

# PROCESSING OF LINGUISTIC AND MUSICAL DIMENSIONS CONTAINED IN SONGS : EFFECTS OF AN EXPERTISE



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## INTRODUCTION

Songs are omnipresent in our lives and offer an ecological material that links linguistic and musical information.

They therefore provide a tool for observing the relations between music and language.

Schön, Boyer, Moreno, Besson, Peretz & Kolinsky (2008) demonstrated the benefic of structural and motivational proprieties of music contained in songs in learning an artificial language.

## THIS STUDY

Examines the specificity of language and music processing in songs. We studied the influence of expertise (musicians vs. speech therapists) on the use of transitional probabilities (TPs) in learning an artificial language (AL) that was either spoken or sung.

## METHODS

### Experiment I: Speech

#### Participants:

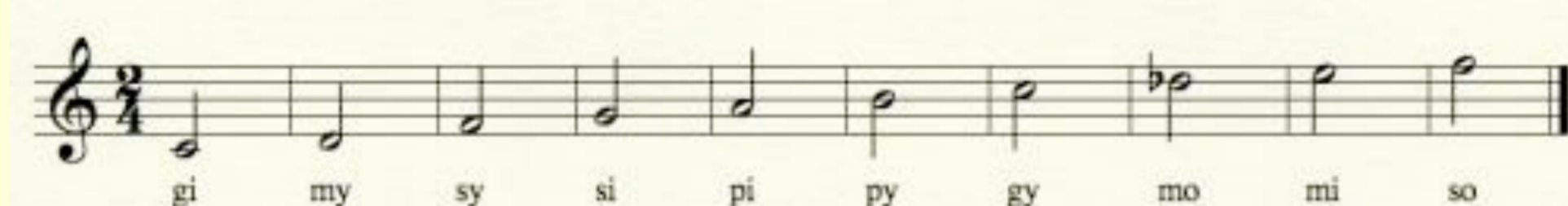
- 48 native French adults
- 16 non experts
- 16 musicians
- 16 speech therapists

#### Material:

A continuous stream of speech (7mn30)

- 4 consonants & 3 vowels, combined into a set of 11 syllables
- 6 « words » : gimysy, mimosi, pogysi, pymiso, sipygy, sysipi

Each syllable correspond with one sound



### Experiment II: Song

#### Participants :

- 56 native French adults
- 20 non experts
- 20 musicians
- 16 speech therapists

Matériel: The same continuous stream of speech, but sung

> Congruence between the musical and linguistic TPs



### Experiment III: Strange song

#### Participants :

- 48 native French adults
- 16 non experts
- 16 musicians
- 16 speech therapists

Matériel: The same continuous stream of speech, but sung

> Incongruence between the musical and linguistic TPs



#### Test:

- 36 pairs : two-alternative forced-choice task
- Part-words constructed with the same syllable set as words
- All test sequences are spoken, never sung

## RESULTS

No significant effect of Expertise:

$$F(2,143) = 1.53, p > .10$$

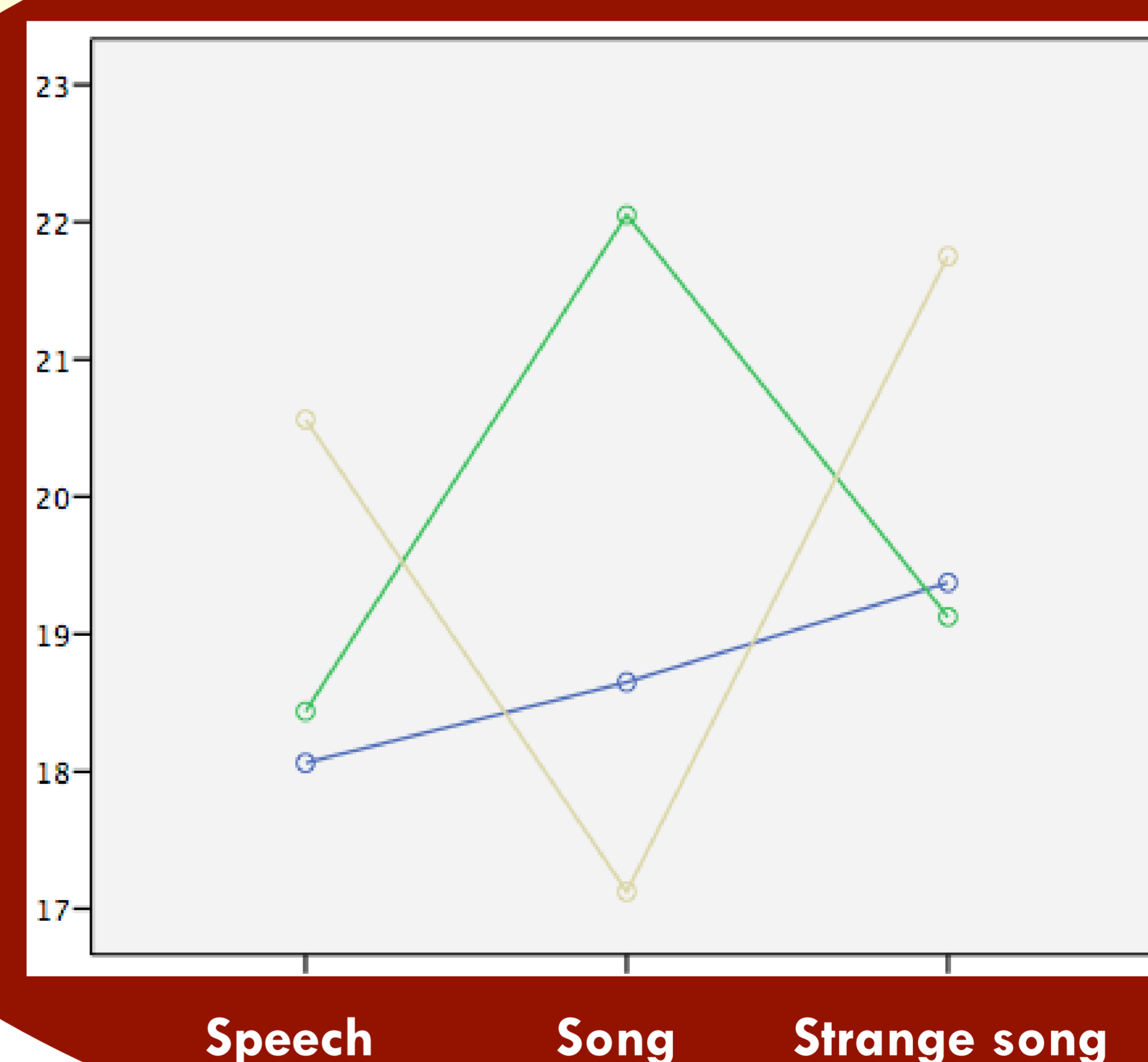
No significant effect of Material:

$$F(2,143) = 1.03, p > .10$$

Expertise x Material interaction:

$$F(4,143) = 5.27, p = .001$$

Percentages of correct responses



## DISCUSSION

An interaction occurred between the type of AL and participants' expertise:

- music experts seemed to benefit from the congruence TPs in extracting linguistic units.
- experts in language seemed to be favoured by the incongruence between TPs.

The notion of the specificity of processing of lyrics and tunes in songs can be discussed with this results.

While non-experts would treat various dimensions separately, speech therapists seemed to be disturb by musical information and musicians may develop a common processing of linguistic and musical dimensions contained in songs.