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**Role of Training and Short-Term Context Effects in the
Perception of /s/ and /st/ in French**

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Recent work has shown that the perceptual categories built up in the identification of speech sounds remain highly plastic in adults and continuously evolve along a wide range of time scales, that extend from the short (local contextual effects) to the very long (across the listener's lifetime). Tuller and colleagues (Tuller et al., 1994; Case et al., 1995) examined how English-speaking listeners responded to manipulations in the order of presentation of a set of stimuli ranging on a "say"- "stay" continuum. The response patterns showed a number of dynamical characteristics which included hysteresis and enhanced contrast. These results were accounted for by a non-linear dynamical model in which perceptual categories are associated with attractors of a potential function. In this model, the listener's response is governed by the acoustic properties of the stimulus, the previous percept, and the combined effects of learning, linguistic experience and attentional factors.

In the present work, Tuller et al.'s experimental paradigm is extended to French, with a view to compare dynamical perceptual patterns in both languages. We also seek to examine the influence of previous experience on the listener's behavior, by manipulating the listener's level of phonetic training. A third objective is to define a quantitative method for evaluating the model's goodness of fit with the perceptual data.

The material was composed of fifteen stimuli on a continuum between "c?pe" /sEp/ and "steppe" /stEp/. Each stimulus contained a silent interval ranging from 0 (Stimulus 1) to 56 ms (Stimulus 15) in 4-ms steps between the /s/ and the vowel. Twelve native speakers of French,

divided in two groups matched in age and educational level, took part in the experiment. Group 1 was composed of trained phoneticians, while Group 2 had little or no background in phonetics. The fifteen stimuli were presented to each listener both in random and sequential (1-15-1 or 15-1-15) order. The presentation order changed between consecutive runs.

Preliminary results suggest that hysteresis (a tendency for the listener's initial response to persist across the continuum when the stimuli are presented sequentially) was the most common response pattern. Responses proved much less stable for Group 2 than for Group 1, as shown by the higher number of flip-flops (switches between the two possible responses in sequential presentations) for Group 2. These results are consistent with the hypothesis that training enhances the stability of perceptual attractors in the categorization of speech sounds.

Bibliographic reference. Nguyen, Noel / Lancia, Leonardo / Bergounioux, Martine / Wauquier-Gravelines, Sophie / Tuller, Betty (2005): "Role of training and short-term context effects in the perception of /s/ and /st/ in French", In *PSP2005*, 188 (abstract).