

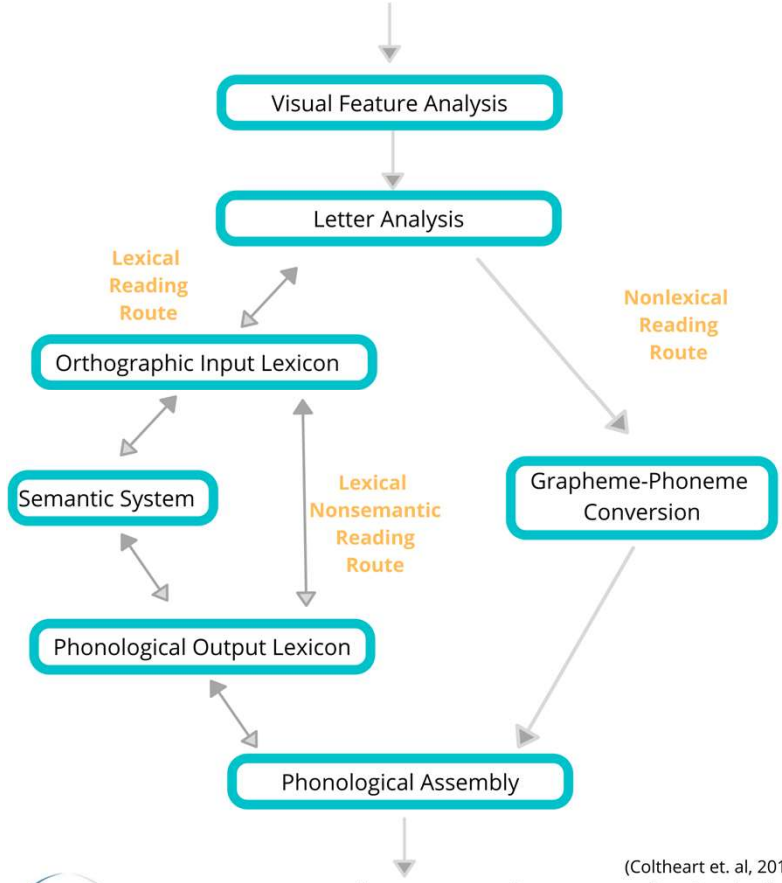


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REHABILITATION SERVICES PLLC

Alexia Classifications

DUAL ROUTE CASCADED MODEL OF READING

Written Word

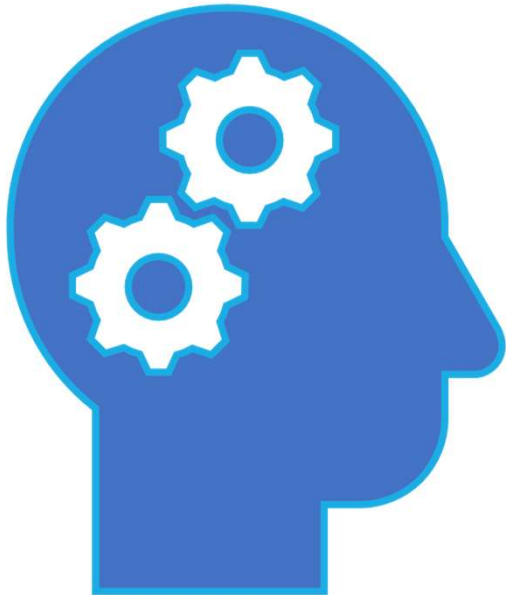


Peripheral

Central



(Coltheart et. al, 2010; Paphansiou & Coppens, 2017)



Peripheral Alexias

Affect early stages of the reading process and involve difficulty perceiving the written word.

Include:

- Neglect Alexia and Hemianopic Alexia
- Attentional Alexia
- Visual Alexia
- Letter-by-Letter Alexia

Neglect/Hemianopic Alexia

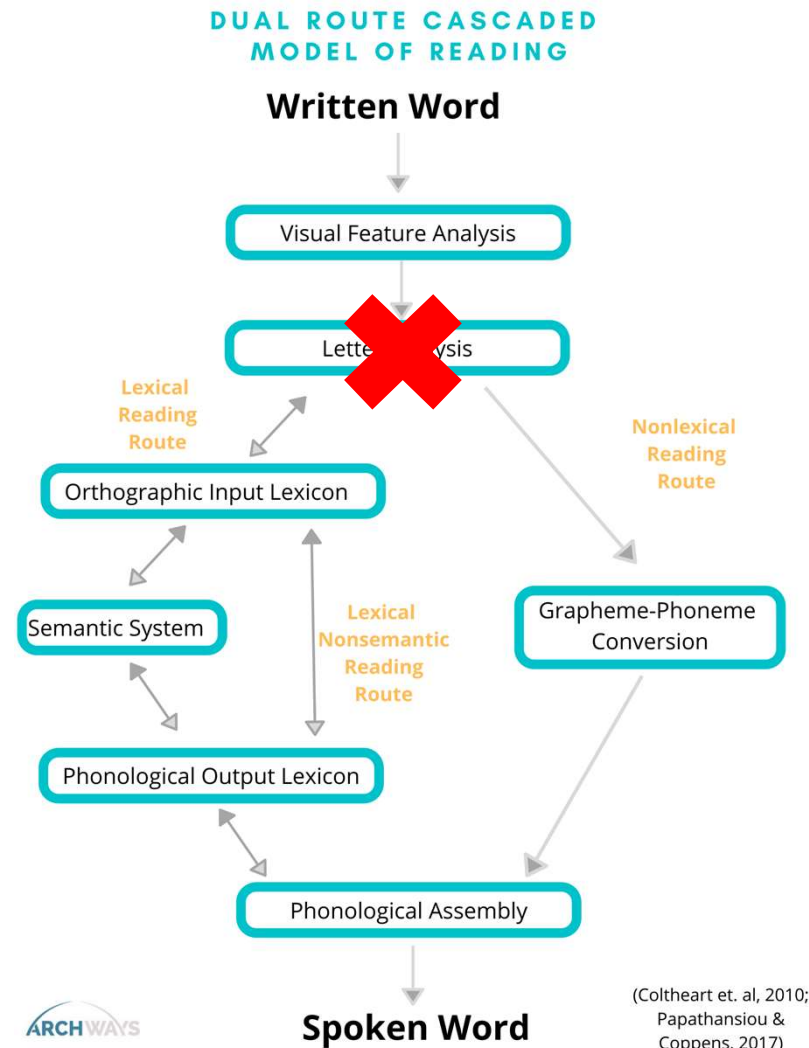
- Incorrectly identifying initial or final letters in a word
- Result of impaired letter analysis
 - **Neglect** alexia **IS NOT** necessarily a consequence of a general visual neglect
- **Neglect alexia:**
 - Consistent spatially determined errors
 - Can typically find a “neglect point” across words
 - Errors typically similar in length to stimulus word

Left Neglect Alexia

LOG → 'dog'
RIVER → 'liver'
YELLOW → 'pillow'

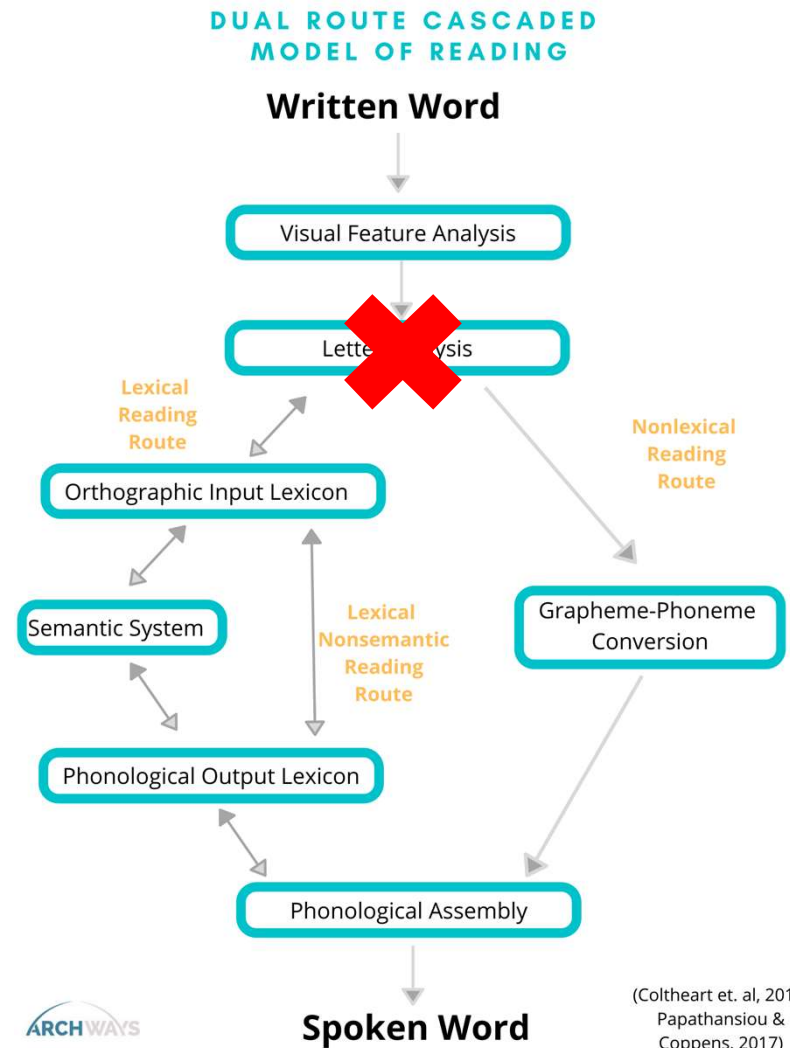
Right Neglect Alexia

LOG → 'lot'
BOOK → 'boot'
BUCKET → 'buckle'



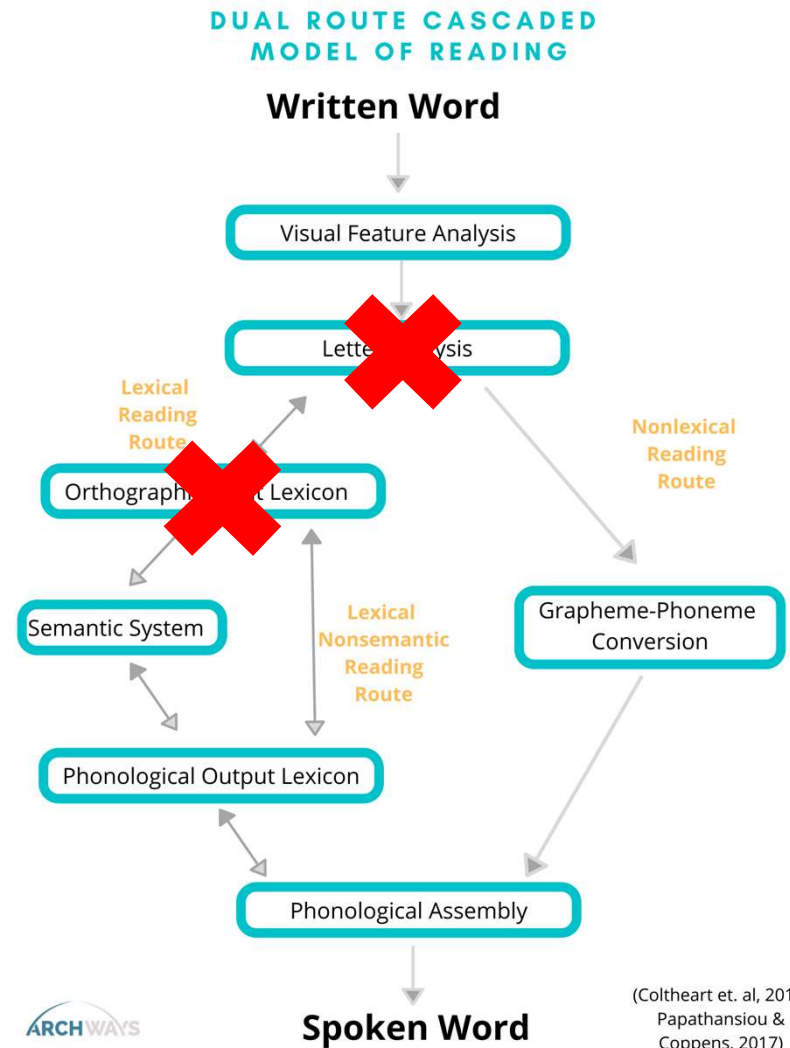
Attentional Alexia

- Interference/migration of letters from other words
- Result of impaired letter analysis
 - Difficulty identifying spatial relationship between letter
- Examples:
 - RIVERBANK → 'biverbank'
 - HOT MEAL → 'hot heal'
 - BUTTERFLY → 'flutterfly'
 - BARE → 'rare'



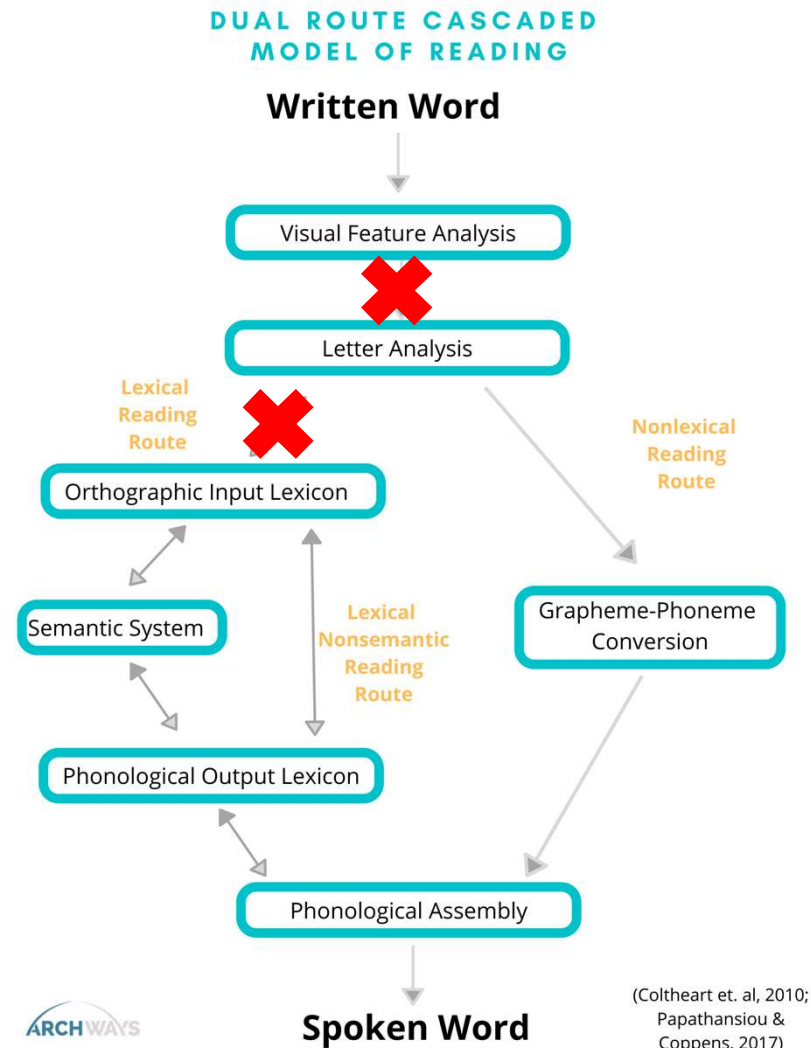
Visual Alexia

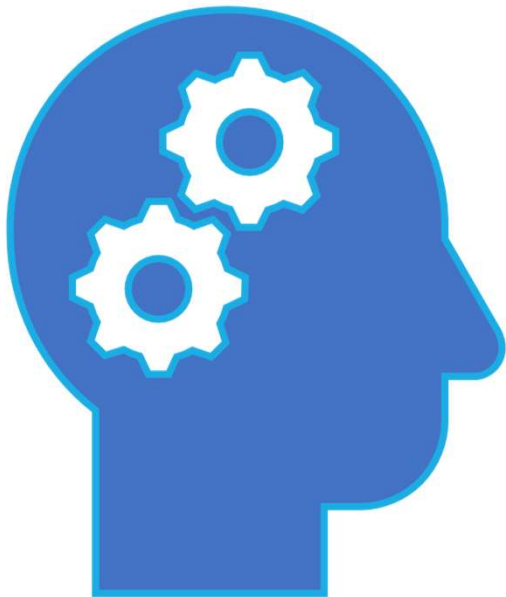
- Misidentifying one word for a visually similar one
 - No detectable pattern for where errors occur
 - Errors are almost always real-word substitutions
- Result of impaired letter analysis OR orthographic input lexicon
- Examples:
 - LEND → 'land'
 - EASEL → 'aerial'
 - CALM → 'claim'



Letter-by-Letter Alexia

- Letters unable to be identified simultaneously and/or in parallel
 - Incredibly slow reading
 - 50% of patients reported to have accompanying surface alexia
- Result of impaired access to letter analysis OR access to OIL
 - Lack of cognitive resources to transition to different systems
- Examples:
 - CHAIR → 'c-h-a-i-r...chair'
 - TABLE → 't-a-b...table'
 - LAMP → 'l-a-n-p...no...l-a-m...lamp'
 - TOOL → 'f-o-o-l...fool'





Central Alexias

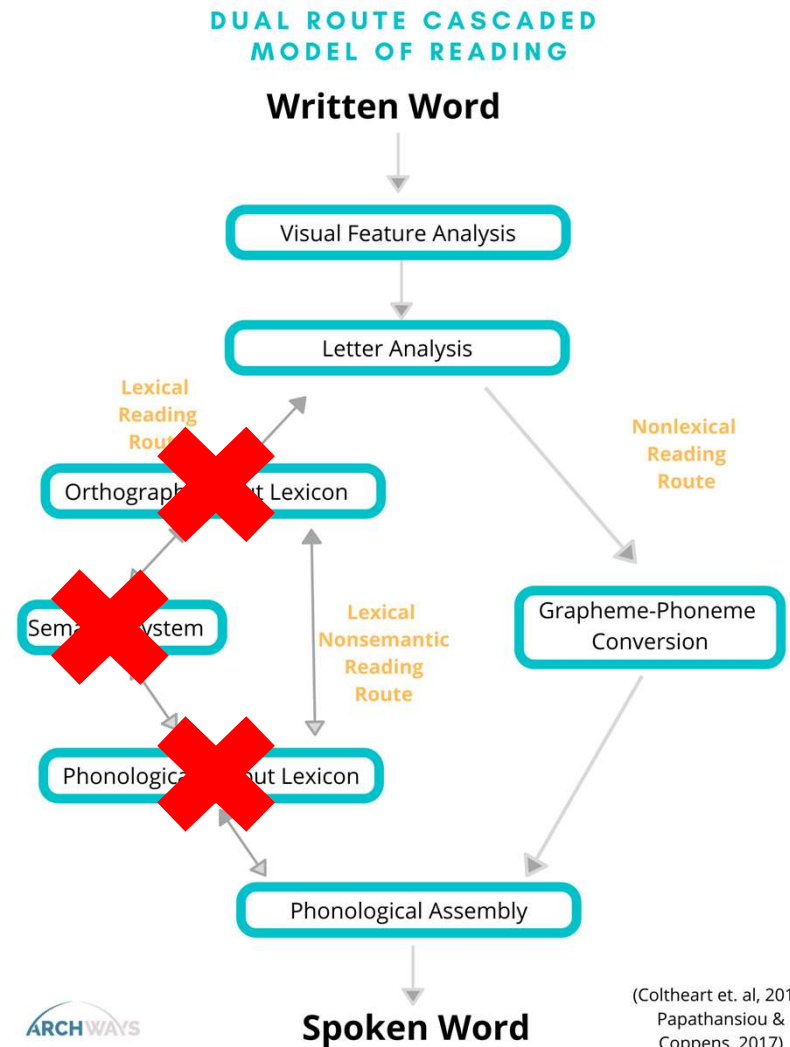
Affect later stages of the reading process and involve impairments of lexical processing (Orthographic Input Lexicon, Semantic System, Phonological Output Lexicon) and sublexical processing (Grapheme-Phoneme Conversion)

Include:

- Surface Alexia
- Deep Alexia
- Phonological Alexia

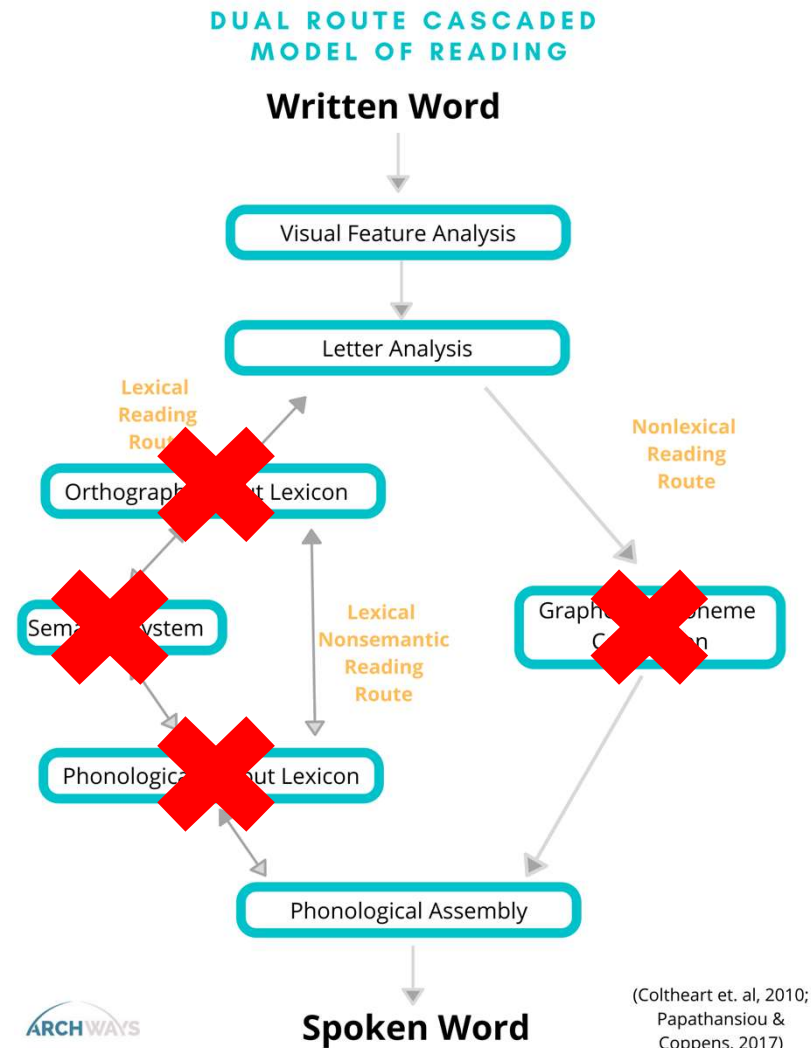
Surface Alexia

- Impairment in lexically-mediated reading route
- Grapheme-phoneme conversion is relatively preserved
- Lexical route could be impacted at any/multiple points
 - OIL, SS, POL
- Characteristic Features:
 - Regular words read better than irregular words
 - Relatively preserved nonword reading
- Examples:
 - Phonologically plausible errors: YACHT → '/jaet[t]'
 - Regularization errors: PINT → '/plnt/'
 - Visual errors: BLANK → 'bank'
 - Both visual and semantic errors: CAR → 'cab'



Deep Alexia

- Impairment in lexically-mediated reading route AND G-P Conversion
- G-P Conversion and at least one lexical component impaired
- Characteristic Features:
 - Semantic errors
 - Unable to read nonwords
 - High-imageability read better than low-imageability
 - Content words read better than functor words
- Examples:
 - Semantic errors: MONKEY→'ape'
 - Morphological errors: LOVING→'lovely'
 - Visual errors: DOOR→'doom'
 - Function word substitutions: HIM→'was'



Phonological Alexia

- Impairment in G-P Conversion
 - Relatively preserved lexical components
- Characteristic Features:
 - Poor/non-existent nonword reading
 - Often lexicalized (e.g., SOOF→'soot')
 - Difficulties with segmenting, blending
 - Preserved/relatively good real word reading
 - Problems with function words and bound morphemes
 - High-imageability better than low-imageability words
 - Content words better than function words
 - Morphologically simple better than morphologically complex words

