

PSYCHOLINGUISTICS – AN INTERVIEW WITH GARY MARCUS

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ReVEL – In your opinion, what is Psycholinguistics? How does the field relate to Psychology and to Linguistics?

Gary Marcus – Psycholinguistics is – or should be – an effort to bridge the two fields, psychology and linguistics, that are its component parts. Linguistics, at least as it is usually practiced, is an effort to describe the basic structure of language – and that in turn ultimately is a question of psychology, of how the mind works. Whenever we utter a sentence, or understand one, our brain is engaged in an intricate set of computations, and (hopefully) the methods of psychology can give us some insight into how that happens in real time.

ReVEL – Why do you think some Linguistics projects still don't benefit from results in Neuroscience? In other words, why do you think some linguists are not willing to embrace the latest discoveries in the brain science?

Gary Marcus – Lots of linguists are interested in what's happening in neuroscience, but I think that they worry, rightly, about how much contemporary neuroscience can tell them. The problem, I think, is that people are trying to leap across too many disciplines in a single bound. To really connect linguistics with neuroscience, you need to figure out the algorithms and

data structures used in language, and connect them to how neural circuits represent algorithms and data structures. But we know almost nothing about how neural circuits realize that sort of computation, and until we do understand those sorts of questions, a fair bit of the work on the neural basis of language is likely to remain relatively unsatisfying.

ReVEL – A(nother) tricky question here: how do you see the difference between brain and mind when it comes to Linguistics studies?

Gary Marcus – Ultimately the mind just is what the brain does; they’re the same thing, described in different terms. But in the short term, it may be more sensible to try to connect language to psychological function (the mind) than to neural function (brain), because the psychological level of description is closer to language. One could connect geology to quantum mechanics, but chemistry is closer.

ReVEL – Tell us a little about your book *The Algebraic Mind: Integrating Connectionism and Cognitive Science*. Was it a difficult enterprise to write about this subject?

Gary Marcus – That book, my first, was about the basic computations the mind performs, and how those functions might be implemented in the brain. It was also a sharp challenge to a way of thinking that was popular then.

The greatest difficulty was political. I was a young man at the time and challenging some of the leading figures in the field of “connectionism” or “neural networks”, suggesting that the models they were promoting were vastly oversimplified. Nobody likes to have a kid tell them that they’re wrong!

ReVEL – Could you please suggest some essential readings on Psycholinguistics? And could you comment on your latest book, *Kluge*?

Gary Marcus – With respect to your first question, the best place to start might be one of the two recent handbooks in psycholinguistics, one edited by Traxler and Gernsbacher, the other by Gareth Gaskell.

Kluge is about the limits of evolution, and why the mind is less than perfect. It's a challenge to the presumption in a lot of evolutionary psychology that the mind is optimal, and an analysis of the flaws and foibles of our species.