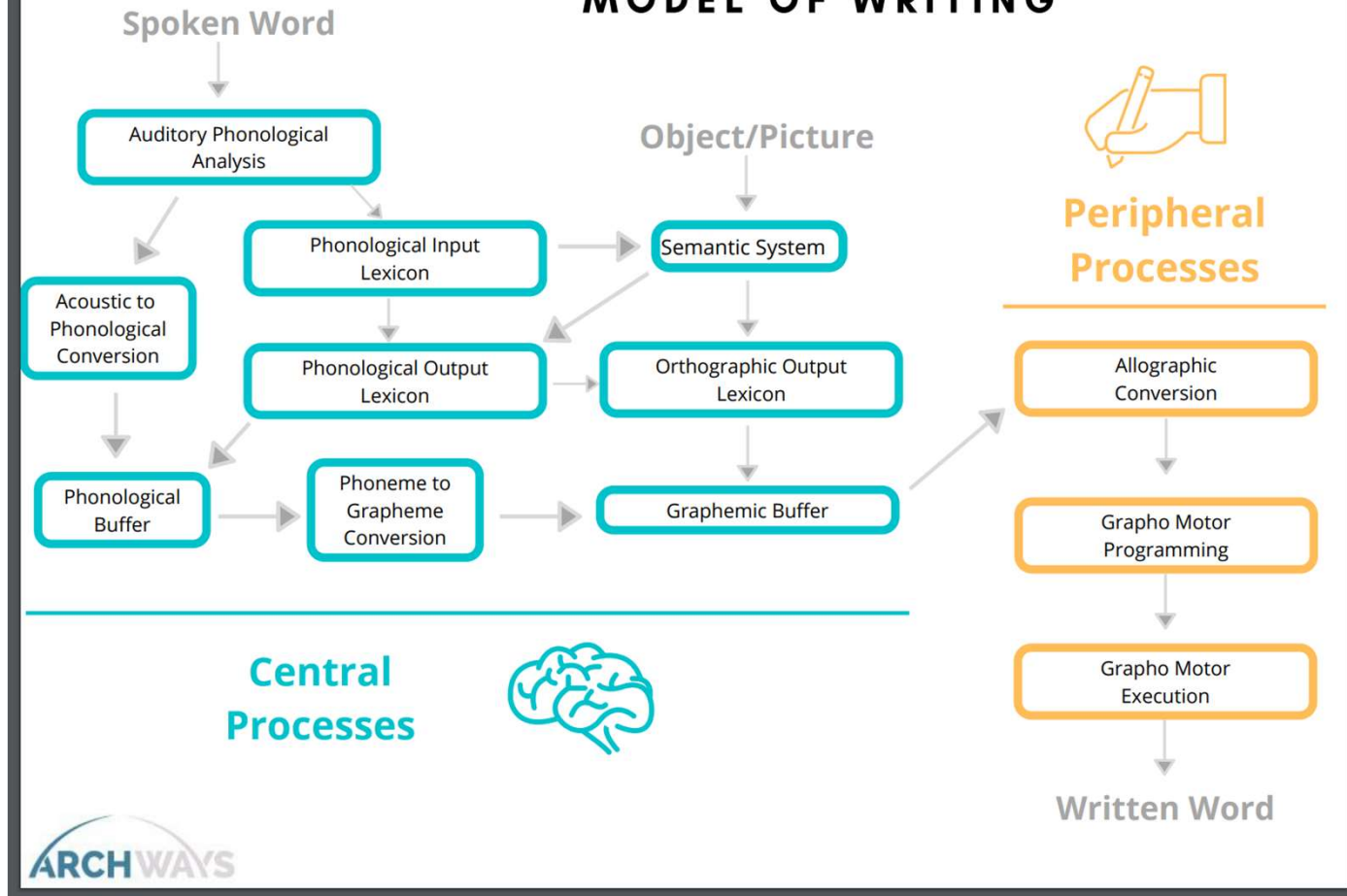




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REHABILITATION SERVICES PLLC

Agraphia Classifications

COGNITIVE NEUROPSYCHOLOGICAL MODEL OF WRITING



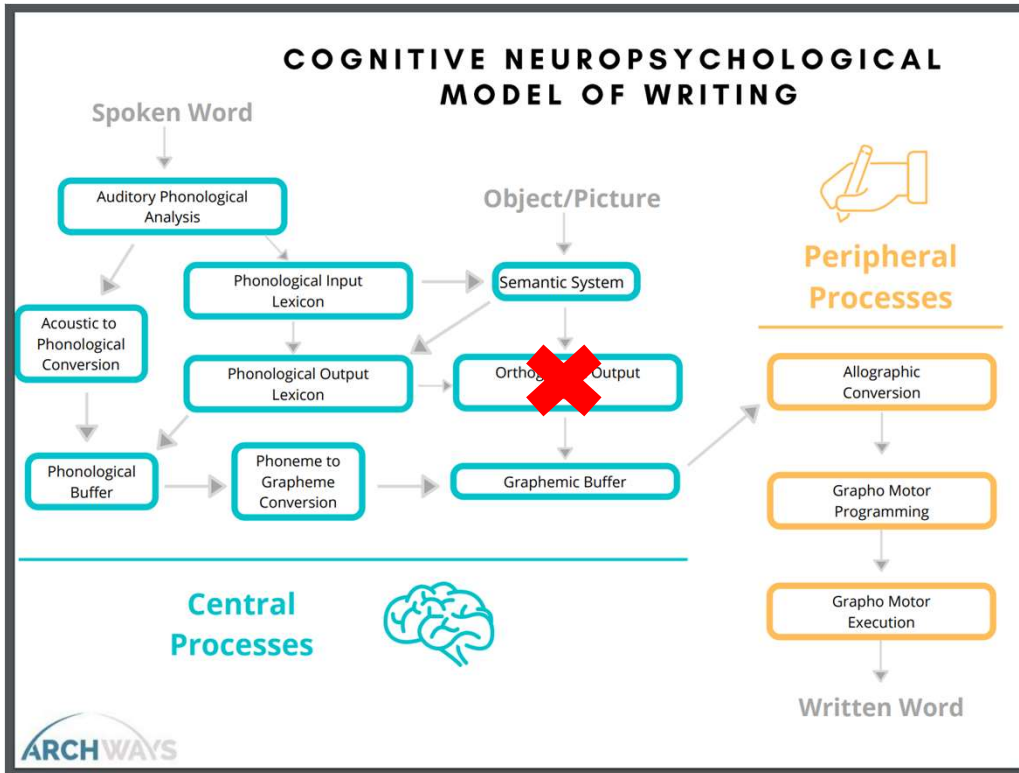
Central Agraphias

Involve the language processing components of writing and result in difficulty with spelling.

Include:

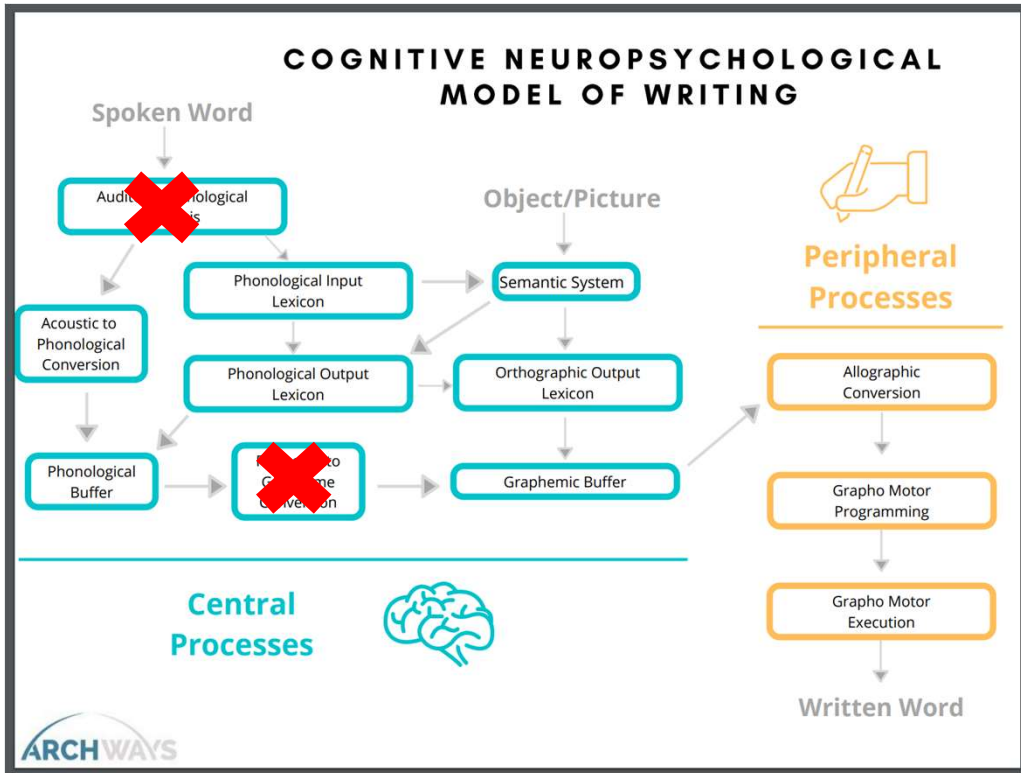
- Surface Agraphia
- Phonological Agraphia
- Deep Agraphia
- Global Agraphia
- Semantic Agraphia
- Graphemic Buffer Impairment





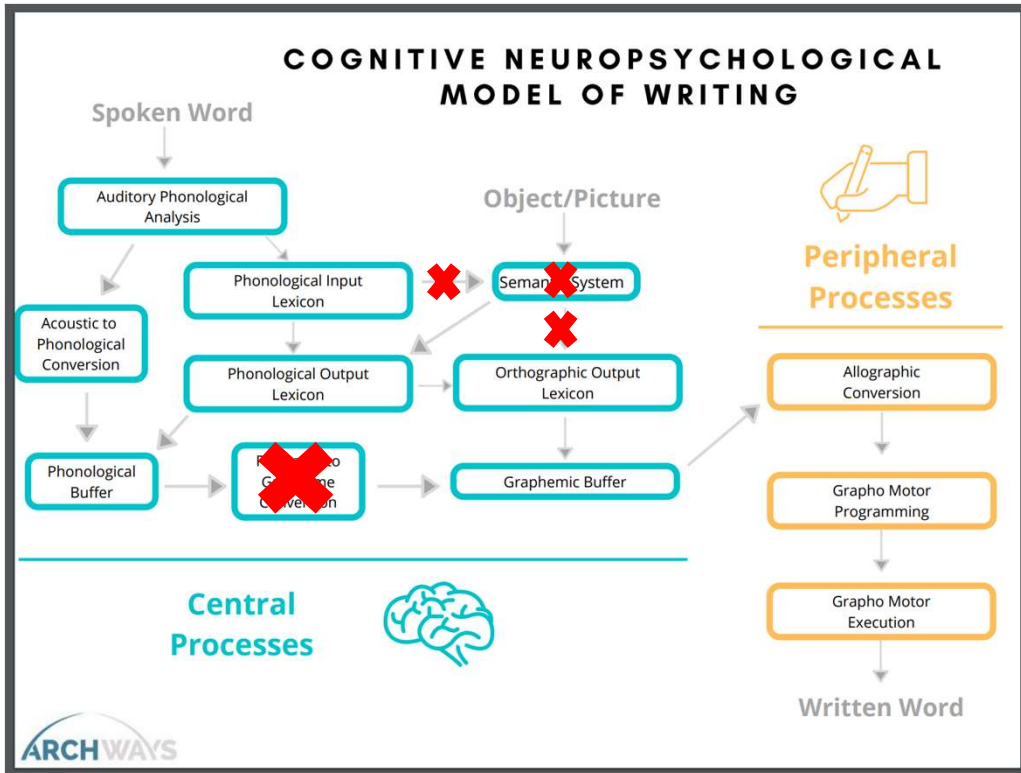
Surface Agraphia

- Impairment in lexical writing routes (Orthographic Output Lexicon will be impacted)
- Phoneme-Grapheme Conversion preserved
- Characteristic Features:
 - Regular words and nonwords written more accurately than irregular words
 - Over-reliance on sublexical spelling, creating a regularisation effect
 - High-frequency words more accurate than low-frequency
 - Homophone confusion (e.g., SAIL → 'sale')
- Examples:
 - Regularisation/phonologically-plausible errors: ANSWER → 'anser', OCEAN → 'oshen'
 - Errors involving partial knowledge of irregular words: YACHT → 'yhaught', SWORD → 'sward'



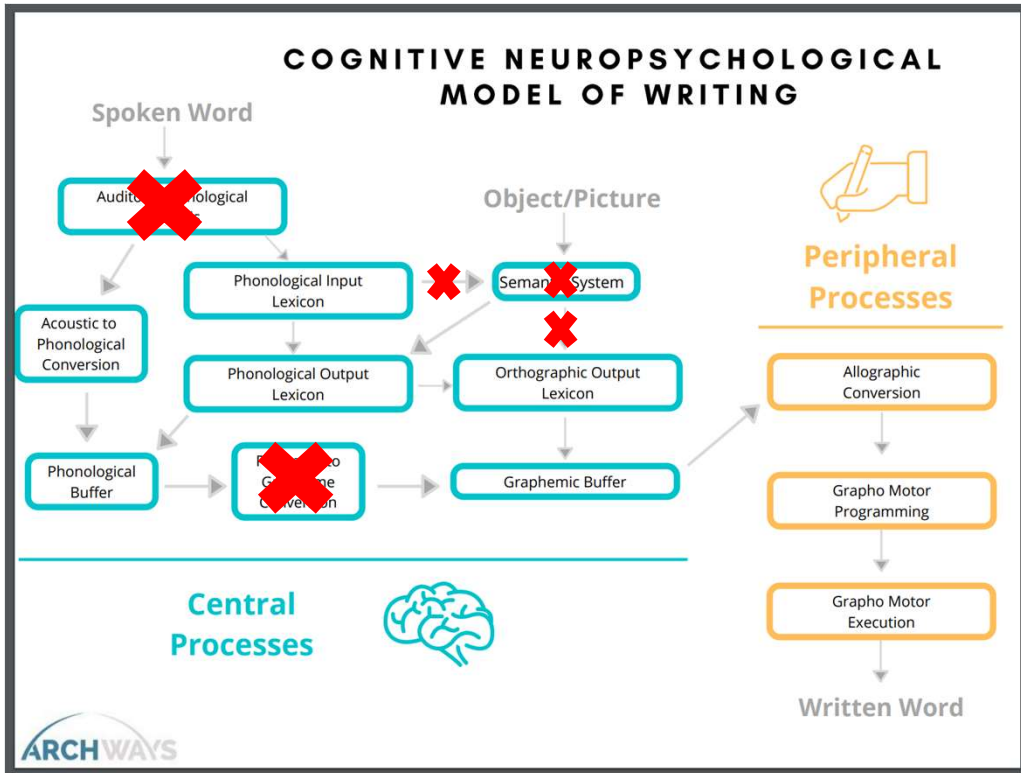
Phonological Agraphia

- Impairment in sublexical spelling process
- Phoneme-Grapheme Conversion AND/OR Auditory Phonological Analysis impacted
- Characteristic Features:
 - Poor writing of nonwords to dictation
 - If real word writing impaired, high-imageability and high-frequency words more accurate than low-imageability and low-frequency words. Structurally similar and morphological errors may also be present, with content words being more accurate than functors
- Examples:
 - Structurally similar errors: TOWER → 'towen'
 - Morphological errors: WORKS → 'working'
 - Functor substitutions: OVER → 'here'



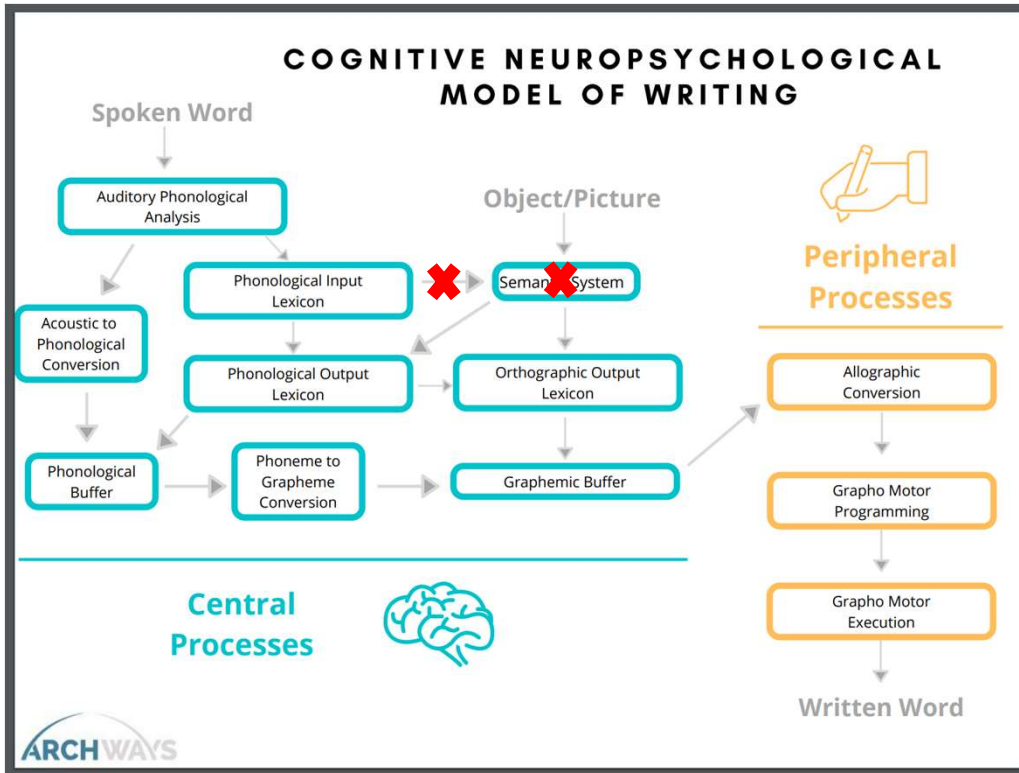
Deep Agraphia

- Impairment in semantic route (Semantic System or access to Semantic System AND/OR access to Orthographic Output Lexicon will be damaged. Phoneme-Grapheme Conversion will also be impacted)
- Characteristic Features:
 - Prominent semantic errors
 - Impaired nonword writing
 - High-imageability and high-frequency words more accurate than low-imageability and low-frequency
 - Content words more accurate than function words
- Examples:
 - Semantic errors: TIME → 'clock', REACH → 'carry'
 - Nonword errors: PRANE → 'prime'



Global Agraphia

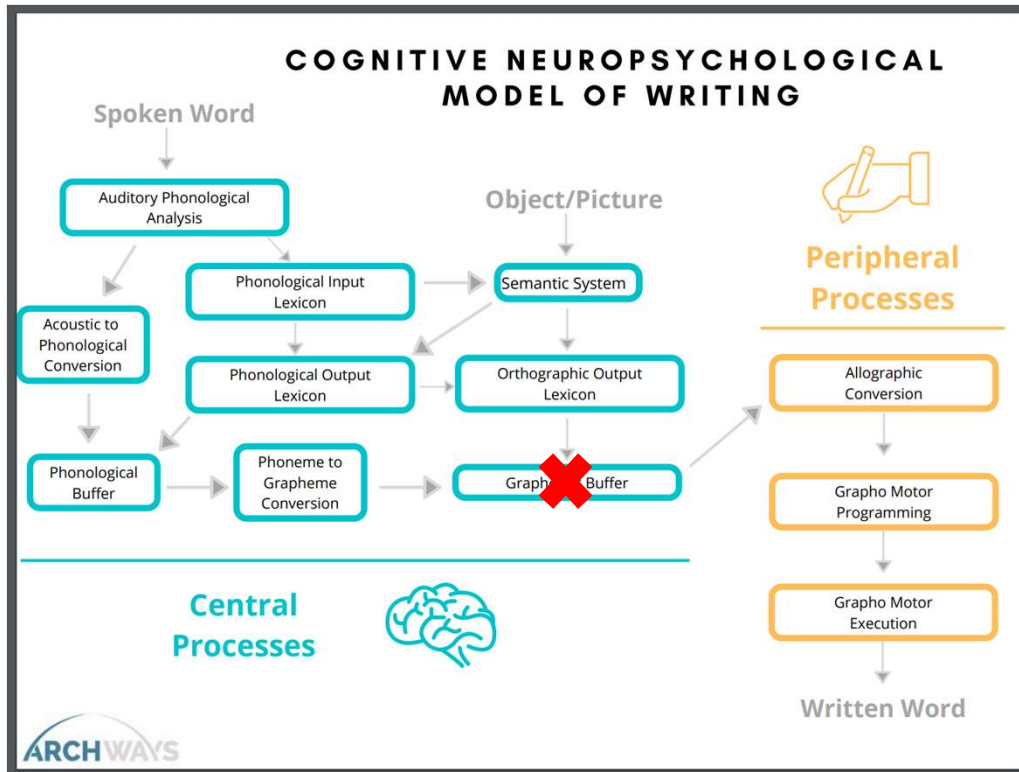
- Profound impairments in both lexical and sublexical processes
- Characteristic Features:
 - No real words or nonwords spelled correctly
 - Responses bear little resemblance to targets
- Examples:
 - Errors that bear no resemblance to targets: BROOM → 'figet', YACHT → 'stoud', DRINGE → 'aloop'



Semantic Agraphia

- Impaired Semantic System or access to Semantic System from Phonological Input Lexicon
- Characteristic Features:
 - Impairment in spontaneous writing and written confrontation naming; writing to dictation spared, but meaning cannot be accessed
 - Accurate spelling of ambiguous and irregular words without comprehension
 - Difficulty with homophones
- Examples:
 - Homophone errors: PEAR → 'pair'

Graphemic Buffer Impairment



- Impaired Graphemic Buffer
- Characteristic Features:
 - Errors in grapheme identity and order in all spelling tasks and all spelling modalities
 - Impaired short term storage of graphemic information
 - Significant word-length effect; shorter words more accurate than longer words
 - Letters at end of words may be less accurate than letters earlier in word
 - Letter omission, addition, deletion, substitution, and transposition may be present
- Examples:
 - Omission: PHONE → 'pho'
 - Addition: PHONE → 'phoine'
 - Deletion: PHONE → 'pone'
 - Substitution: PHONE → 'phose'
 - Transposition → 'phnoe'

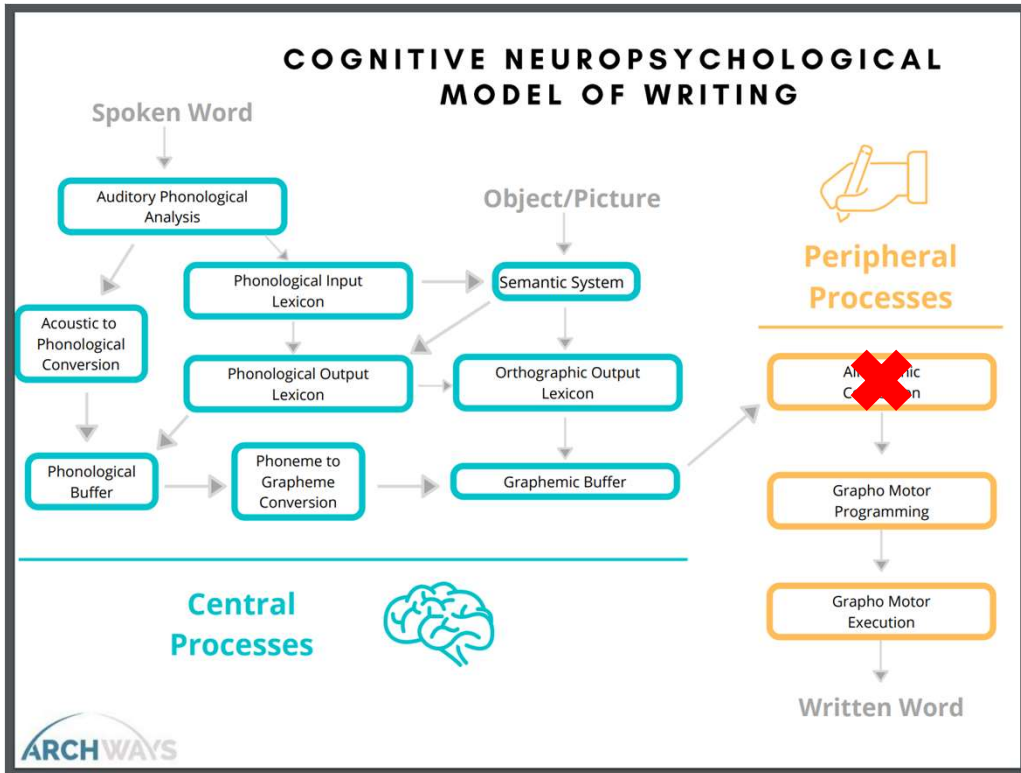
Peripheral Agraphias

Involve the selection or production of letters in handwriting.

These include:

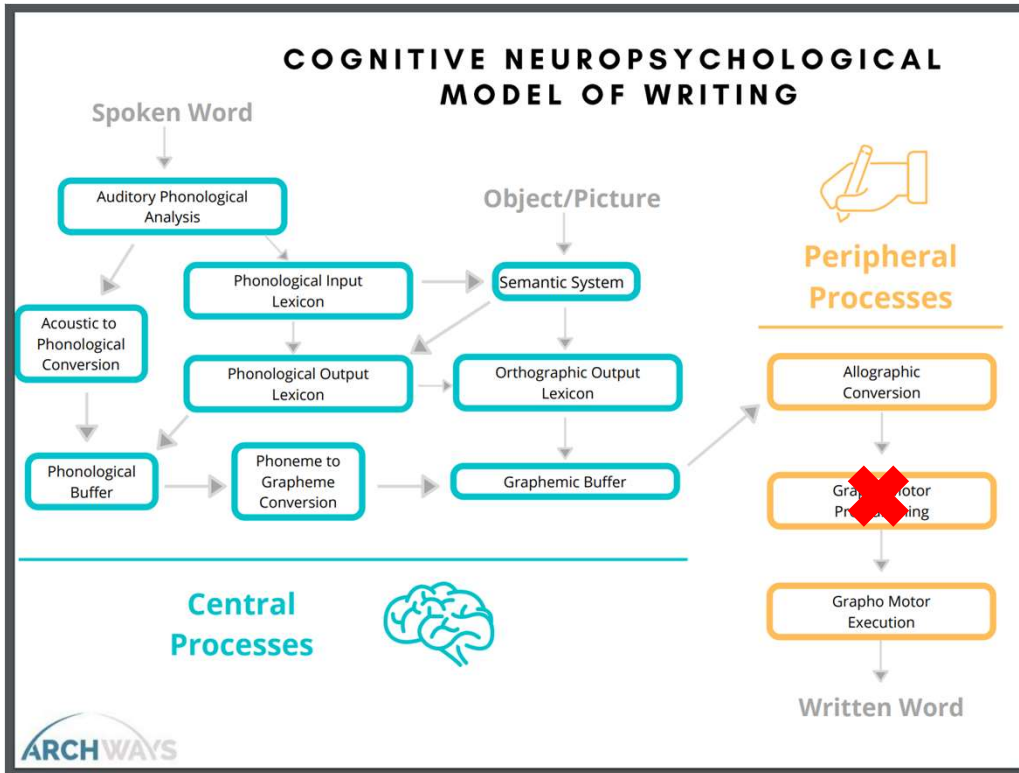
- Allographic Agraphia
- Apraxic Agraphia
- Motor Nonapraxic Agraphia
- Spatial/Afferent Agraphia





Allographic Agraphia

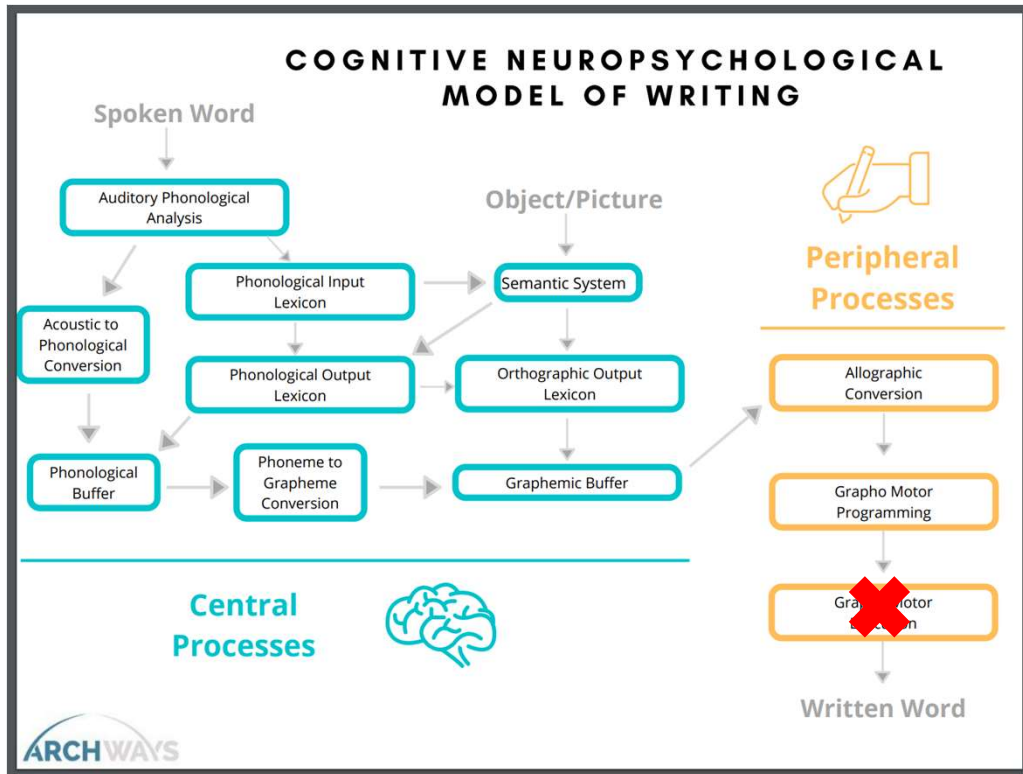
- Impairment in Allographic Conversion
- Difficulty generating or selecting the correct shapes in handwriting (oral spelling remains intact)
- Writing impairment specific to case (upper vs lower) and style (print vs cursive)



Apraxic Agraphia

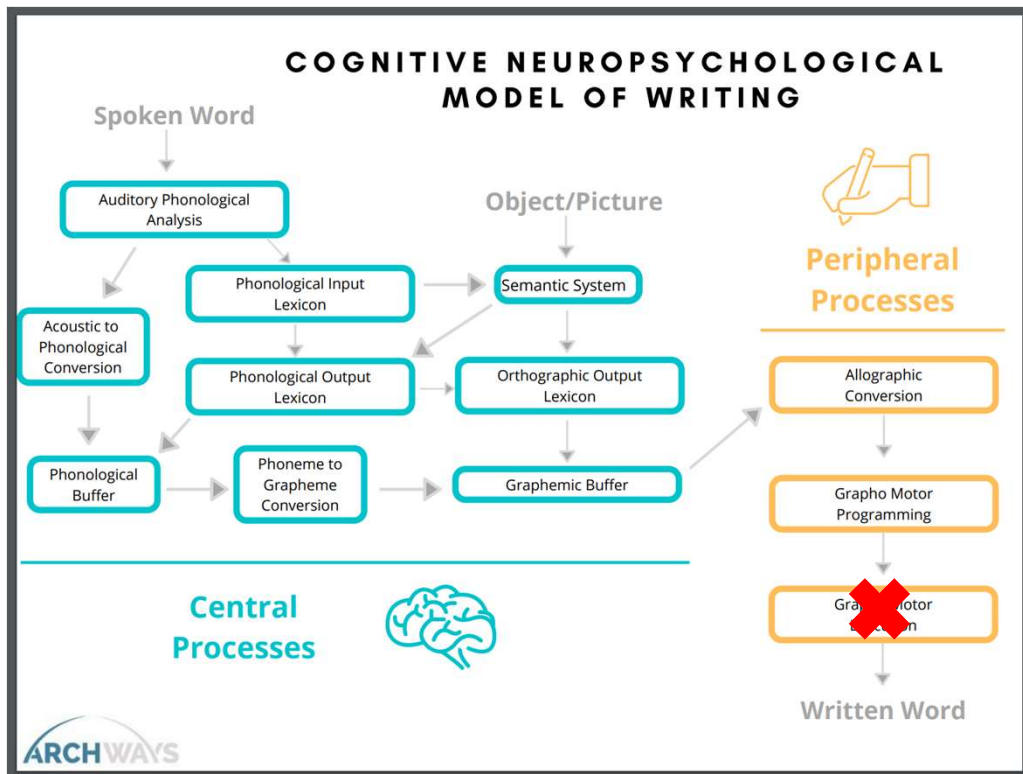
- Impairment in Grapho Motor Planning
- Poor letter formation not due to impaired letter shape knowledge or sensorimotor, extrapyramidal, or cerebellar dysfunction
- Oral spelling, typing, spelling with anagrams and letter imagery is preserved
- Letter morphology errors, including special distortions, stroke insertions, and deletions

Motor Nonapraxic Agraphia



- Impairment in Grapho Motor Execution
- Poor regulation of handwriting movement force, speed, and amplitude

Spatial/Afferent Agraphia



- Impairment in Grapho Motor Execution
- Poor sensory feedback for the control and execution of writing
- Errors include duplications of letters or strokes, difficulty writing in a straight line, and difficulty maintaining proper spacing between letters and words.