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To what extent do French listeners perceive word accentuation? An EEG investigation

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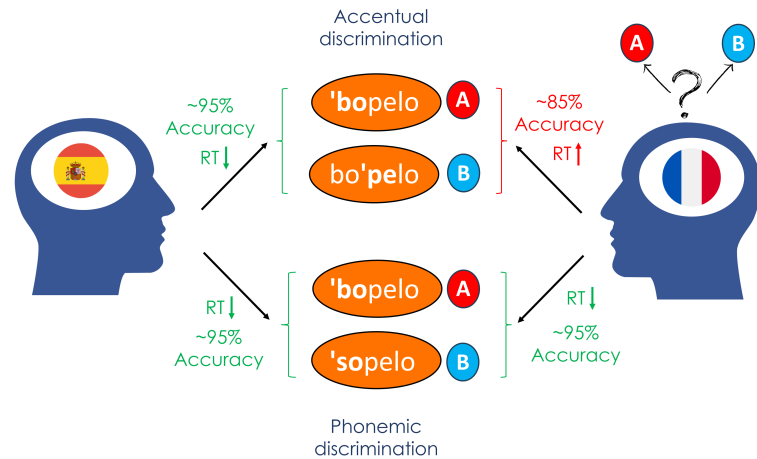
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To what extent do French listeners perceive word accentuation? An EEG investigation

INTRODUCTION

- French listeners exhibit difficulties with discrimination of non-words [1], French words [2] and Spanish words [3], differing in word accentual patterns.



Research objective

- Examine French listeners' ability to perceive native and non-native accentual word contrasts.
- Examine and compare the time-course of native and non-native accent processing by French listeners.

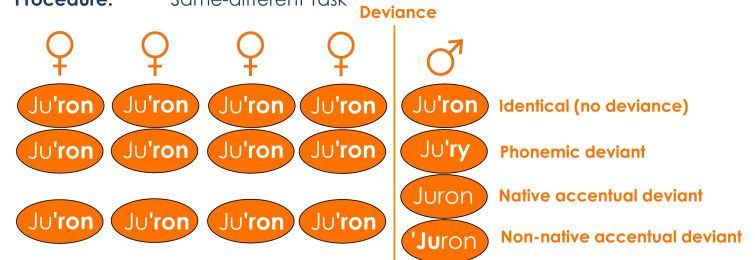
METHODOLOGY

Participants:

Native contrast: ♀ 15 ♂ 5
Non-native contrast: ♀ 18 ♂ 2

Data collected: Electroencephalogram (EEG) signal & Behavioural data.

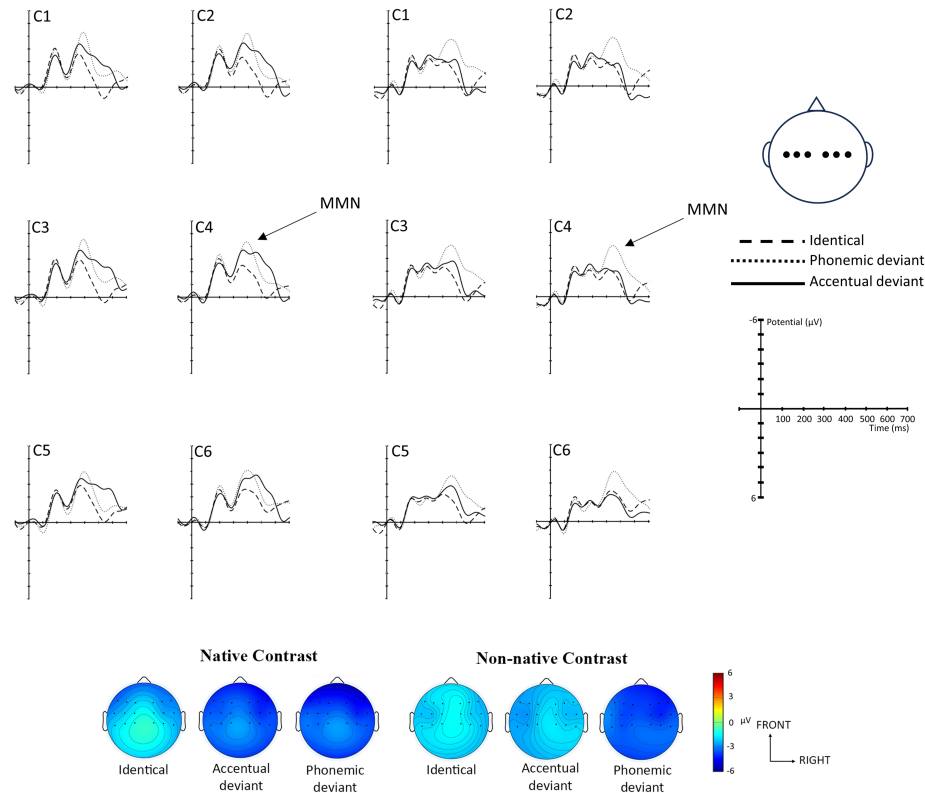
Procedure: Same-different Task



RESULTS

Native contrast

Non-native contrast



ELECTROPHYSIOLOGICAL RESULTS

Native accentual contrast

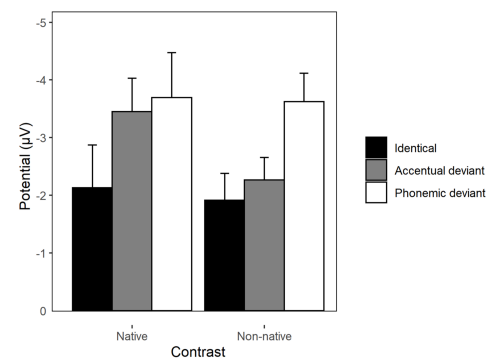
- Main effect of Condition with more negative values in the phonemic deviant condition and accentual deviant condition than in the identical condition.

Non-native accentual contrast

- Main effect of Condition with more negative values in the phonemic deviant condition than in both the accentual deviant and the identical conditions.

BEHAVIOURAL RESULTS

Native contrast		Non-native contrast		Native contrast		Non-native contrast	
Phonemic deviance	Accentual deviance	Phonemic deviance	Accentual deviance	Phonemic deviance	Accentual deviance	Phonemic deviance	Accentual deviance
RTs	Errors	RTs	Errors	RTs	Errors	RTs	Errors
975 ms	1%	1097 ms	8%	1044 ms	1.32%	1158 ms	6.80%



DISCUSSION & CONCLUSION

- French listeners react similarly to accentual contrasts and phonemic contrasts when the accentual patterns are native, but react differently when the accentual patterns are non-native.
- Stimuli with non-native accentual contrasts are perceived as being identical in the early stages of processing.

French listeners do not perceive non-native accentual contrasts.

HOWEVER

- Even though French listeners obtained more errors and longer RTs in the accentual than in the phonemic deviance, they still achieved a high level of accuracy (93%) in the non-native accentual contrast.

French listeners can use the change in accent location (non-native deviance) to perform certain tasks if their attention is directed to the accentual differences.

Conclusion: Despite a high level of performance in the discrimination tasks, French listeners do not perceive the difference in non-native accentual contrasts (e.g. /'ʒyʁi/ and /ʒy'ʁi/) during unconscious and automatic speech perception processes.

[1] Dupoux, E., Pallier, C., Sebastian, N., Mehler, J. 1997. A destressing "deafness" in French? J. of Memory and Language 36(3), 404-421.

[2] Michelas, A., Esteve-Gibert, N., Dufour, S. 2018. On French listeners' ability to use stress during spoken word processing. J. of Cognitive Psychology 30(2), 198-206.

[3] Schwab, S., Llisterri, J. 2013. Does training make French speakers more able to identify lexical stress? Proceedings of the international symposium on the acquisition of second language speech. Concordia working papers in applied linguistics: 2013-1.