WP8 - Mechanisms of cultural learning

THE ROLE OF LETTER CATEGORY IN WORD PERCEPTION

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Consonants & Vowels

Letter strings are sequences of two kinds of symbols, vowels and consonants

- In visual word recognition, previous work showed that consonants provide stronger constraints than vowels on **lexical selection**

- We explore a different perspective:
  The arrangement of consonant and vowel letters guides **perceptual parsing** : how strings of letters are organized into multiletter chunks.

The CV Pattern

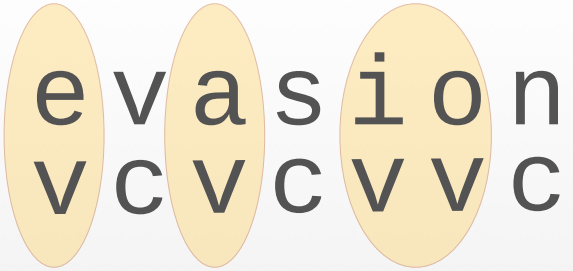
The **CV pattern**, i.e., the arrangement of vowel and consonant letters, determines parsing into perceptual units

Each series of contiguous vowel letters constitutes the core of an orthographic unit

(…and consonants letters are attached to these nuclei… according to principles yet to be described in details)

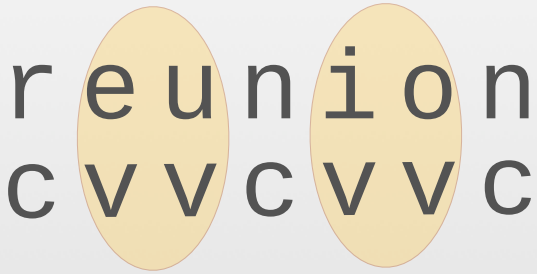
Consonants & Vowels

ɪ.veɪ.ʒən



Three syllables and three orthographic vowel clusters

ri.ju.njən



Three syllables but two orthographic vowel clusters

Syllable counting : Participants tend to underestimate the number of syllables in hiatus words

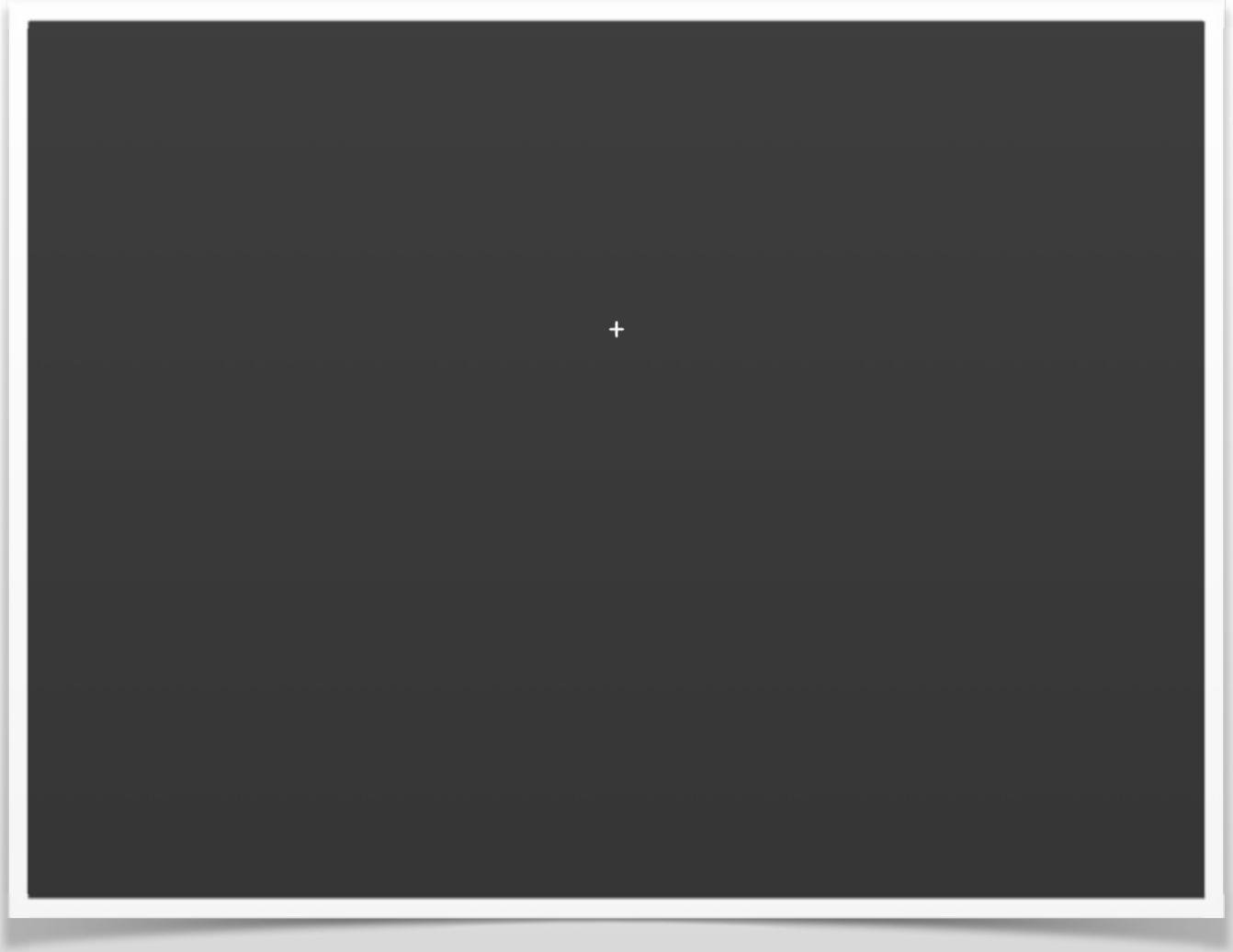
(Chetail & Content, 2012, J. Mem. Lang)

A new technique

- A simple perceptual task: length estimation
- A simple hypothesis: length estimation is sensitive to representational structure
- (cf. click location, color detection, line bisection paradigms)

		Word type	
		Control	*Hiatus*
Number of syllables	*2*	cousin	client
	3	evasion	reaction

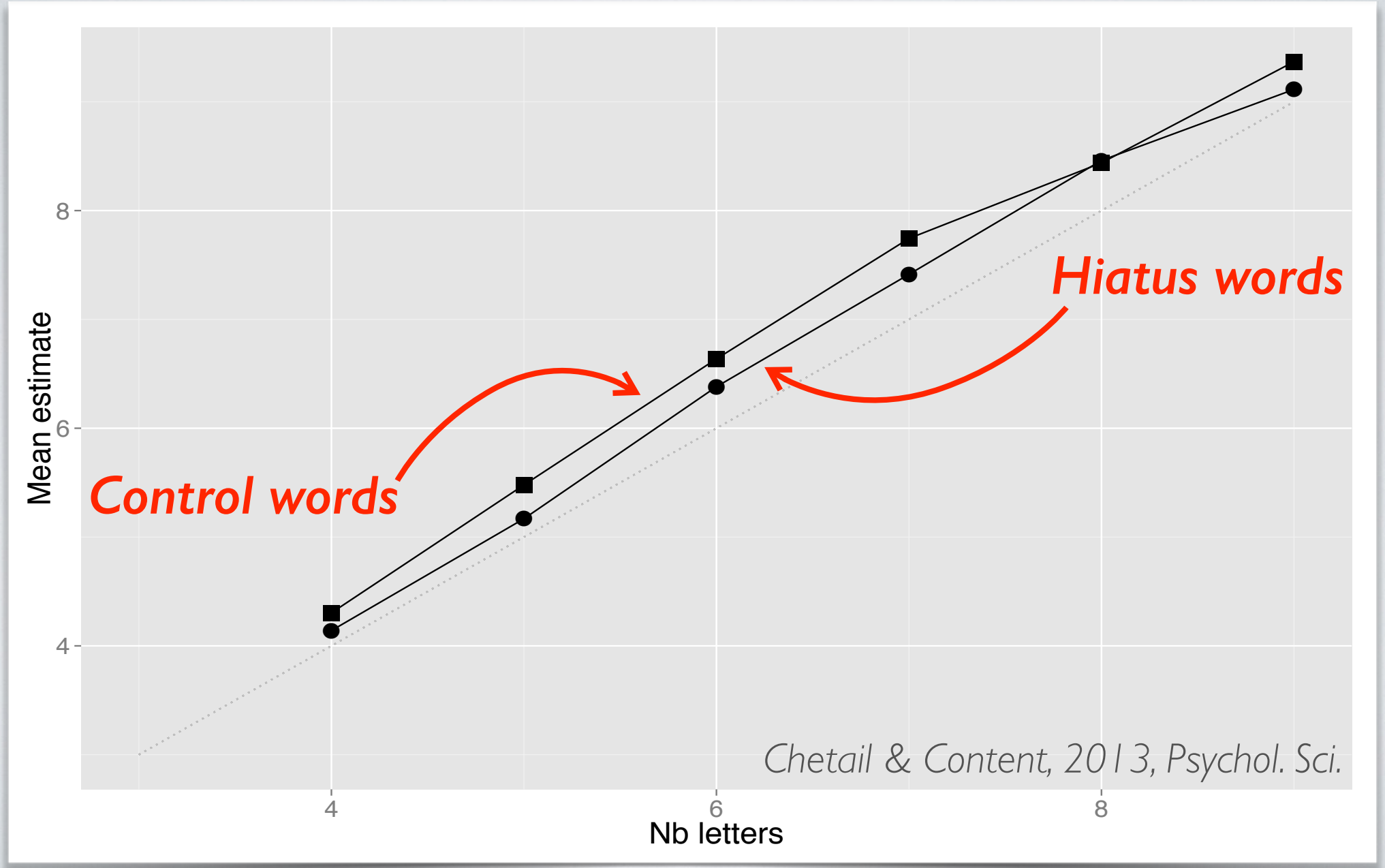
The length estimation task



A new technique

- Simple task
- Can be done with non-readers, prereaders, beginners, experts, patients…
- Permits fine-tuned exploration of time-course of the accumulation of information (≠ time-course of processing)
- Effects are robust

The word type length bias



The word type length bias

Experiment 1

100 ms exposure

- ✔ Number of Letters ($p < .0001$)
- ✔ Word Type ($p < .0001$)
- ✔ Number of Syllables ($p < .0005$)

Experiment 2

50 ms exposure

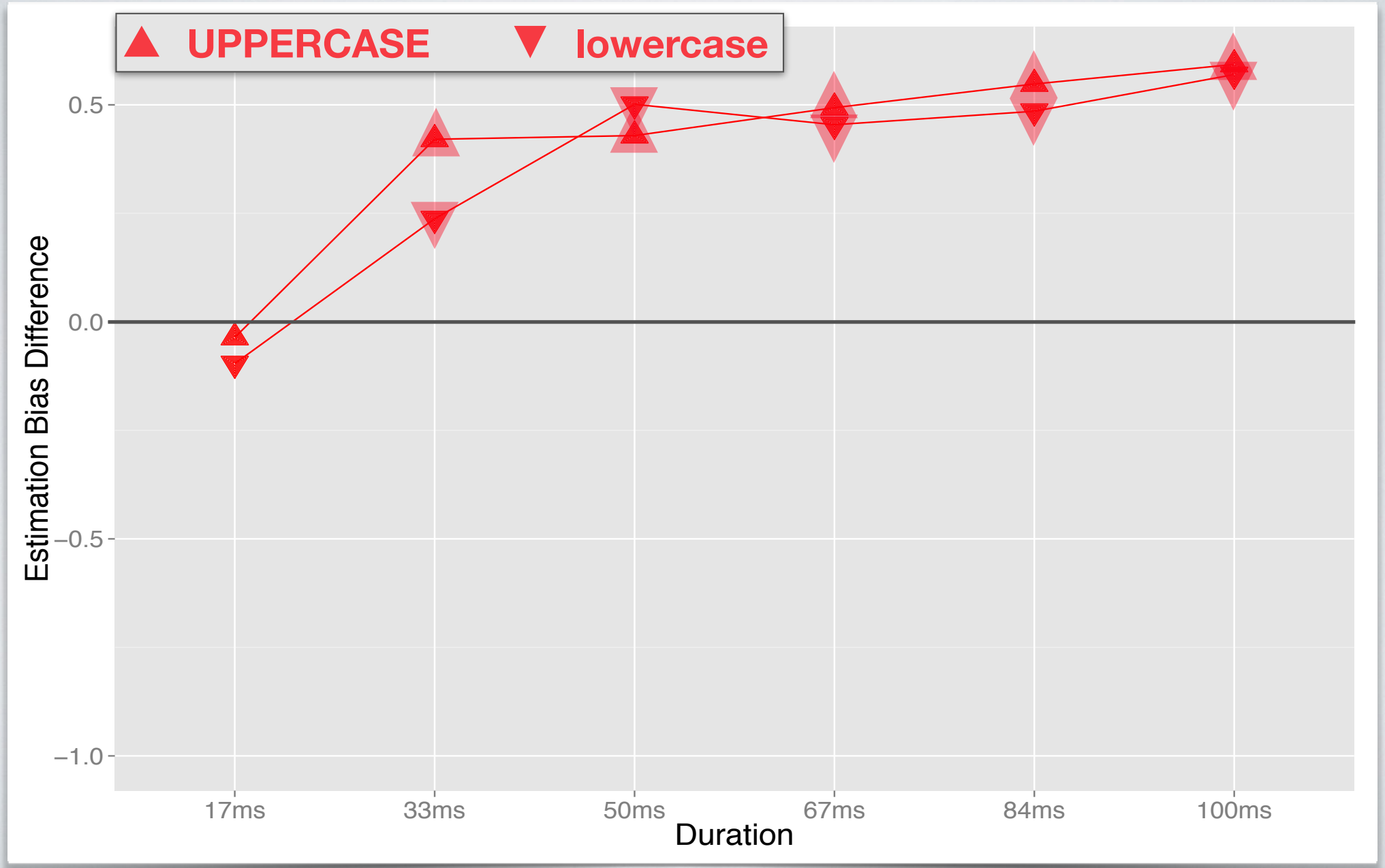
- ✔ Number of Letters ($p < .0001$)
- ✔ Word Type ($p < .0002$)
- ✘ Number of Syllables ($p = .16$)

Chetail & Content, 2013, Psychol. Sci.

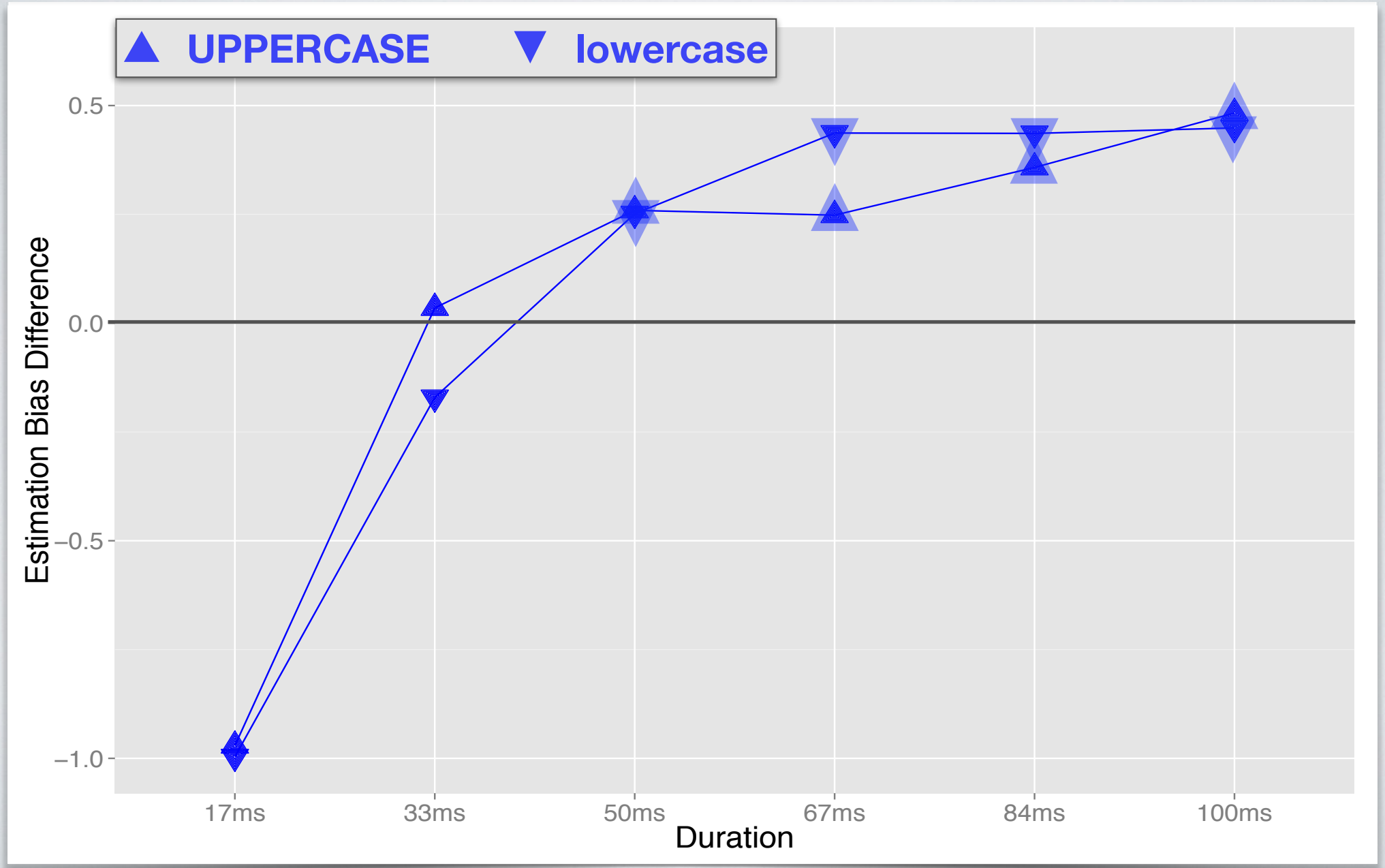
Follow-up

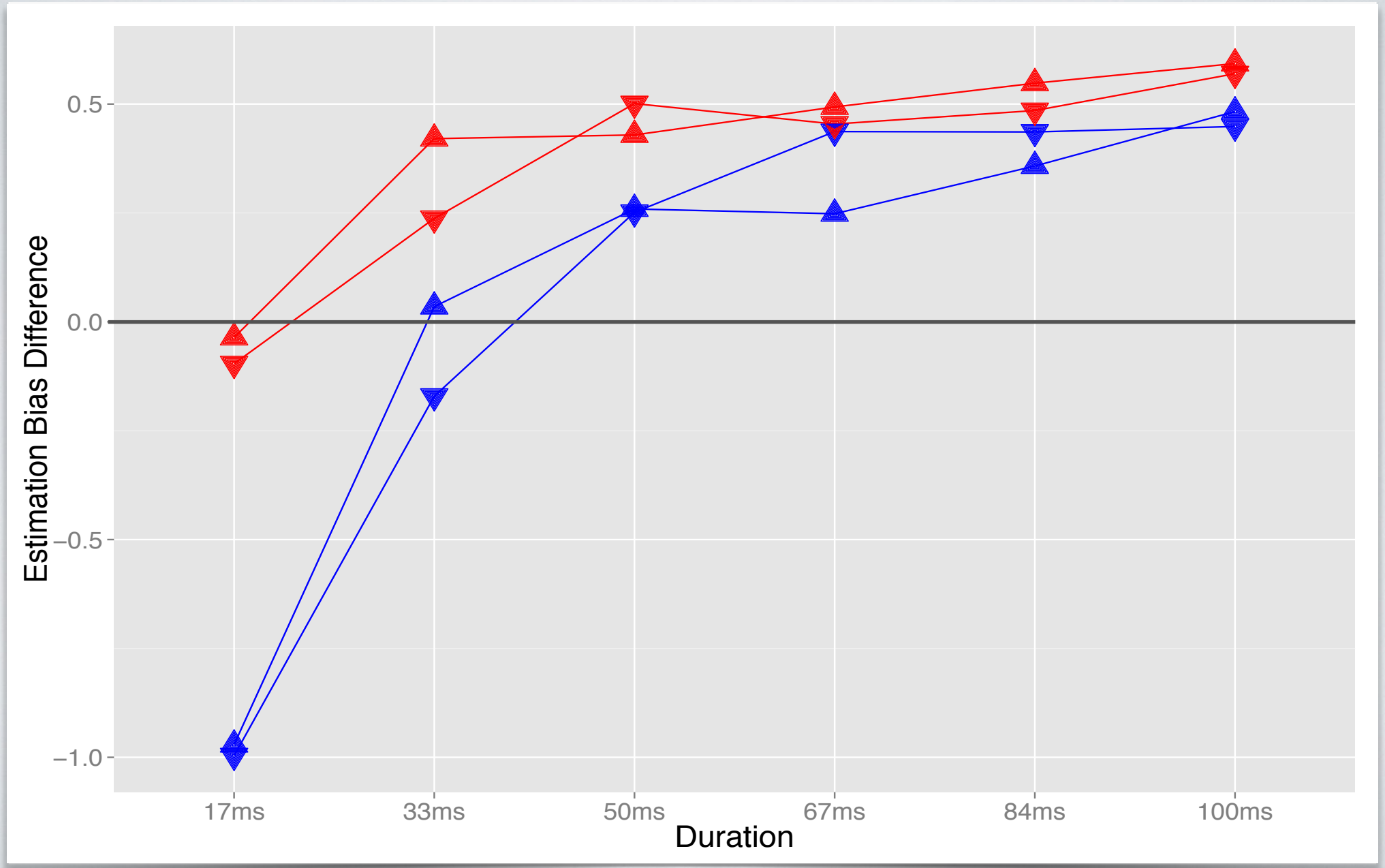
- Assess the role of visual cues ascenders and descenders
- Examine the time course of the word type bias and of the syllable bias as a function of exposure duration

Word type (Control - Hiatus)



NB Syllables (3s-2s)




0.5
0.0
−0.5
−1.0
Estimation Bias Difference
17ms
33ms
50ms
67ms
84ms
100ms
Duration

Conclusion

- The CV pattern determines the structure of orthographic representations, independently of syllable structure
- How is letter category learned ?
  - Statistical regularities
  - Mapping with spoken elements
- Neural basis of orthographic representations ?

Thank you for your attention !