

Visual Word Recognition

Chapter 6 (pp. 171-185)

C&C 2001 (pp. 51-57)

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Previous Class: Spoken Word Recognition

- Factors in Spoken Word Recognition
 - Frequency and phonological neighborhood effects.
- Context Effects in Spoken Word Recognition
 - Familiarity effects
 - Phonemic restoration effect
 - Compensation for coarticulation
- The Cohort Model
- The TRACE Model

The Nature of the Visual Stimulus (I)

- Earliest known writing system was devised by the Sumerians 4000 BC: Pictographs.
- Major Types of Writing Systems:
 - Logographic: Unique symbol for each
 - Chinese - tonal language.
 - Syllabic: Arbitrary symbols for each
 - Japanese (kana)
 - Alphabetic: Each symbol approximates a
 - - phonetic "alphabet".

The Arbitrary Relationship between Sign and Sound

記	"remember"	jì (Mandarin)	gei (Cantonese)
晚	"late"	wǎn (Mandarin)	máahn (Cantonese)
家	"family"	jiā (Mandarin)	gà (Cantonese)

The Nature of the Visual Stimulus (II)

- No perfect one-to-one mappings between orthography and phonology.
- Shallow Orthography
 - Close letter-phoneme correspondence
- Deep Orthography
 - Less direct letter-phoneme correspondence
 - "c" □ /s/ in whereas "c" □ /k/ in

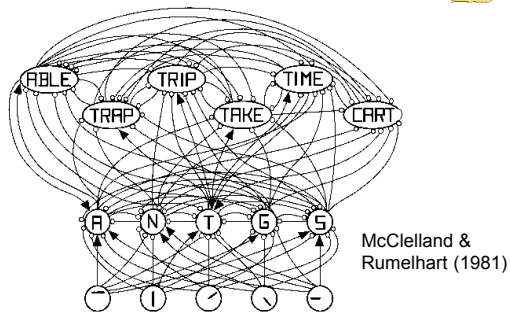
The Analysis of Visual Features

- Symbols are recognized in terms of distinctive and separable visual features.
 - Makes visual word recognition flexible.
- Evidence for features:
 - It's harder to find a particular letter if it's embedded among other letters with similar features.

Word Superiority Effect

- Easier to detect a letter when presented in a word.
 - D or J in WORD?
- Faster than when presented in a nonword.
 - D or J in ORWD?
- Even faster than if the letter is presented alone.
 - D or J in D?
- Words are **not** recognized on a letter-by-letter basis.

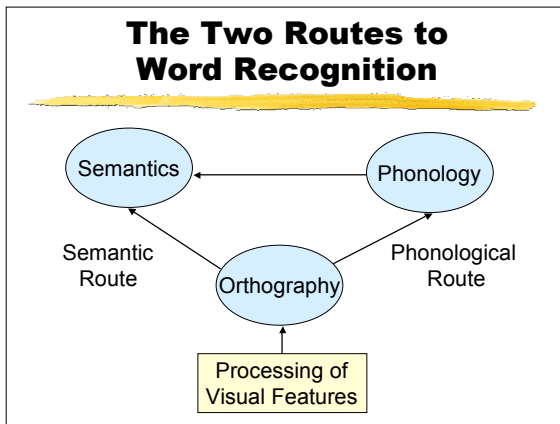
Interactive Activation Model of Visual Word Recognition



Access Routes in Visual Word Recognition

- Correction to the textbook pp. 179-182:
- Psychologists _____ that are two routes to word recognition:
 - A **semantic route** going directly from **orthography to meaning**.
 - A **phonological route** going from orthography to **phonology to meaning**.
- Educators often believe that children should learn to read using only one route:
 - **Whole Language Approach:** Semantic route
 - **Phonics Approach:** Phonological route

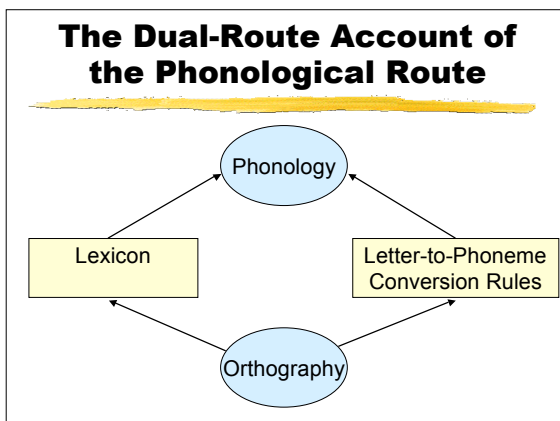
The Two Routes to Word Recognition



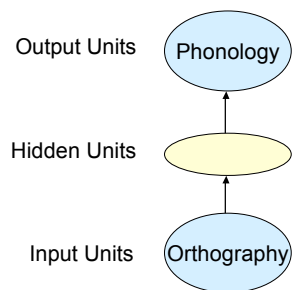
The Dual-Route Debate

- Psychologists debate about whether the phonological route comprises **one or two** sub-routes.
- **The Dual-Route Account:**
 - A **rule-based** mechanism dealing with **regular** orthography to phonology mappings (*lint*, *mint*).
 - **Table look-up** mechanism dealing with **exceptions** (*pint*).
- **The Single-Route Account:**
 - A **single connectionist network** dealing with **both** regular and exception mappings.

The Dual-Route Account of the Phonological Route



The Single-Route Account of the Phonological Route



Next Class

Visual Word Recognition (II)

Chapter 6 (pp. 185-201)

C&C (pp. 54-60)

- Factors in Visual Word Recognition
- Models of Visual Word Recognition
 - *The Logogen Model*
 - *The Autonomous Search Model*
 - *A Connectionist Model*
- *Dyslexia and Word Recognition*
