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Basic prosodic transcription of short French feedback utterances

Laurent Prévot, Mariapaola D'Imperio, Caterina Petrone

<http://lpl-aix.fr/person/lastname>

Laboratoire Parole et Langage, Aix-en-Provence, France



Context

- Feedback as a testcase for studying interfaces between linguistic domains
- Feedback extremely frequent in conversation
- Feedback crucial for communicative activities

Form-Function relationship

- Early work on Italian [4]
 - More systematic quantitative approach on English [5]
 - For these languages, transcription system do exist, not the case for French
- ↪ Need a sound and reliable prosodic transcription

Objectives

- Pilot study on very simple categories
- How far can we get with a quick and dirty manual approach
- Compare with an automatic tool
- Evaluate against an expert evaluation
- Test out transcription and evaluation methodologies

Automatic baseline for tones

- Praat-based pitch extraction
- Slope calculated with linear regression (Python Scipy package)

References

- [1] R. Artstein and M. Poesio. Inter-coder agreement for computational linguistics. *Computational Linguistics*, 34(4):555–596, 2008.
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- [3] Philippe Blache, Roxane Bertrand, and Gaëlle Ferré. Creating and exploiting multimodal annotated corpora: the toma project. In *Multimodal corpora*, pages 38–53. Springer, 2009.
- [4] L. Cerrato and M. D'Imperio. Duration and tonal characteristics of short expressions in italian. In *Proceedings of International Congress of Phonetic Sciences, Barcellona 2003*, 2003.
- [5] A. Gravano. *Turn-Taking and Affirmative Cue Words in Task-Oriented Dialogue*. PhD thesis, COLUMBIA UNIVERSITY, 2009.

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Dataset

- Extracted from Corpus of Interactional Data [3] sldr.org/sldr000720/en and AIX-MAPTASK [2] sldr.org/sldr000732/en
- 80 *ouais* (*yeah*) produced by women (40 from each corpus) for tone experiment
- 77 *voilà* (*that's right / that's it*)
- 33 *d'accord* (*allright / agreed*)
- 80 *ah ouais* (*oh yeah*)
- 80 sequences of *ouais* (2 items: 62 ; 3 items: 4 ; 4 items : 12 ; >4 items: 3)

Protocol

- Development of a small tool for obtaining the perception judgments
 - (using Python and PyGame API) <http://www.pygame.org/>
- Rely on coders intuitions only
- Sounds are played and can be replayed but signal and pitch are not given

Tone Experiment

- Determine whether the item is : RISE, FALL or LEVEL
- Items : *ouais*, *voilà*, *d'accord*

Phrasing Experiment

- Determine if there is an internal boundary in this sequence and where it is (only one possible position for *ah ouais*)
- Items : *ah ouais*, sequences of *ouais*

Intercoder agreement for naives

| | multi- κ | π | best κ | best Ao |
|--------------------------|-----------------|-------|---------------|---------|
| Tone <i>ouais</i> | 0.22 | 0.20 | 0.36 | 0.61 |
| Tone <i>voilà</i> | 0.20 | 0.18 | 0.21 | 0.50 |
| Tone <i>d'accord</i> | 0.00 | -0.07 | 0.20 | 0.67 |
| Phrasing <i>ah ouais</i> | 0.17 | 0.17 | 0.45 | 0.74 |
| Phrasing <i>ouais+</i> | 0.21 | 0.19 | 0.56 | 0.86 |

Calculations made with NLTK metrics package:

<http://nltk.org/api/nltk.metrics.html>

See [1] for details on the metrics

Evaluation

| | Avg Agreement | Best Agreement | Auto |
|-------------------------------|---------------|----------------|------|
| Tone <i>ouais</i> (N=14) | 0.20 | 0.36 | 0.43 |
| Tone <i>voilà</i> (N=9) | 0.14 | 0.22 | 0.44 |
| Tone <i>d'accord</i> (N=25) | 0.35 | 0.44 | 0.36 |
| Phrasing <i>ouais+</i> (N=13) | 0.69 | 0.85 | - |

Conclusions

- Quick and dirty annotation does not pay ↪ need a more careful transcription
- Need some specific training for this transcription task
- On continuously voiced items automatic rough tools are better than naive
- For these items, it seems easier to train for transcribing phrasing than contours
- Expert reports than contours on these items are much richer than tripartite classification proposed
- Other crucial ingredients for characterizing these forms: registers, voice quality