

# First Discussion Class

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## Discussion Question

Does developing a map of brain/neocortical regions commit one to a localizationist perspective on the brain?

- A. Yes, since whatever regions one marks out on the map represent locations
- B. Yes, since differentiating regions depends on identifying differences between regions
- C. No. It depends on how one uses the map. Only if cognitive/mental activities are assigned to regions is the account truly localizationist
- D. No. A map can show how interconnected components are, thereby supporting a more holist perspective
- E. Other

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## Discussion Question

Applying the idea that perception is guided by what we already believe, are efforts at, e.g., mapping the brain, inherently circular so that we can never really know the truths about our brains?

- A. Yes. What our brains are really like is forever beyond our grasp (skepticism)
- B. Yes, but . . . We start inquiry with whatever ideas we have, but we can refine them to better, but never perfectly, fit nature (fallibilism)
- C. No. Empirical research will reveal the true structure of the world (realism)
- D. Other

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## Discussion Question

Is neuroscience able to eventually deliver the true account of the brain?

How would neuroscientists know they had arrived at the truth?

Does it matter if it cannot?

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## Discussion Question

Research on brains tends to focus at the species level—Brodmann offering a map of the lemur's brain or connectome folks seeking the connectome of the fruit fly or human. Yet, individual organisms are different. What is the point of working at the species level

- A. It is misguided. One doesn't want a map of "the city" but of San Diego
- B. The similarities across species are so great that they dwarf differences
- C. A common map is compatible with different activities occurring in the brain
- D. Other

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## Discussion Question

You volunteer to have researchers construct a map of your brain at the individual neuron level—each neuron, each axon, and each dendrite is represented. How useful would this be in building an artificial replicate of you?

- A. Very useful. If an artificial system had parts corresponding to each neuron and each connection, it would behave like me.
- B. It would only be a starting point. One needs to build the replica out of neurons that behave like each of my neurons.
- C. It wouldn't be useful at all. This replica wouldn't have my experiences and so wouldn't act like me.
- D. Other

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## Discussion Question

What should one make of the differences in the cortical maps of different species, especially species that are relatively closely related (rabbit and squirrel)?

- A. They are probably just accidents of evolutionary history
- B. They might explain why different species are capable of doing different things
- C. They might be the result of different information processing demands different species faced
- D. Other

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## Discussion Question

Is there a tendency over evolutionary history for organisms to get more complex?

Does increasing centralization/complexity of the brain correspond to greater intelligence?

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