

Influence of melodic context on the perception of vocal pitch accuracy

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INTRODUCTION:

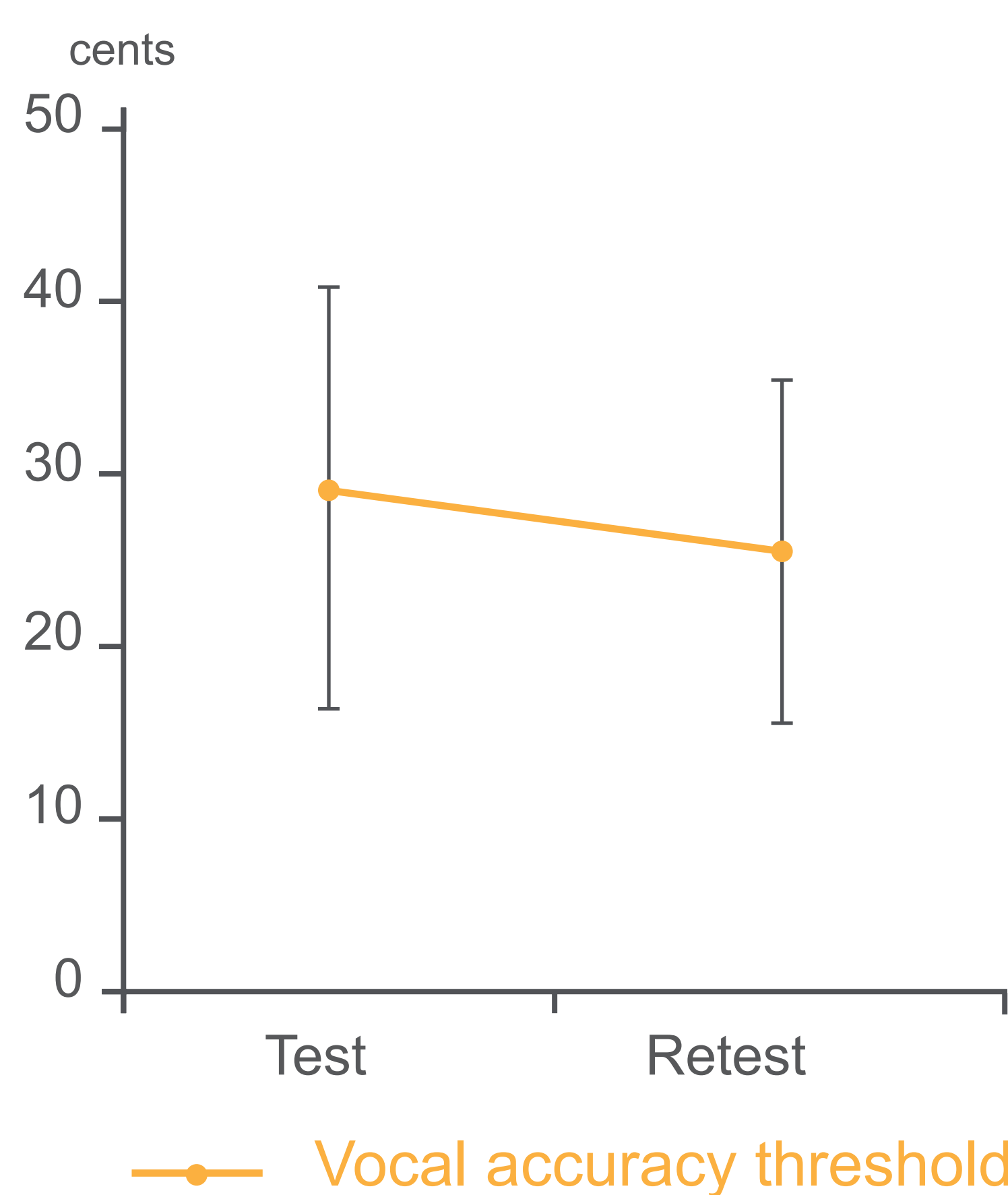
- Pitch accuracy evaluation in a melodic context: mainly based on the preservation of **interval's size** and **tonality** ^[1]
- Perceptual threshold: limit between “in tune” and “out of tune”.
- Depend on the study:
 - > quarter tone (50 cents) ^{[2] [3]}
 - > semitone (100 cents) ^[4]

GOAL:

Define perceptual threshold of pitch accuracy in a melodic context.

RESULTS:

- Correlation test-retest ($r(120)=0,46$, $p<.001$).
- Pitch accuracy threshold more precise at the retest than at the test ($t(120)=3,64$, $p<.001$).



- No effect of condition on accuracy threshold:

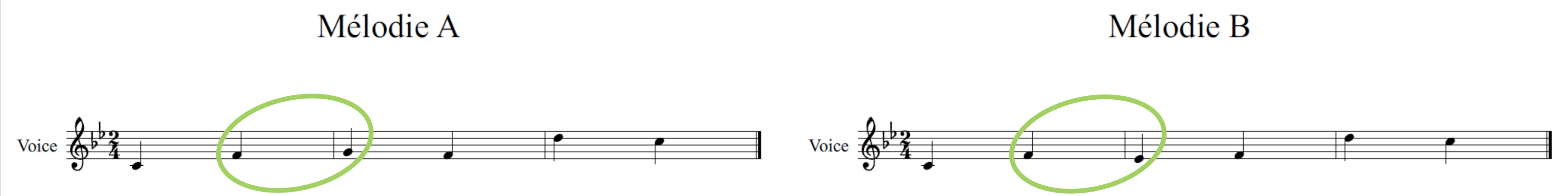
| Factors | F | P |
|------------------------|------|------|
| Melody contour | 1,09 | 0,30 |
| Error type | 2,00 | 0,16 |
| Direction of deviation | 0,62 | 0,43 |
| Melody*Error type | 0,01 | 0,94 |
| Melody*Direction | 0,19 | 0,66 |
| Error type*Direction | 0,14 | 0,71 |
| Melody*Error*Direction | 0,00 | 0,95 |

Factorial ANOVA

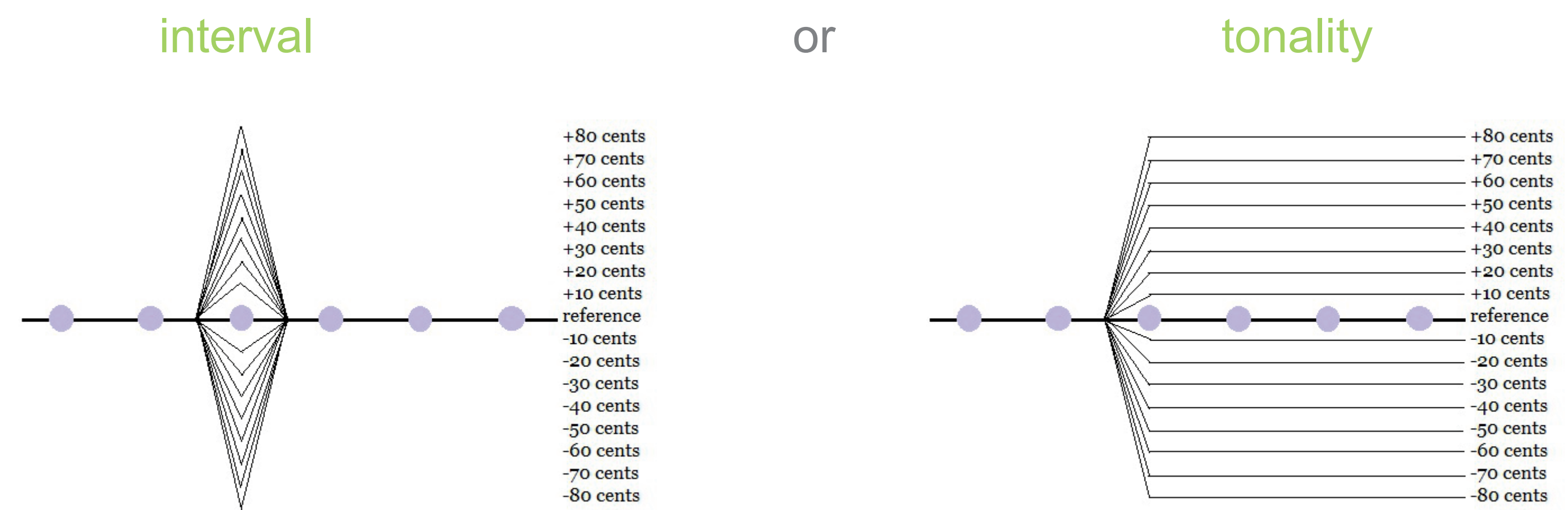
P: significance level (* $p<.05$)

METHOD: 2X2X2 DESIGN

- Contour of the melody



- Type of error



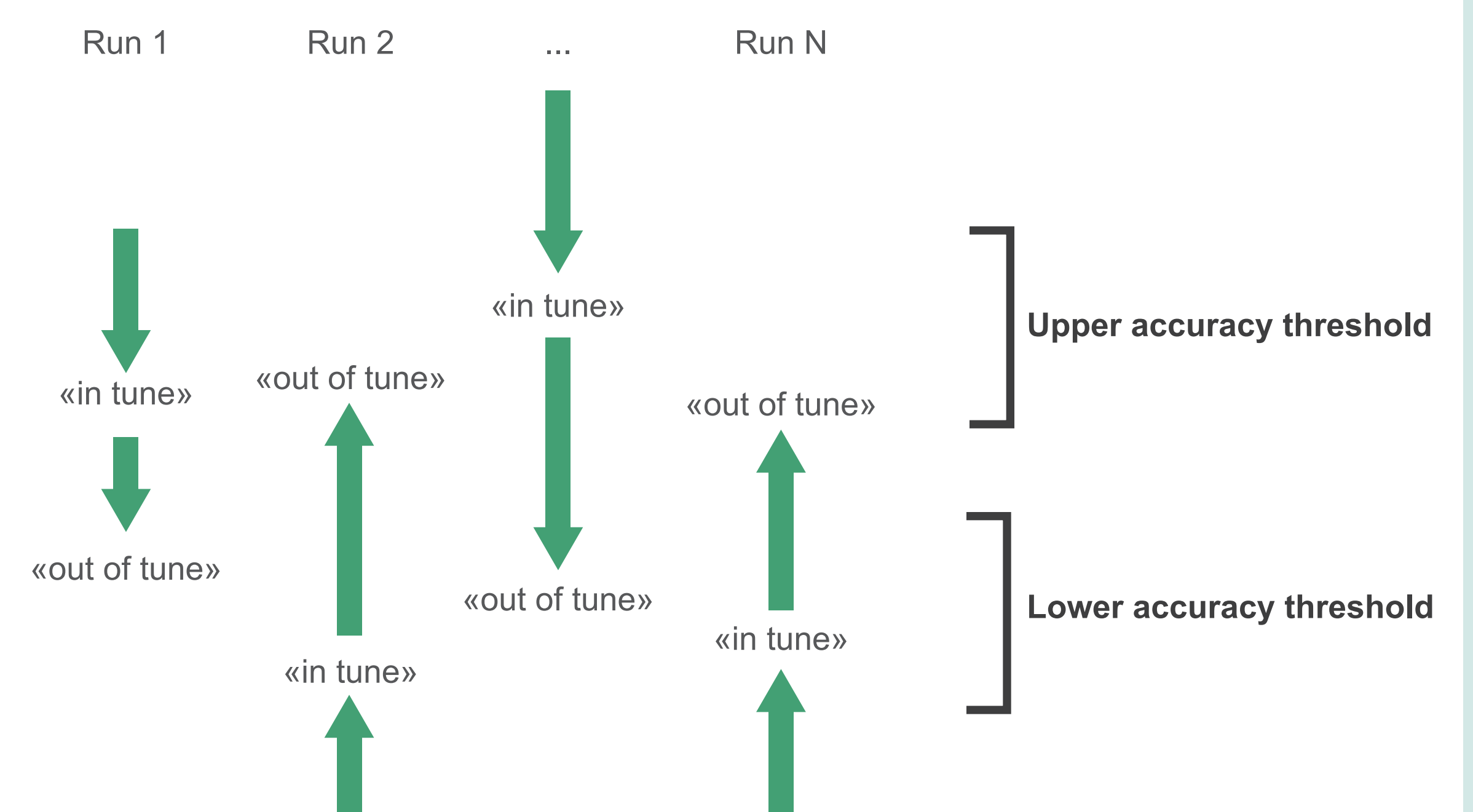
- Direction of the deviation (enlargement or compression)

Subjects:

30 non-musicians
($M=23.33$ years old, $SD=3.53$)

Procedure:

Method of limits, ^{[5] [6]}
test - retest.



CONCLUSION:

- Pitch accuracy threshold : **27.45 cents (SD=10.45)**
- **No influence of the melodic context** (melody contour, type of error, direction of the deviation)
- **Possible effect of training**
 - Stable and precise melodic representation
 - Allow to define more precisely “vocal accuracy”, and to adapt objective tools to qualify a singer’s performance

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- [6] Larrouy-Maestri, P., Blanckaert, E., & Morsomme, D. (2013, May). *The evaluation of singing voice accuracy: How tolerant are we?* Belgian Association for Psychological Sciences, Louvain.