

# Pre-registration

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## 1 Study information

### 1.1 Title

XXX

### 1.2 Authorship

Stefano Coretta (The University of Manchester).

### 1.3 Research questions

Vowel height has been shown to be correlated with vowel duration, such that high vowels are shorter than low vowels. Moreover, data from Italian showed that the duration of the C1 Release to Vowel Offset interval (RVoffT) in VCVC words is affected by vowel height in the same direction: higher vowels have a shorter RVoffT (Esposito, 2002). Less attention has been given to the duration of the voiced interval including the vowel. In the context of two flanking voiceless stops, it is possible to measure the duration of the portion with vocal fold vibration. This allows us to answer the following question:

- Is the duration of the voicing interval between two voiceless stops affected by vowel height?

### 1.4 Hypotheses

- H1: The duration of the voiced interval is shorter for high than for low vowels.
- H2: RVoffT is shorter for high than for low vowels (replication of Esposito, 2002).

## 2 Sampling plan

### 2.1 Existing data

**Registration prior to creation of data:** As of the date of submission of this research plan for preregistration, the data have not yet been collected, created, or realised.

### 2.2 Explanation of existing data

NA.

## 2.3 Data collection procedures

## 2.4 Sample size

30 participants, 43 words, 4 repetitions. Grand total: 5,160 observations.

## 2.5 Sample size rationale

## 2.6 Stopping rule

Data collection will be terminated earlier if the 30 participants hasn't been reached by the end of September 2018.

# 3 Variables

## 3.1 Manipulated variables

- Vowel height: high (/i, u/), mid-high (/e/), mid-low (/ɔ/), low (/a/).
- Place of articulation of C1: labial, coronal, velar.
- Place of articulation of C2: labial, coronal, velar.
- Frame sentence: *Scrivete X sul foglio, Ha detto X sei volte, Sentivo X di nuovo, Ripete X da sempre.*

See Other for the list of words.

## 3.2 Measured variables

- Duration of voiced interval: from voice onset to voice offset as recorded by the electroglottograph.
- Vowel duration: from onset to offset of higher formant structure.

## 3.3 Indices

NA.

# 4 Design plan

## 4.1 Study type

Experiment—A researcher randomly assigns treatments to study subjects, this includes field or lab experiments. This is also known as an intervention experiment and includes randomized controlled trials.

## 4.2 Blinding

No blinding is involved in this study.

### 4.3 Study design

### 4.4 Randomisation

## 5 Analysis plan

### 5.1 Statistical models

```
library(lmerTest)

voicing_lm <- lmer(
  voicing_duration ~
    height +
    c2_place +
    height:c2_place +
    (1|speaker) +
    (1|item),
  REML = FALSE
)

vowel_lm <- lmer(
  vowel_duration ~
    height +
    c2_place +
    height:c2_place +
    (1|speaker) +
    (1|item),
  REML = FALSE
)
```

## References

Esposito, Anna. 2002. On vowel height and consonantal voicing effects: Data from Italian. *Phonetica* 59(4). 197–231.