

## The Limits of Social Cognition: Production Functions and Reasoning in Strategic Interactions

### **Abstract**

The human mind has finite cognitive capacity, requiring cognitive functions to compete for shared neurobiological resources. Here, I introduce an extension of behavioral game theoretic approaches, decomposing strategic interactions into social and non-social arithmetic cognitive demands. Drawing on the economic concept of production functions, I develop a novel framework that models strategic sophistication as a product of participants' capabilities across these dimensions, processing time, and monetary incentives. In three studies, I demonstrate that social and arithmetic demands are contextual factors for sophistication with a lawful regularity, that subjects trade-off these capabilities as cognitive demands vary, and that sophistication emerges as a saturating function of processing time and monetary incentives. These findings provide a predictive new framework, offer mechanistic insights into reasoning in games and lay the foundation for a new detailed economic model of strategic choice.