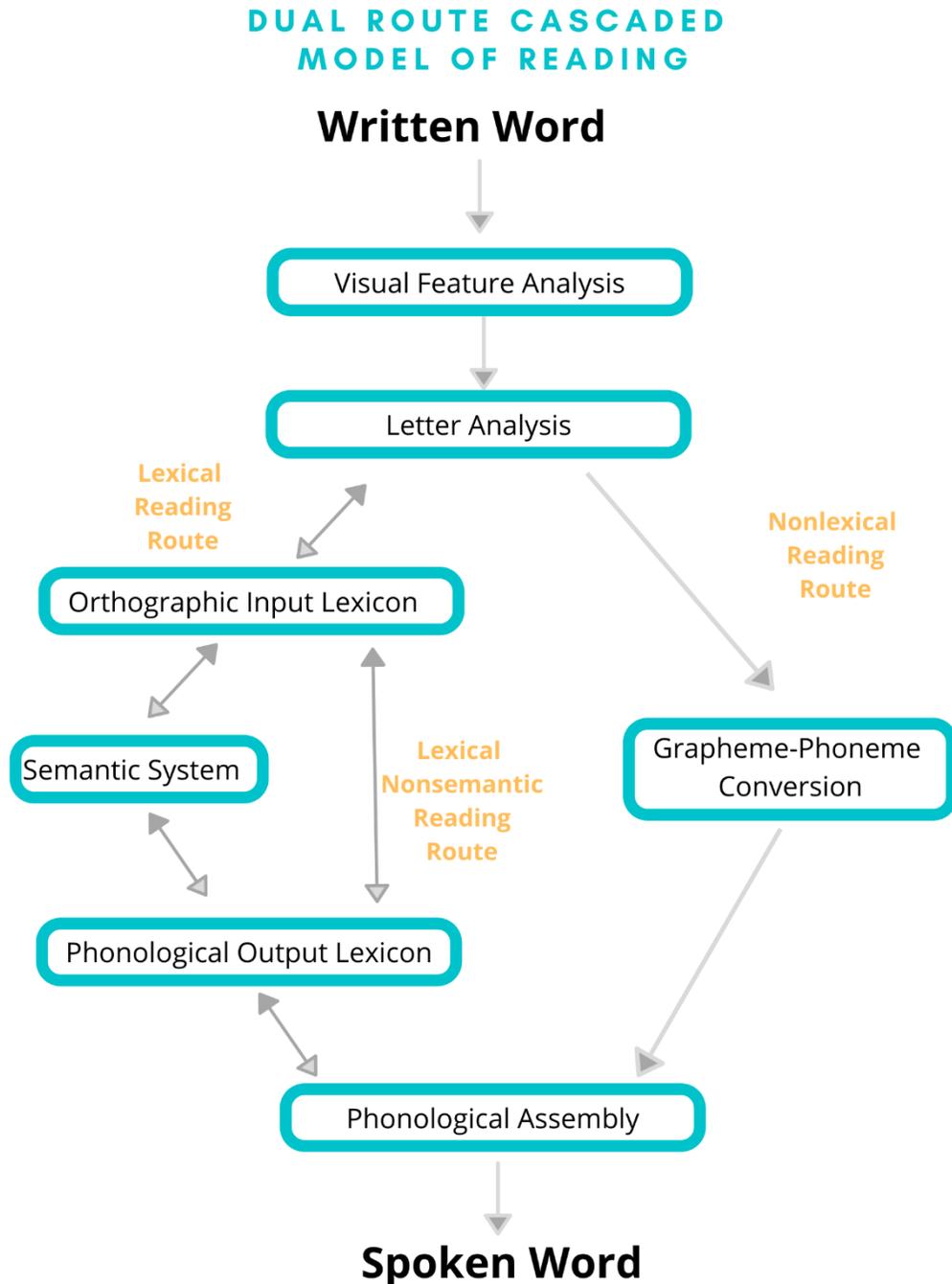


DUAL ROUTE CASCADED MODEL OF READING

The ability to read is a complex process, and there are many factors at play that determine a person's ability to derive meaning from a written word. To better understand the reading process, several different cognitive neuropsychological models have been developed.

One influential model is the Dual Route Cascaded Model of Reading (adapted from Coltheart et al., 2010; Papathansiou and Coppens, 2017):



In this model, the reading process is conceptualized as a series of different language processing components that all play a unique part in the reading process. These processes and their respective roles are:

Visual Feature Analysis: Analyze the individual visual parts of each letter (for instance, “P” is a single vertical line attached to a curved line)

Letter Analysis: Identify what the letter is and its position in relation to other letters in the word

Orthographic Input Lexicon: Determine whether or not this is a familiar word (this component DOES NOT allow the reader to pronounce or derive meaning; other components hold these roles)

Semantic System: Associate the visual form of a word to its meaning

Phonological Output Lexicon: Knowing how a written word should sound before saying it (the “blueprint” for the word’s sounds)

Phonological Assembly: Breaking down the word into its individual sounds so that it is ready for pronunciation (the “assembly line”)

Grapheme-Phoneme Conversion: Letter-Sound Correspondence (what sound goes with what letter)

With these components, there are then 3 possible reading routes:

Lexical Reading Route: Reading for *meaning*

Lexical Nonsemantic Reading Route: Able to read a word from memory, but no idea what it means

Nonlexical Reading Route: Able to read a word by sounding it out/decoding, but word is unknown

Additionally, some of these components can be categorized into *Lexical* and *Sublexical*:

Lexical: Orthographic Input Lexicon, Semantic System, Phonological Output Lexicon

Sublexical: Grapheme-Phoneme Correspondence

References:

Coltheart, M., Rastle, K., Perry, C., Langdon, R., & Ziegler, J. (2001). DRC: a dual route cascaded model of visual word recognition and reading aloud. *Psychological review*, 108(1), 204.

Papathanasiou, I., Coppens, P., & Potagas, C. (2017). Aphasia and related neurogenic communication disorders-Second edition. Burlington, MA: Jones & Bartlett Learning.