Second-order theory of mind in children: Models and evidence

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In cognitive science, there has been comparatively much more attention for first-order theory of mind ("Bob knows that Alice will throw him a surprise party") than for second-order theory of mind ("Alice does not know that Bob knows that she will throw him a surprise party"). People can apply theory of mind recursively, up to a point, but the literature about higher orders of theory of mind is rather scant. In this lecture, the tables will be turned: I will gloss over first-order theory of mind rather quickly and focus mostly on higher-order theory of mind, especially on second-order theory of mind.

Second-order theory of mind starts to develop when children are around 5-6 years old. Second-order (and sometimes even higher-order) theory of mind becomes more and more important as children become older. It helps them to understand and thrive in complex social interactions, for example, to understand the concept of a lie or a promise. In adult life, second-order theory of mind is vital for reaching win-win solutions in negotiations and for establishing and maintaining teamwork.

Based on research in my Vici project "Cognitive systems in interaction: Logical and computational models of higher-order social cognition", I will discuss several strands of research seeking answers to difficult questions about the development of recursive theory of mind. How do children learn to apply second-order theory of mind reasoning in story tasks? Can 5-year old children on the brink of developing second-order theory of mind be trained to solve second-order false belief tasks? And how is success on second-order false belief tasks related to their abilities to apply recursion in the language domain and to their working memory capacities? To investigate these questions, we combine computational cognitive models and empirical research with children. This talk is mainly based on research with PhD student Burcu Arslan.