L1 intonational categories as “perceptual attractors” during L2 imitation
Caterina Petrone, Leonardo Lancia, Cristel Portes

To cite this version:
Caterina Petrone, Leonardo Lancia, Cristel Portes. L1 intonational categories as “perceptual attractors” during L2 imitation. ILCB meeting, 2017, Ile de Porquerroles, France. halshs-01793257

HAL Id: halshs-01793257
https://halshs.archives-ouvertes.fr/halshs-01793257
Submitted on 16 May 2018

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L’archive ouverte pluridisciplinaire HAL, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d’enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.
INTRODUCTION

- In L2 learning, native (L1) phonological representations act as “perceptual attractors” to which similar non-native sounds are assimilated [1, 2];
- Competition with the inventory of the language/dialect of origin modulates segmental imitation by selective processes [3];
- Phonological properties of a speech sound replace its phonetic properties with the passing of time [4], e.g., by matching to exemplars or by rehearsal of articulatory programs [1, 5].

Intonation?

- Speakers reproduce the phonological form of an utterance, not its phonetic details [6];

**BUT**: When imitating non-native dialects, the f0 contour is partly modified to approximate the target dialect [7].

Questions (Q) [8, 9]

<table>
<thead>
<tr>
<th>(Northern Standard)</th>
<th>L* H-H%</th>
<th>L* L-H%</th>
<th>L*+H L-L%</th>
</tr>
</thead>
<tbody>
<tr>
<td>German (G)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lecce It. (L)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neapolitan (N)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

H1: Lecce speakers will be less accurate in imitation since they perceive German contours as variants of their native dialect contours

H2: Less accurate reproduction when imitation is delayed/rehearsal is reduced because of a decay of detailed f0 memories.

CORPUS & METHODS

- **Shadowing:**
  - Perdeva la nave? Did she travel by ship?
  - Guardava il mare? Did she look at the sea?
  - Stringeva il mano? Did she shave hands?
  - Si prega di leggerlo? Did you ask them to read it?
  - Er tre mani? Did she eat a carrot?
  - Er buon tempo? Does she build a mill?
  - Er mangiare? Did she burn wood?
  - Er mangiare? Did he play violin?
  - Er mangiare? Did she play violin?
  - Er mangiare? Did she travel by ship?
  - Er mangiare? Did she look at the sea?
  - Er mangiare? Did she shave hands?
  - Er mangiare? Did you ask them to read it?

- **Functional mixed models ([10]):**
  - Evaluate effects of experimental factors on the f0 contours within the target words:
  1. Discrete Wavelet Transform (DWT) to obtain a set of wavelet coefficients;
  2. Markov chain Monte Carlo simulation to get the posterior samples for quantities in the wavelet space version of the functional mixed model;
  3. Inverse DWT to convert these quantities back to data space.

- **Wavelet-based functional mixed model ([10]):**
  - Fixed factors: Variety, language, memory, repetition;
  - Full random structure.

DISCUSSION

- **Language interference:**
  - Neapolitan: Imitation of German Qs not mediated by grammar -> + attention to acoustic details - Lecce it.: Phonological ambiguity -> Speakers rely on phonetic implementation rules of their own variety.
  - **No memory effects:**
    - no rehearsal for continuous f0?
    - too simple task?

- **CONCLUSION**
  - Similarly to the segmental level, intonation is anchored by native prosodic representations.
  - Functional mixed models: New paradigm for exploring intonation.

References

[9] Savino, M. (2012). The intonation of polar questions in Italian: Where is the rise?

**RESULTS**

- **Language interference:**
  - Neapolitan: Imitation of German Qs not mediated by grammar -> + attention to acoustic details - Lecce it.: Phonological ambiguity -> Speakers rely on phonetic implementation rules of their own variety.

- **No memory effects:**
  - no rehearsal for continuous f0?
  - too simple task?

- **Increase cognitive load by increasing linguistic (i.e. syllabic) complexity (in progress)**

CONCLUSION

- Similarly to the segmental level, intonation is anchored by native prosodic representations.
- Functional mixed models: New paradigm for exploring intonation.

REFERENCES

[9] Savino, M. (2012). The intonation of polar questions in Italian: Where is the rise?