

Do musicians outperform non-musicians in Dutch word stress production?

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Acquisition of Dutch prosody by francophone learners

Rasier (2006), Michaux (2014)

- DIFFERENCES FRENCH & DUTCH PROSODY →
- FR: postlexical accent (Astésano & Bertrand, 2016)
 - D: variable stress with lexical property (*voornaam* (first name), voor*naam* (distinguished))

- Transfer L1 prosody patterns: stress on last syll. / 1st and last syll. (accentual arc)
 - Use penultimate and antepenultimate stress (penultimate most common in Dutch)

How can music help?

- PARALLELISMS MUSIC & LANGUAGE (PROSODY)
- Acoustic properties
 - Neurological processing: sharing of functions and resources (Schön & Morillon, 2019)
- MUSIC & LANGUAGE LEARNING
- Musicians > non-musicians : pitch processing (Besson et al., 2007) , perceiving/producing stress (Degrave, 2020/Copeland, 2010)

Questions

Do musicians score better on a word stress production task than non-musicians?

Exploration of other influencing factors: 1/ Category of stimulus (formal resemblance FR-D: identical, quasi-identical, different) 2/ Stress position of stimulus (1st syll., 2nd syll.) ≠ produced stress position

Pilot study

- PARTICIPANTS
- 18 francophone students (UCLouvain)
 - 9 musicians (≥ 5y academy, current practice)
 - 9 non-musicians (< 2y academy, no practice)
 - intermediate level in Dutch
- METHODOLOGY
- Dutch language proficiency tests (DIALANG, LexTALE)
 - Prosody production task: reading out loud of 30 three-syllable words in sentence initial position most difficult position (see Michaux, 2014)

DATA ANALYSIS

- all stimuli have correct stress on 1st or 2nd syllable → 3rd syllable and double stress *always* incorrect
- annotation by 2 experts

Preliminary results acoustic analysis in progress

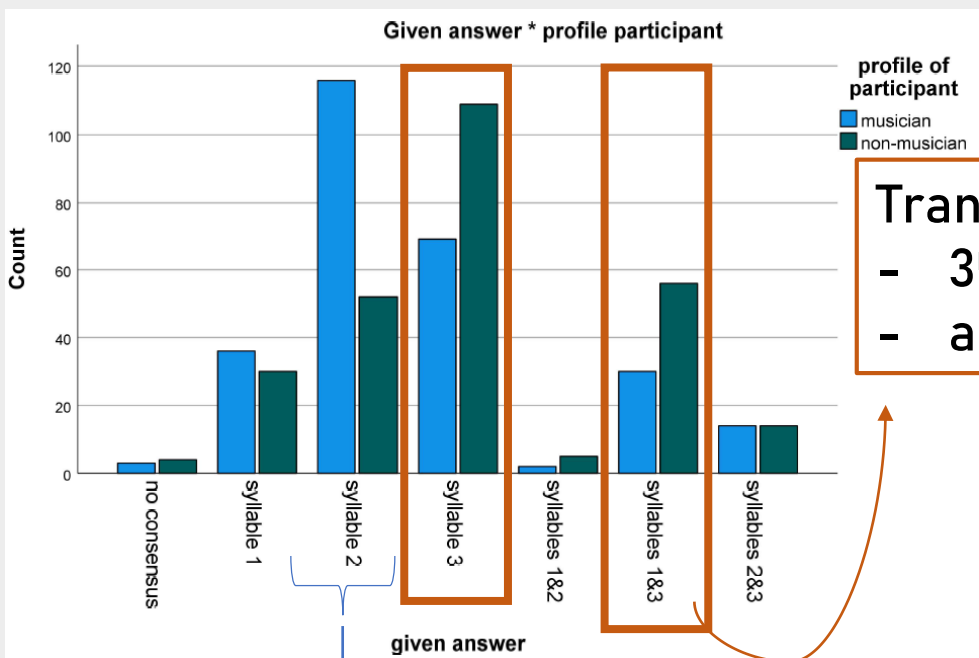
Musicians > non-musicians in word stress production, musicians show less transfer

Variables in the Equation					
		B	S.E.	Wald	Sig.
Step 1 ^a	profile of participant	-.819	.195	17,685	<,.001
	category of stimulus	.540	.134	16,329	<,.001
	stress position stimulus	.418	.193	4,710	.030
	Constant	-1,187	.466	6,470	.011

Logistic Regression: Variables in the Equation						
		B	S.E.	Wald	df	Sig.
Step 1 ^a	category of stimulus			16,433	2	<,.001
	category of stimulus(1)	-1,053	.274	14,805	1	<,.001
	category of stimulus(2)	-.421	.260	2,630	1	.105
	profile of participant(1)	.819	.195	17,689	1	<,.001
	stress position stimulus	-.428	.194	4,875	1	.027
	Constant	-.426	.250	2,908	1	.088

a. Variable(s) entered on step 1: category of stimulus, profile of participant, stress position stimulus.

odds ratio $Exp(B) = 2,267$: profile “musician” strong predictor of correct word stress production



Non-musicians transfer in 61% of productions
Musicians transfer in 37% of productions

2 nd syll.	Musicians	Non-musicians	Total
correct	76 (66%)	33 (63%)	109
incorrect	40 (34%)	19 (37%)	59
total	116 (100%)	52 (100%)	168

musicians use more than twice as much penultimate stress (proportion correct/incorrect same in musicians and non-musicians)

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Besson, M., Schön, D., Schön, S., Moreno, S., Santos, A., & Magne, C. (2007). Influence of musical expertise and musical training on pitch processing in music and language. *Restorative Neurology and Neuroscience*, 25(3–4), 399–410. www.ansi.org

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Schön, D., & Morillon, B. (2019). Music and Language. In *The Oxford Handbook of Music and the Brain* (pp. 390–416). Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780198804123.013.16>