

Fundamental Questions and CogSci

Cem Bozşahin; December 6, 2023

What is the fundamental question we ask about the lean-mean putting-things-together machine that we call mind, which—we appear to agree—is our main subject matter? Who has it? Us, animals, computers?

1. The Lenneberg-Chomsky question: What is the knowledge of language which seems to be acquirable in a more or less similar timeframe across cultures and upbringing?
2. The Hartmanis-Stearns-Knuth question: What makes finding solutions to some problems not as easy or difficult as checking given solutions to the problem?
3. The Turing question: What kind of control structures can be specified to hand them over to humans or computers to operate autonomously? Is autonomy same as free choice?
4. The Schönfinkel question: What are the primitives of universal functional structure and its computation?
5. Another Turing question: What are choice machines? Oracles? Why can't we ask questions to them?
6. The McCarthy-Hayes question: What changes and what doesn't in an act, and how is that kept track of?
7. The Herbert Simon question: If design is "preferred change," what are possible natural designs?
8. The Wertheimer-Köhler-Koffka question: What if complex human behavior is regulated by proactive open loops, starting with the whole first, rather than looking at what we "perceive" as pieces do to us in close loops? Can we study choice rather than decision?
9. The Vygotsky question: If man changes environment and environment changes man, what are the terms of play in these endeavors if they are not biologically determined?
10. The Pask question in educational psychology and cybernetics (yes, both): Why would bodies self-organize to a certain extent even without intensional elements, for example by being drawn to magnetic fields, but require meta-principles of interaction and representation to organize even more?
11. The Geertz question: What if social behavior is universal from the ground up, rather than purported top-down universals with lacunas everywhere?