Brain-language modelling, prediction and the neural basis of communication

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Some psycholinguistic models separate speech production from perception and understanding mechanism and theories of memory and prediction likewise postulate separate modules for perception/production, mnemonic storage and predictive coding. However, competing views view language to result from an integration, not separation, of production and perception mechanisms and suggest that this same machinery can also be used for storage and prediction. In the first part of the talk, I will review one such integrative model spelt out at the level of neuronal circuits and implemented in mathematically precise neurocomputational simulations to show how an integrated action perception perspective on linguistic representations accounts for the biological mechanisms presumably underlying memory and prediction. Part two will discuss some data carried out to test this model in the domains of semantic understanding, prediction and resolution. In the last part, I will review current work in XPrag.de’s project ‘Brain Signatures of Communication’ to ask whether brain activity reflecting the processing of specific speech act types bridges between the understanding of illocutionary force in speech act comprehension and anticipatory activity observable just before speakers produce the same speech acts. I hope to convince the audience that there are at least some data supporting the integrative perspective on linguistic pragmatics.