Today's topics:

- **Discussion: Writing systems, visual processing, language structure**

Background:

- RE #2
- Course material so far

0. Key points today

- Discussion of RE #2: Comparing writing systems and language sounds

- Wrap-up of discussion of visual processing

  - Information during preview?

- Understanding / explaining a data graphic

- The "Simple View" of reading

  - How are different levels of language structure involved?

1. Discussion of RE #2

- Some languages you discussed in your essays
    - Spanish
    - Japanese

- Questions to address:
    - **Alphabet**? If yes, **differences** from English?
    - If no, what language units do **graphemes** write?
    - Is the **orthography** deep or shallow?
    - What are some **sound differences** vs. English?
        - Practice distinguishing *sounds* from *writing*

1. Discussion of RE #2

- Review: Types of writing systems

  - **Alphabetic**: grapheme → phoneme
  - **Syllabic**: grapheme → syllable
  - **Logographic**: grapheme → morpheme/word
  - **Abugida**: grapheme → C + default V, or other V
  - **Abjad**: like an alphabet, but consonants (C) only
  - Other variations/subtypes of these

- Bonus question: How does visual processing seem to differ with different types of writing systems?

2. Information from preview (cont.)

- Picking up our discussion of visual text processing
  - What can you remember about how skilled readers of English get information from **preview** during fixation?

2. Information from preview (cont.)

- What kind of info is used at what distance from fixation point? ("mutilated text" methodology)
    - Info about **spaces** between words is useful out to about 15 characters to the right of fixation
        - May help plan saccades
    - **Letter shape** information (similar ascenders/ descenders) is useful out to about 10 characters to the right of fixation
        - Readers are only *consciously* aware of letter shape info *within* the word being fixated

2. Information from preview (cont.)

- A closer look:

  What information is a reader getting from those
  ~15 characters to the right of the fixation point?

- Newer methodology: the **boundary technique**

  - How does this work?
    (Relevance of the "CWL = critical word location"?)

- Newer methodology: the **boundary technique**
  - **CWL** = critical word location
    - Point being tested for info availability when **previewed** on fixation to left
  - CWL has certain content as gaze approaches
  - When a saccade crosses a specified **boundary**, content in the CWL is **changed**
  - Does this switch **affect CWL fixation duration**?
    - If yes, relevant info was available from the CWL at distance of prior fixation

- Boundary-technique findings

Distance, prior fixation → CWL	Type of information with an effect
>12 character spaces	
7-12 character spaces	
6 character spaces	

- Find this information in **Fig 4.6**? (data graphic)
  - *parse* graphic — Axes? Symbols? Conditions?
  - *interpret* graphic — What "story" do we see?

2. Information from preview (cont.)

- Boundary-technique findings

Distance, prior fixation → CWL	Type of information with an effect
>12 character spaces	No effect
7-12 character spaces	• Shape of word • Shapes of letters • First or last letter matches
6 character spaces	• CWL is word/nonword

- **Preview benefit**: When readers preview a word before fixating on it, they then fixate on the previewed word for a shorter time

  - Mostly affects word n+1

  - Partial information about word can be gained, then integrated when that word in turn is fixated

- Sometimes words are even **skipped** = identified during fixation on the previous word (or predicted)

  - Most often short words, function words

2. Information from preview (cont.)

- What kind of information is **activated** during parafoveal preview, such that it helps facilitate **processing** when the previewed word is fixated?

    - This information seems to be based on **orthographic similarity**
        - word/letter shape
        - matching first/last letters
    - But: what kind of information is it?

3. How does preview help word recognition?

- What word info is (partially) activated in parafoveal preview? Authors consider 5 possibilities:

  1   Purely visual information about letter shapes

  2   Semantic (meaning) information

  3   Sound codes (phonemes, syllables)

  4   Orthographic codes (letter forms, not shapes)

  5   Lexical entry of word partly activated

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     - Changing letter case has no effect
       - What do we conclude?

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  1. ~~Purely visual information about letter shapes~~

     - Changing letter case has no effect

       → Hypothesis rejected

3. How does preview help word recognition?

- What word info is (partially) activated in parafoveal preview? Authors consider 5 possibilities:

  2 Semantic (meaning) information

     - No evidence for semantic priming

       semantic priming: you see/hear a *semantically related* word (related by meaning) first, and it makes you respond to the target word faster

       -   What do we conclude?

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    - Comments? Do the authors think any of these are likely to be involved?

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  - According to authors, these three are plausible
    - They likely interact
  - We will investigate some of these in other studies

4. The "simple view" of reading

- The **"simple view" of reading** mentioned by Hanford (2018)

  $R = D \times C$ | **Reading** is the product of (written-symbol) **decoding** and (spoken-language) **comprehension**

- What roles are played here by…

  - **Phonics** and practice with "sight words"?
  - **Morphology** and **syntax**?

Gough, Philip B., and William E. Tunmer. 1986. Decoding, reading, and reading disability. *Remedial and Special Education* 7 (1): 6–10. [link]

Hoover, Wesley A., and Philip B. Gough. 1990. The simple view of reading. *Reading and Writing* 2 (2): 127–160. [link]

5. Authentic example: A reading curriculum

- Returning to the learning objectives in the [Wilson Fundamentals reading curriculum, Level 1](#) brochure (used in 1st grade, Carrboro Elementary)

  - Does this curriculum incorporate **morphology**?
  - Does this curriculum incorporate **syntax**?
  - What other aspects of language comprehension can we identify?

6. For next time

- We will discuss a **research article** (Treiman, Kessler, & Bick 2002)

  - Handout - "Preparation for discussion—Scientific research articles"

  - Next class, we will focus on questions (1)–(5b):

    - the parts of a quantitative research paper

    - research questions

    - experiment conditions

    - stimulus design