The mechanisms of structure extraction in the brain:
Evidence from Chinese sentence processing

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It is a survival instinct for organisms to seek and to extract structure from seemingly random input to make sense of the environment. The demonstration of such an evolved endowment can be observed in different domains of human cognition. In this talk, I will focus on structure extraction in sentence comprehension (i.e., syntactic processing) to elucidate general and specific characteristics of this important capacity. I will first present psycholinguistic and neurolinguistic studies that examine functional and neuroanatomical underpinnings of Chinese sentence comprehension with a focus on relative clauses (RCs). The brain regions involved in extraction of linguistic structure overlap partially with those involved in extraction of numerical (quantity) structure. Further, the performance of sentence processing is compared with that of other kinds of structure extraction (i.e., statistical learning) and of other fundamental cognitive abilities (i.e., IQ, working memory). The empirical evidence from these endeavors suggests that syntactic processing might require support from learning and memory mechanisms that are different from those that support structure extraction in other general domains. Following the presentation of the current findings, future research directions will be informed and discussed.