners (young and older; East and West Andalusian, including those from the production study) participated in this forced-choice experiment (pata vs. pasta).

Production: An ANOVA showed that younger and WAS speakers distinguished /st/ and /t/ to a significantly greater extent by VOT than older and EAS speakers (variety: p<0.001; age: p<0.001). Mixed models showed that younger Andalusiains produced significantly less preaspiration (p<0.01), confirming the hypothesis of a sound change in progress. Perception: Younger listeners responded more often /pasta/ than older speakers (p<0.001), indicating that they were more sensitive to post-aspiration as a cue for /st/.

Further, young and WAS listeners had significantly abrupter (p<0.001) psychometric curves, what suggests a more categorical perception and a relationship between production and perception of post-aspiration for these groups. An RM-ANOVA showed a significant effect of the subsequent vowel on VOT difference, the latter being greatest before /i/. Mixed models showed a significant effect of lexical frequency on VOT-duration and an interaction between vowel context and lexical frequency. The relationship between these linguistic factors needs to be studied further.

Our results evidenced that this sound change has begun to take hold to different degrees in Andalusian Spanish in both production and perception. They suggest a gradual genesis of metathesis, in which two possibly unrelated processes (fading of pre-aspiration, emergence of post-aspiration) may contribute to one single result.