Comprehension of spoken language is a neurological function that we often take for granted, but the underlying mechanisms are complex. Several brain regions are involved in the span of necessary processes, from parsing the basic auditory structure of syllables, to associating meaning with words and phrases, to appreciating subtle content such as innuendo, irony, and emotion. We propose to study these interrelated mechanisms by recording electrophysiological activity from several regions in the human brain. Neurosurgical procedures sometimes require the placement of electrodes within the brain, and we will use these opportunities to study human language processing with previously unavailable precision. Newly available recording techniques allow the investigation of several brain regions simultaneously, from "low-level" sensory processing to "high-level" cognitive processing. We will employ sophisticated machine learning techniques to tease apart the contributions of these various mechanisms to overall speech comprehension. We hope that the results of these studies will enhance our understanding of the normal physiology of speech processing, and also provide insight for developing therapeutic options for individuals with disorders of speech and language.