

Article from Katerina Sipos:

Predicting when a sound will occur relies on the brain's motor system

Research shows how the brain's motor signals sharpen our ability to decipher complex sound flows

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Source: McGill University

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The Memory and Aging Center of the University of California, San Francisco (2009) describes the primary areas of the brain responsible for speech and language behavior as follows:

Broca's Area is located in the frontal portion of the left hemisphere and is associated with speech production and articulation. It governs our ability to articulate ideas, as well as to use words accurately in spoken and written language. **Wernicke's Area** processes word sounds and, until recently, it was believed that this area connects directly to Broca's area via a bundled neural pathway called the **Arcuate Fasciculus** (not pictured). However, Bernal and Ardila (2009) have proposed a new language network model emphasizing that the arcuate fasciculus connects posterior brain areas with Broca's area through a relay station in the premotor/motor areas (Figure 7b). Wernicke's area is primarily involved in the comprehension of word sounds associated with language processing, whether written or spoken. The **Angular Gyrus** allows the human brain to organize language and thoughts that are closely involved with multiple sensory pathways including auditory. It is located in close proximity to other critical brain regions such as the parietal lobe which processes tactile sensation, the occipital lobe that is involved in visual analyses, and the temporal lobe which processes sounds. The angular gyrus allows the brain to associate a perceived word with different images, sensations, and ideas.

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