As a graduate student at the University of Pennsylvania, Jared Novick was drawn to questions about the role of general cognitive functions—attention, memory, inhibition—in language processing. How do we make sense in real time of the flood of linguistic input that hits our eyes and ears so fast? How do we recover correct interpretations of sentence meaning when our first analysis is wrong? How do memory and cognitive control help achieve this?

During his postdoctorate at the Massachusetts Institute of Technology, Novick began to examine these questions using brain imaging techniques. His work has contributed to a reinterpretation of the role that Broca’s area—a region in the brain’s left hemisphere—plays in language processing. Many now believe that this area supports cognitive control—the ability to adapt behavior to current task demands especially in the face of competition or interference. This, Novick and colleagues have argued, can have widespread implications for language processing and comprehension.

At CASL, Novick builds on his previous research—in particular, the role cognitive control and working memory play in language processes. He likes CASL’s approach and how it gives him the “flexibility to take my prior research interests and my training in basic science and continue shaping them within an applied setting and toward important, practical goals.”

According to Novick, “To see hypotheses borne out that not only have contributions to the academic community but also have a concrete and practical impact realized within the intelligence community” is a rewarding part of working with CASL.

Novick’s current research at CASL aims to improve foreign language and intelligence analysis by studying the underlying processes that guide and control cognitive behavior. One project seeks to improve these functions by using EEG neurobiofeedback training to enable people to change their brainwaves and achieve a desirable neurophysiological state that may enhance cognitive performance.

For Novick, these projects have the possibility for creating intervention techniques that could improve performance for foreign language professionals or intelligence analysts—whether it is problem solving or language processing, via faster processing, greater accuracy, or more controlled attention to tasks.

Novick sees CASL’s success in part as a result of the ability to continue to build on prior research and having practical implications for the future. Further, CASL has the rarity of an academic environment where everyone is interested in the same thing—language.

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—Jared Novick, CASL research scientist