

# Regional Variations of Tempo in French

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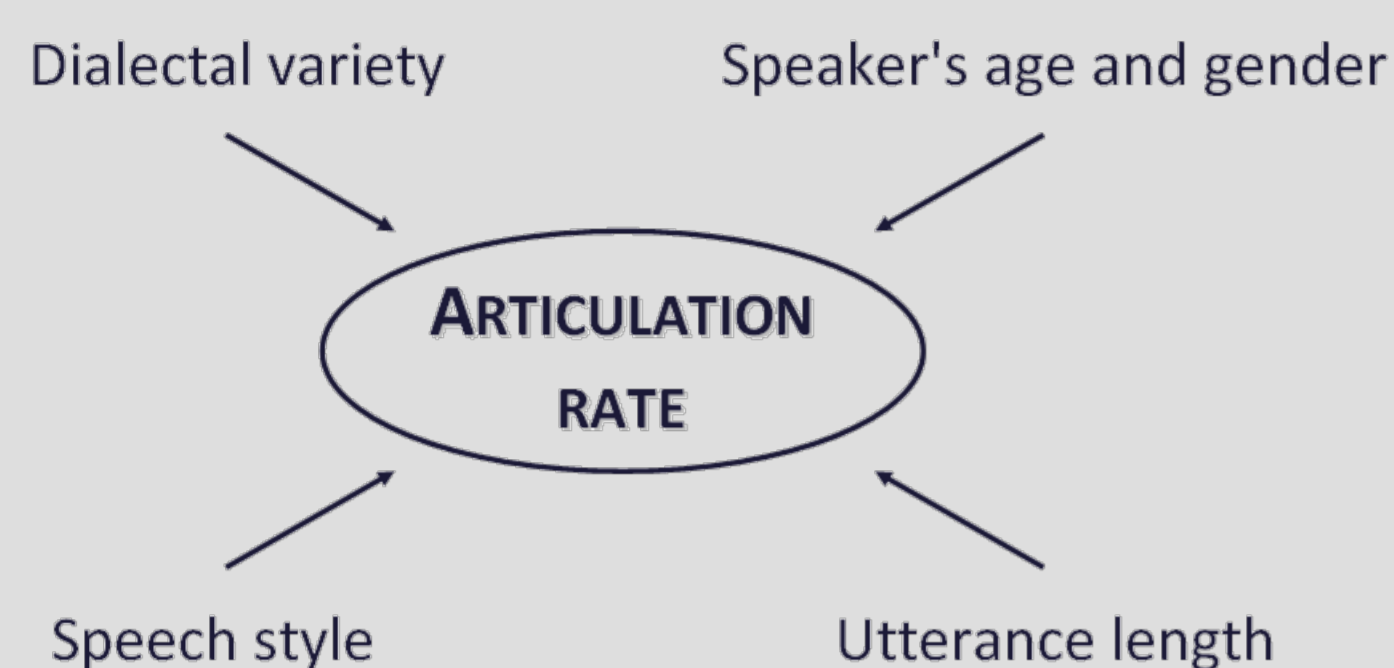
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## Introduction

### • Articulation rate:

- Space at which segments are produced without considering pauses
- Expressed in syll/sec or in ms/syll (Grosjean & Deschamps, 1975; Miller et al., 1984)

### • Some factors affecting articulation rate:



## Goal

- To examine the effect of **dialectal variety**, **speaking style** and **utterance length** on the articulation rate in French, by taking into account the speakers' **age and gender**

## Material

- **Eight varieties of French in read speech** (PFC text; Durand et al., 2009) and in **spontaneous speech**
- For each variety: **4 males and 4 females**
- **No speaker's age difference** between the varieties



## Data analysis

- Automatic alignment in syllables (*EasyAlign*; Goldman, 2011) and manual verification
- Identification of the Accentual Phrases (AP; Jun & Fougeron, 2002)
- Exclusion of disfluent syllables and APs of less than 2 syllables
- For each AP, number of syllables and calculation of articulation rate in ms/syll ⇒ **Syllabic duration**
- Statistical analysis:
  - Generalized linear model on syllabic duration
  - Predictors: dialectal variety (S-NY, S-NE, S-GE, S-MA, B-BL, B-BT, F-LY, F-PA), speakers' age and gender, speech style (reading/conversation) and number of syllables in the AP

## Results

### • Effect of **dialectal variety**

- ⇒ Syllabic duration is shorter (i.e. articulation rate is faster) in French and Belgium varieties than in Swiss varieties, except in S-MA variety
- ⇒ No difference between French and Belgium varieties

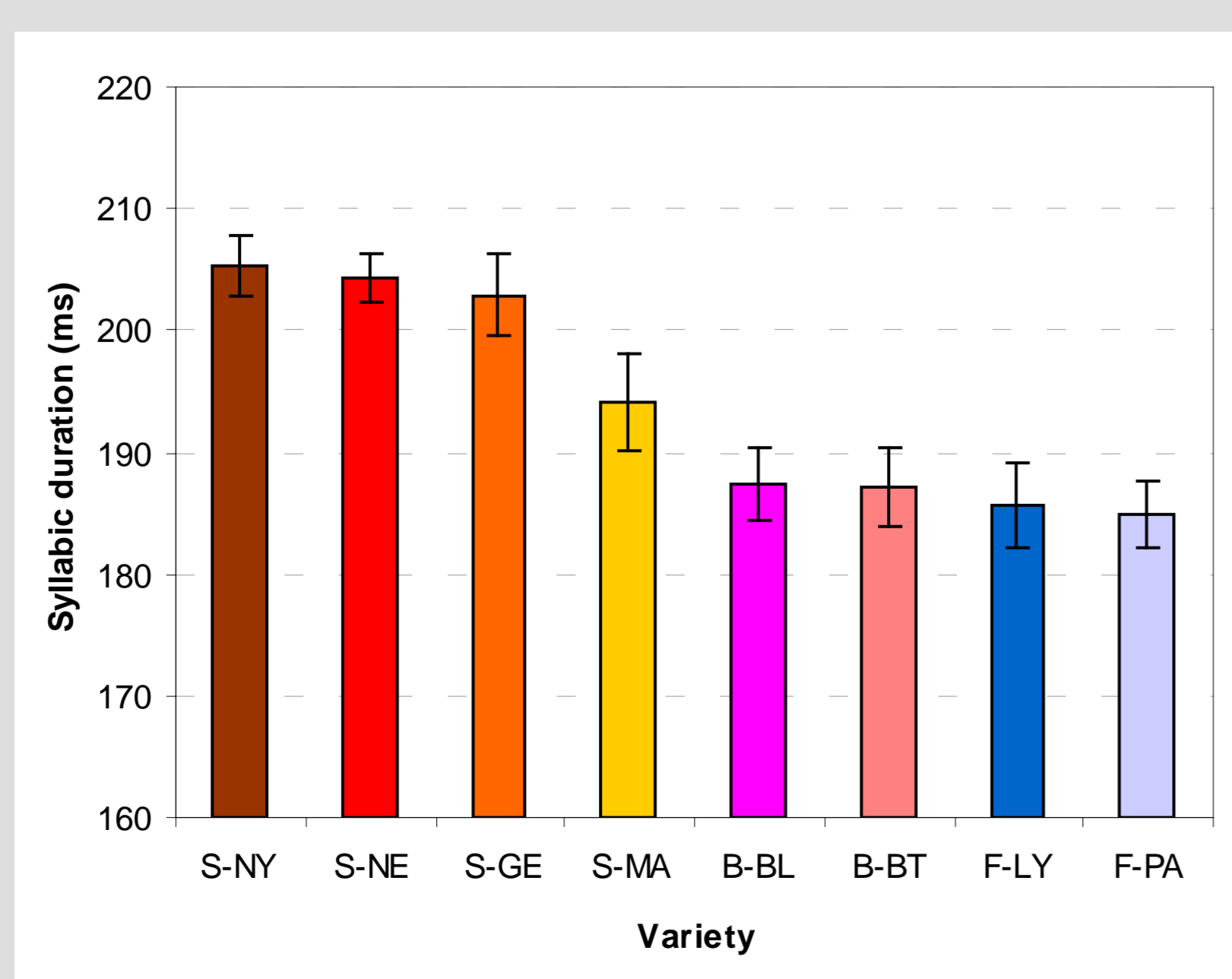


Figure 1: **Syllabic duration** (in ms) as a function of the **dialectal variety**. Error bars are standard error of the mean.

### • Effect of **extra-linguistic variables**

#### • Effect of **gender**

- ⇒ Syllabic duration is shorter for males than females
- ⇒ The difference between males and females is not similar across all varieties (i.e. stronger in F-PA and B-BT than in the other varieties).

#### • Effect of **age**

- ⇒ Syllabic duration increases with age, but in a stronger way in the Swiss varieties (except S-MA) and in F-LY than in F-PA and Belgium varieties

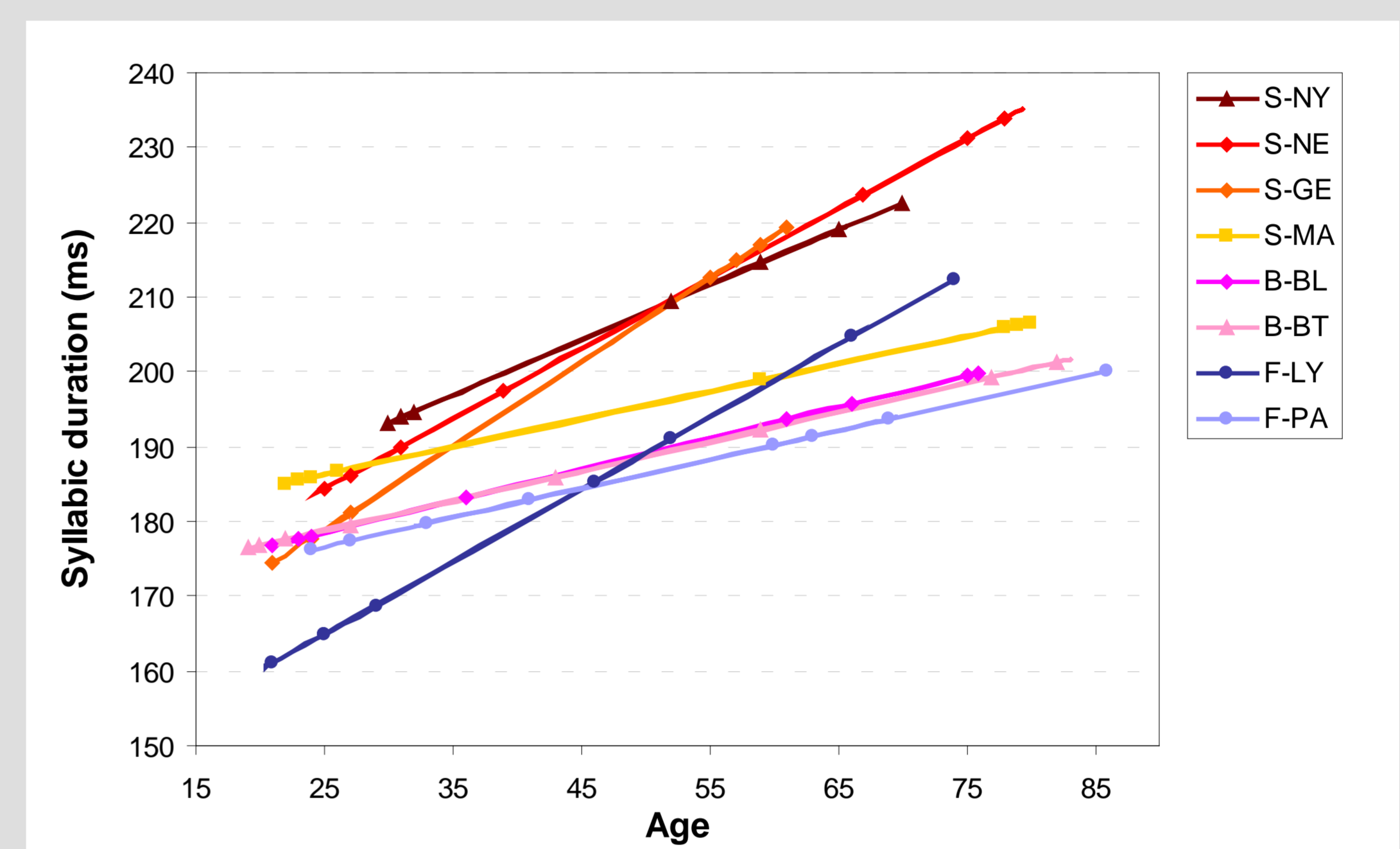


Figure 2: **Syllabic duration** (in ms) as a function of **age** and **dialectal variety**.

### • Effect of **speech style**

- ⇒ Syllabic duration is shorter in conversation than in read speech
- ⇒ The differences between the varieties are more salient in reading than in conversation

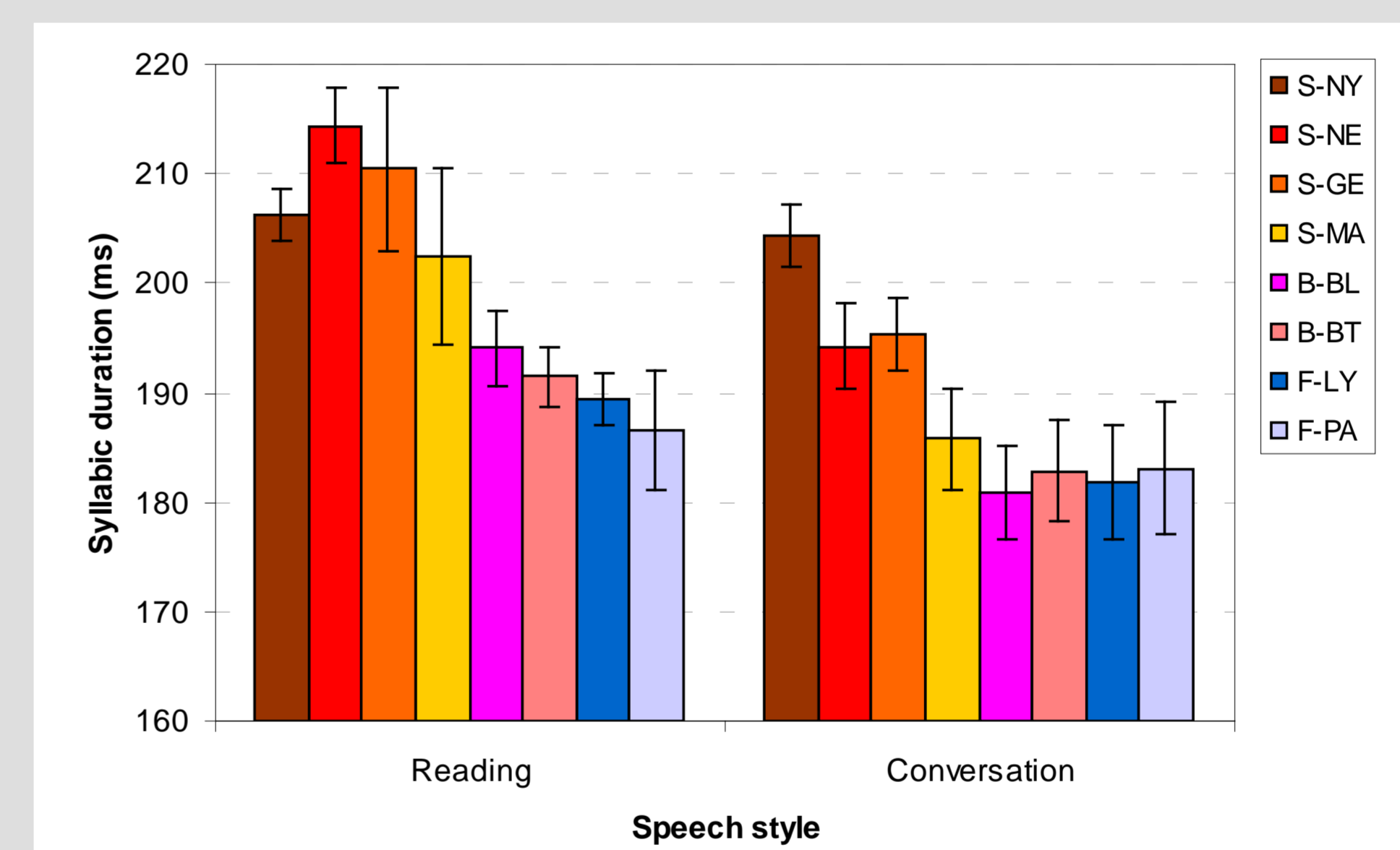


Figure 3: **Syllabic duration** (in ms) as a function of **speech style** and **dialectal variety**. Error bars are standard error of the mean.

- Effect of the **utterance length** (number of syllables in the AP)
  - ⇒ Syllabic duration decreases when the number of syllables within the AP increases
  - ⇒ The effect of the number of syllables is stronger in reading than in conversation
  - ⇒ The effect of the number of syllables is not similar across all the varieties (i. e. weaker in the F-PA than in the other varieties)

## Conclusions

⇒ **French speakers articulate faster than Swiss speakers (except S-MA), but not than the Belgian speakers**

### • Influence of the **extra-linguistic variables**

- Males articulate faster than females, especially in the F-PA and in the B-TO groups
- Age has a stronger effect in the Swiss varieties (except in S-MA) and in F-LY than in the other varieties

### • Influence of **speech style** and **utterance length**

- Articulation rate is faster in conversation than in reading
  - ⇒ Careful reading?
- The differences between the varieties are more noticeable in reading than in conversation
- The longer the utterance (AP), the faster the articulation rate