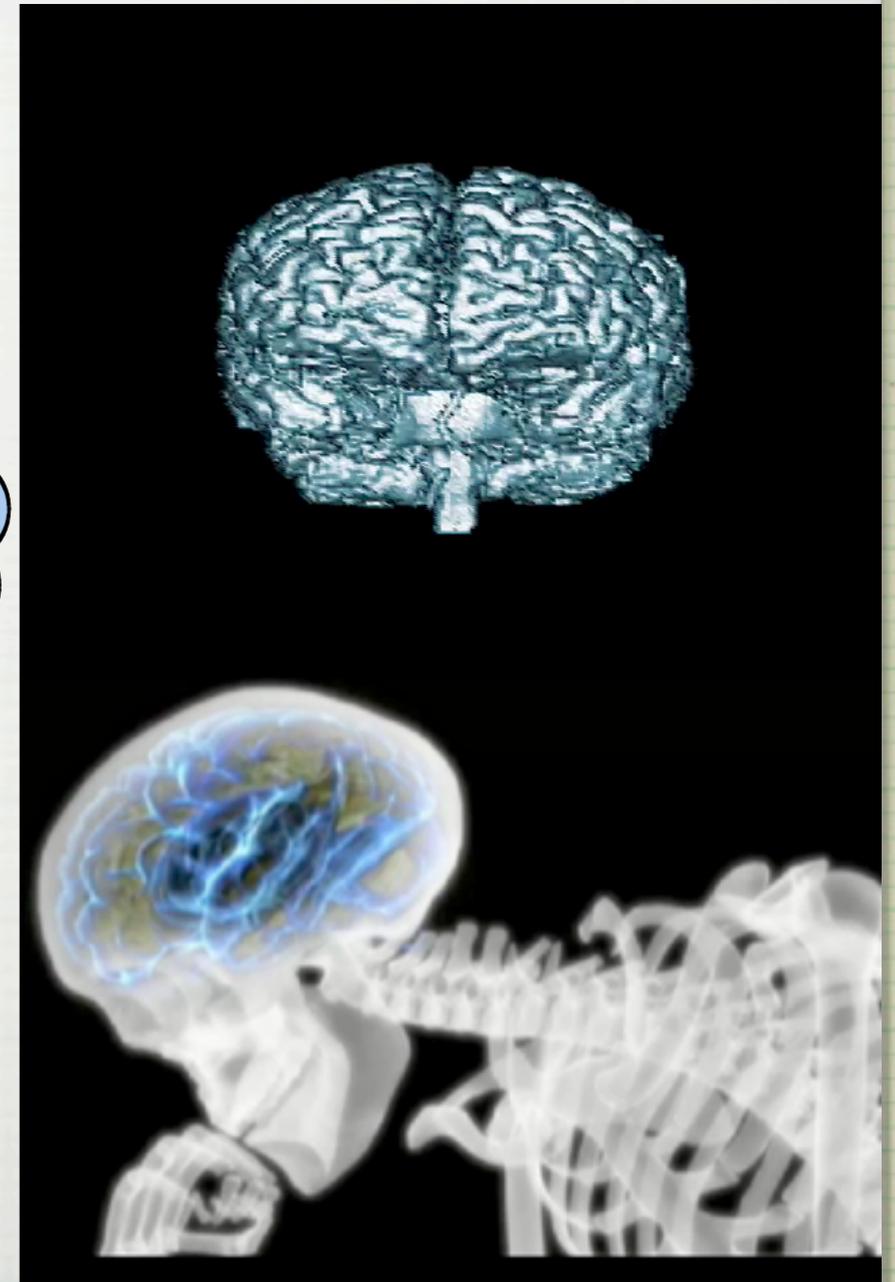
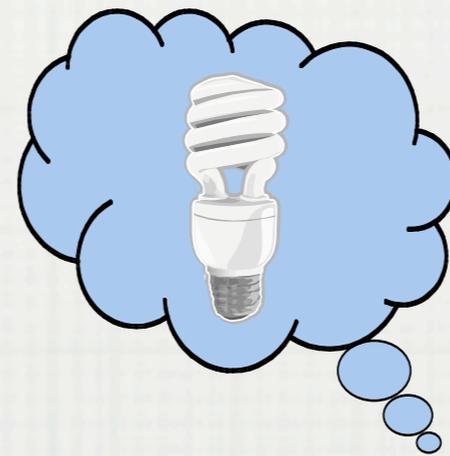


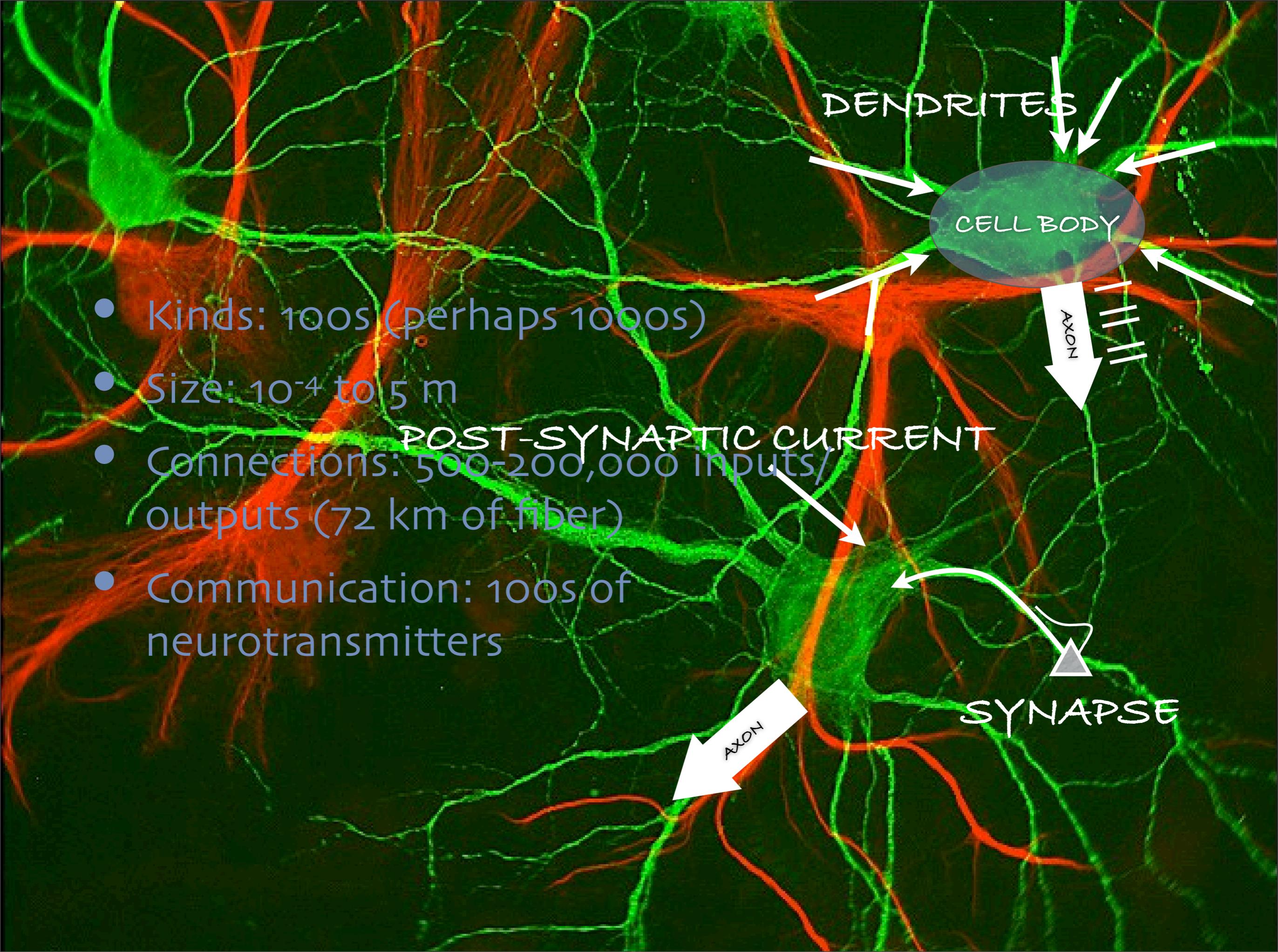
Identity Theory

Phil 255

Brains

- Mass: 1-2 kg (2% body weight)
- 25% energy (glucose)
- Power: ~20 Watts
- Area: 4 sheets of paper
- Neurons: 100 billion
 - 150,000/mm²





DENDRITES

CELL BODY

AXON

POST-SYNAPTIC CURRENT

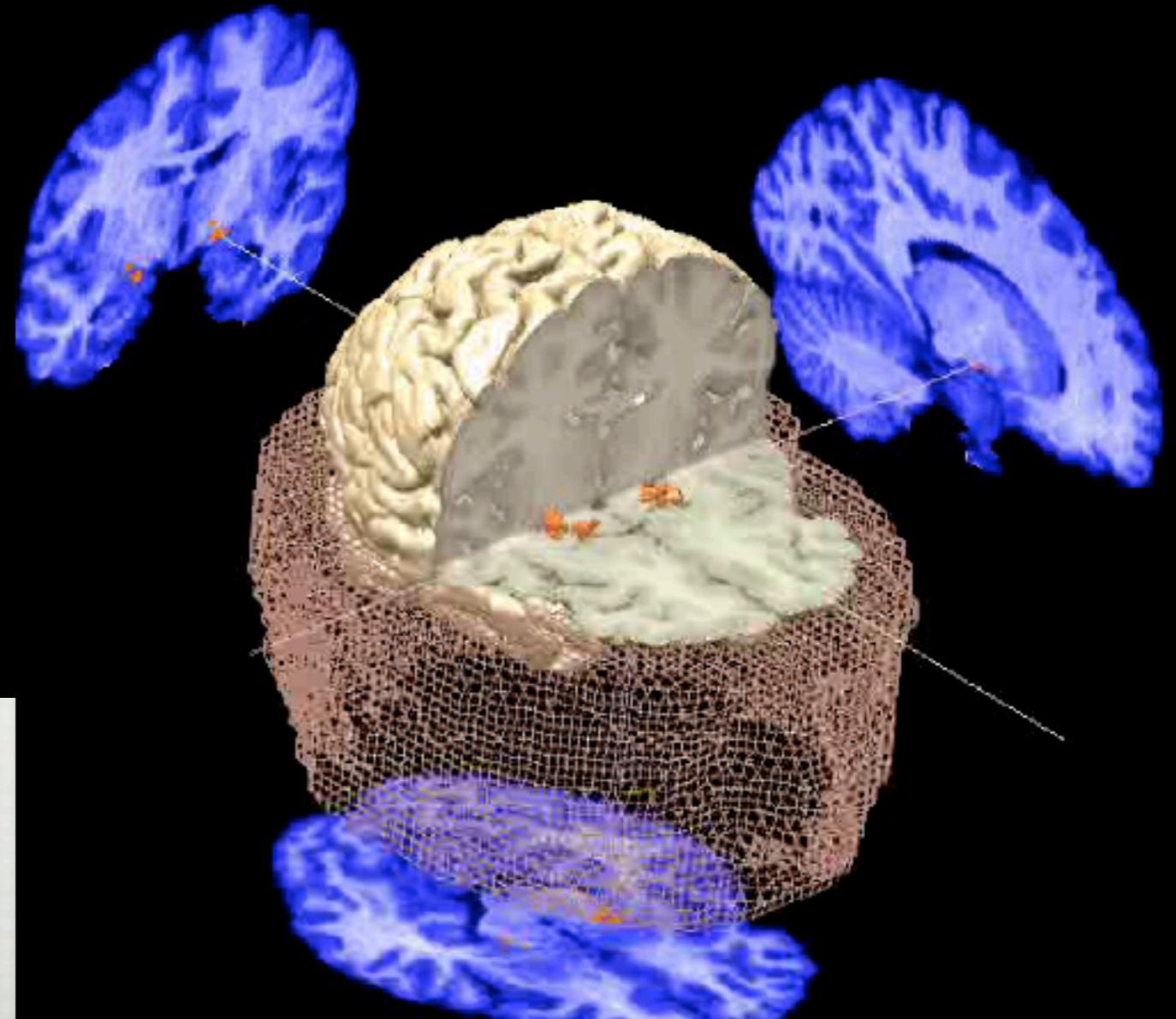
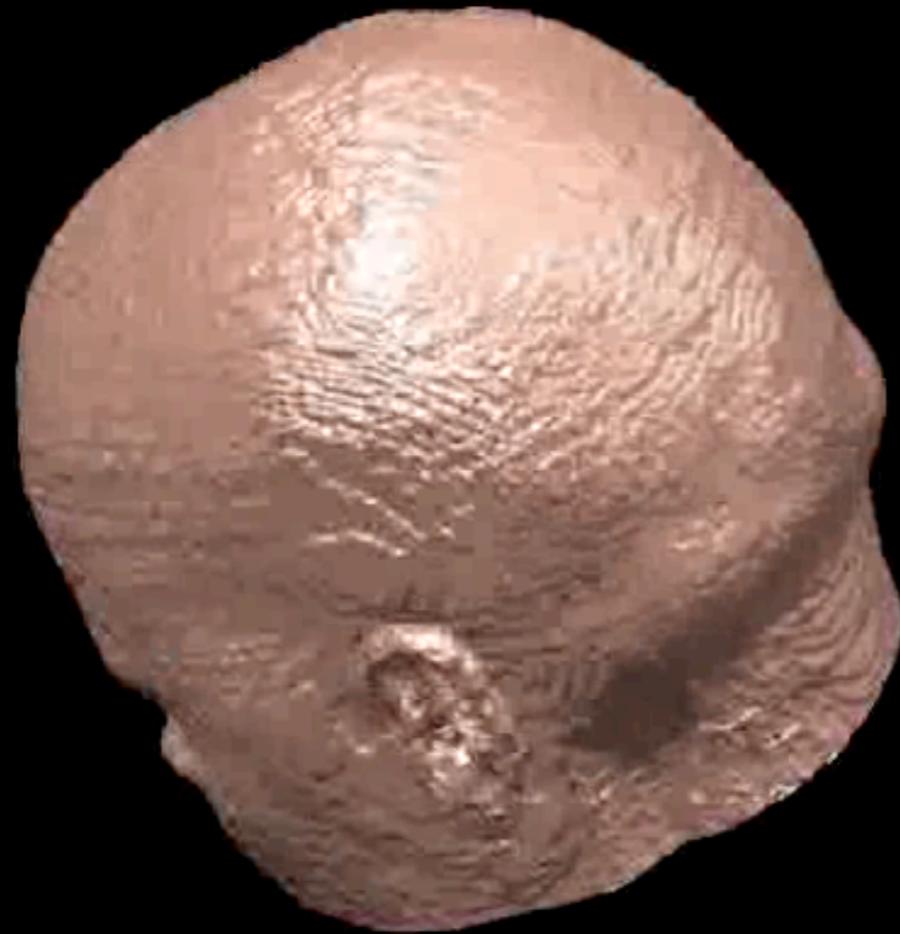
SYNAPSE

AXON

- Kinds: 100s (perhaps 1000s)
- Size: 10^{-4} to 5 m
- Connections: 500-200,000 inputs/outputs (72 km of fiber)
- Communication: 100s of neurotransmitters

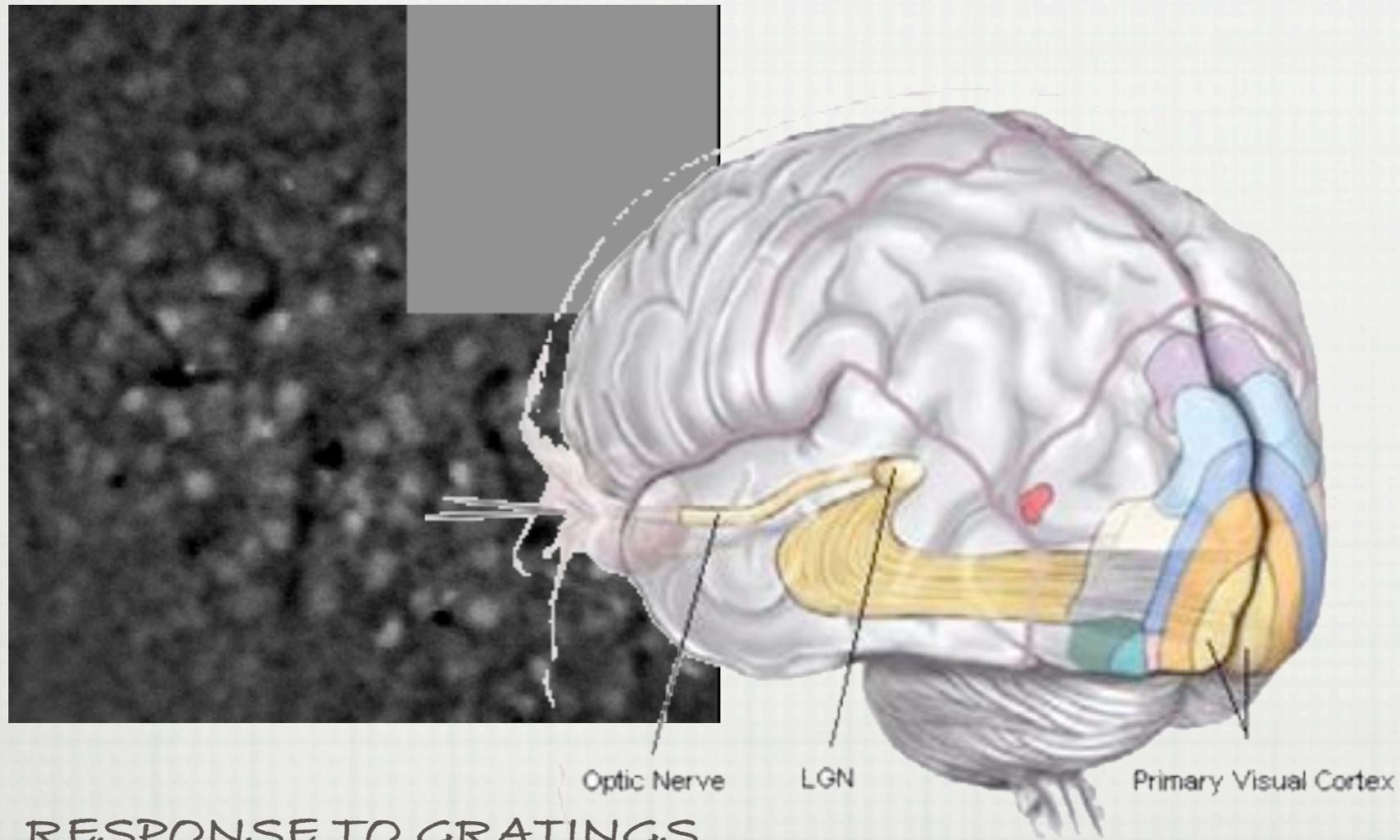
fMRI

FEAR



MOTHERS AND CHILDREN

Many Cells



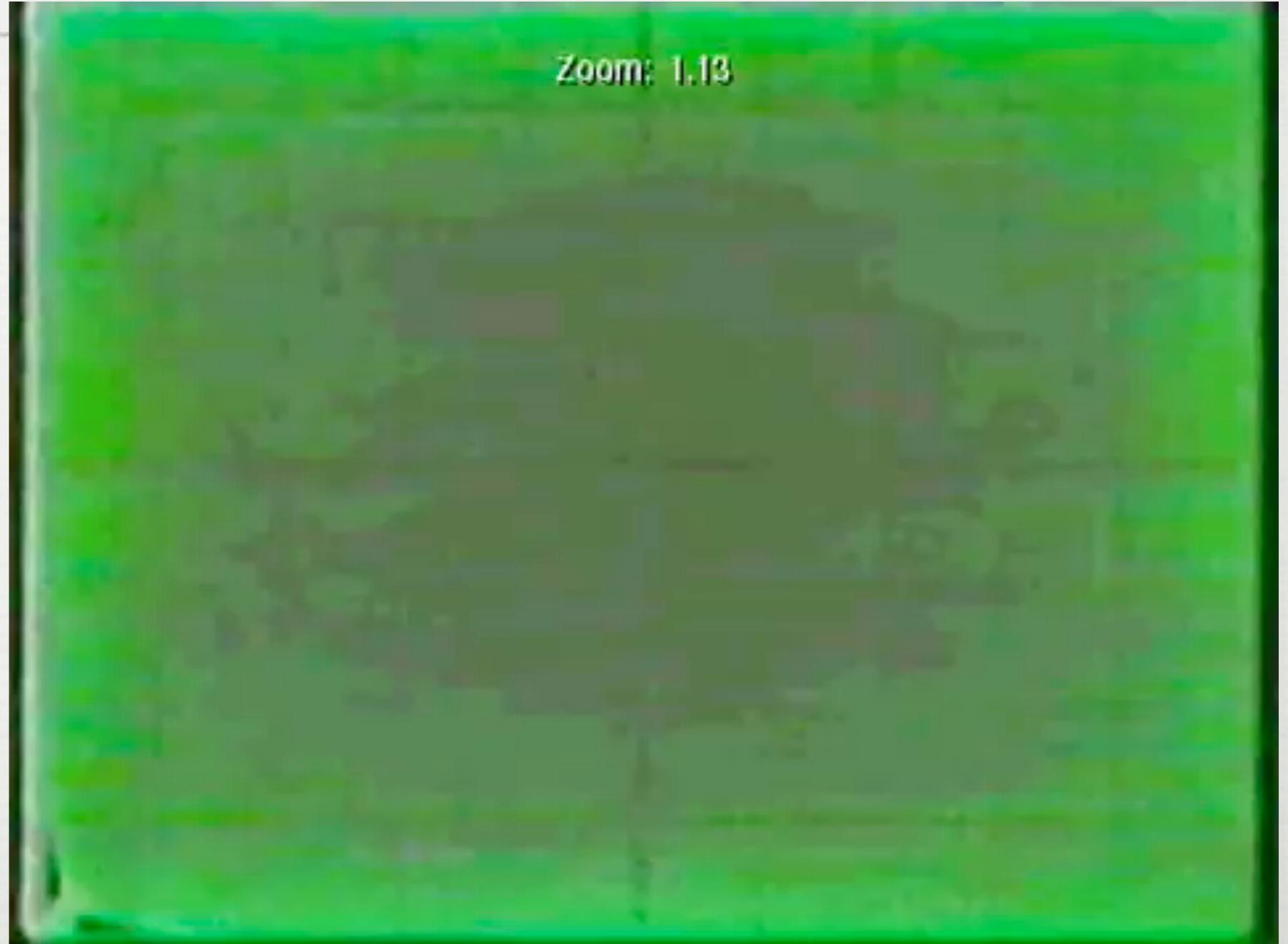
RESPONSE TO GRATINGS

Single Cell

CURRENT →

Zoom: 1.13

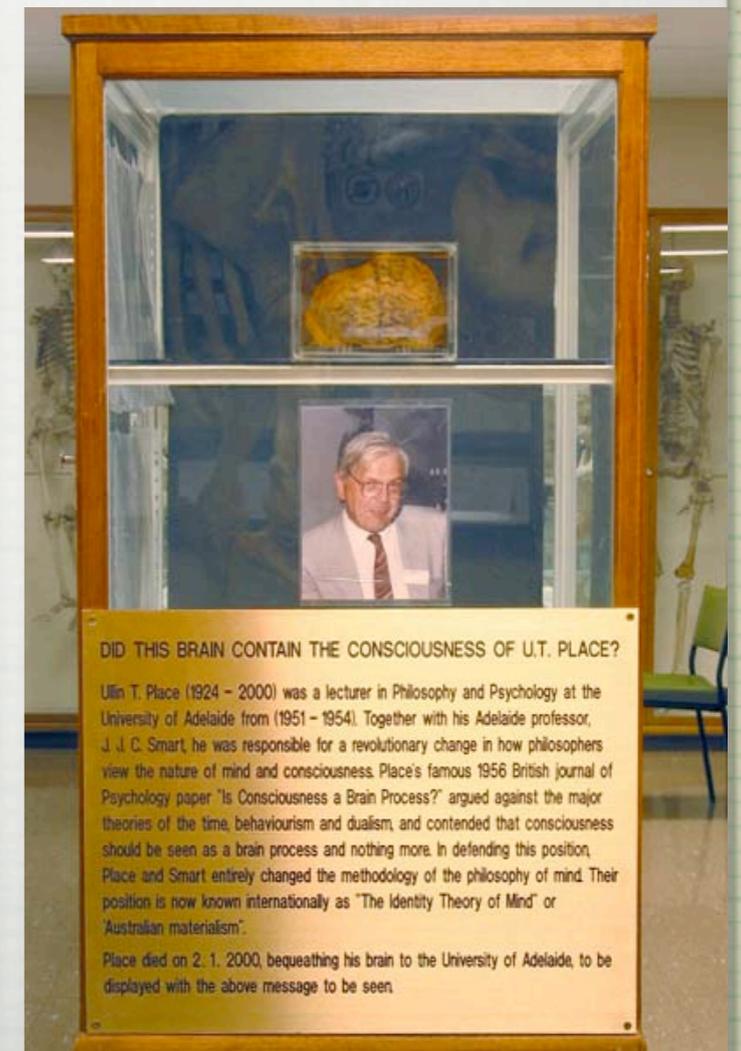
CELL
RESPONSE



CORTICAL CELL WITH INJECTED CURRENT

U.T. Place: Conscious Brains

- ❑ Consciousness being a brain process cannot be dismissed on logical grounds alone
- ❑ Behaviourism is OK, but the problem of privacy looms large
- ❑ Certain psychological notions (e.g. qualia) demand reference to internal goings on
- ❑ Nevertheless, he is an ardent materialist
 - ❑ hence needs to cleave inner processes from dualist interpretations



Three kinds of 'is'

- Analytic/synthetic distinction:
 - necessary/contingent; logic/fact
- 'Is' of definition
 - e.g.,
- 'Is' of predication
 - e.g.,
- 'Is' of composition
 - e.g.,
- Does the composition/predication distinction work?



Definition vs. Composition

- Three intuitions about the meaning of 'consciousness is a brain process' lead to his claim that it isn't an 'is' of definition:
 - 1)
 - 2)
 - 3)
- So it is an empirically testable, compositional 'is'
- Hence 'brain process' and 'consciousness' are logically independent

Logical/Ontological Independence

- This 'is' claim is special because it is 'universal' (which usually means definitional)
 - Usually, logical independence implies ontological independence
- Consider 'a cloud is a mass of tiny particles'
 - shows logical independence, but ontological dependence

When do we see the same thing?

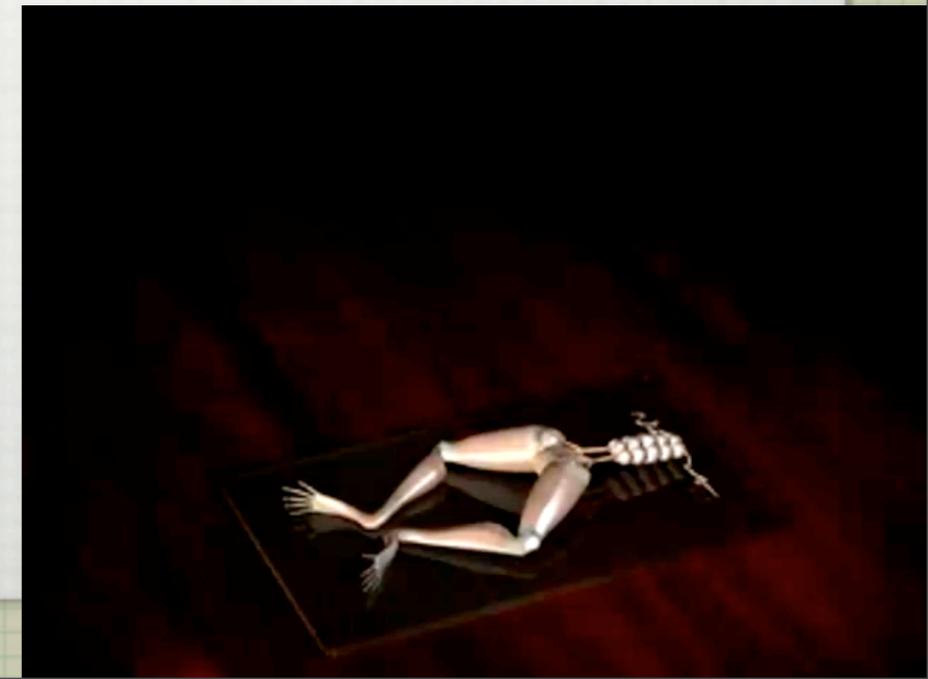
- Switches to the lightning analogy: why?
- Methods for identifying lightning are radically different if treated from different perspectives
 - Other e.g.s:
 - What does the moon example do?
 - Direct versus indirect causal connections
 - What is the difference?
- Can we save the intuition?

Phenomenological fallacy

- Place quotes Sir Charles Sherrington's argument that there is a "self" always present and evaluating perceptions (c.f. "life")
- Green after-image: taken to be something, somewhere with the property 'green'
- That 'somewhere' is the phenomenal field
- PF is not a brain image, as that would be a category mistake
 - Hence not physical
- But, is there a "veil of ideas"?
- Maybe we assert the similarity of our experience to that when there is something green.
- Identity theory: physiology & introspection should be correlated

Identity theory: motivations

- Descartes, Willis, Newton had differing views of neural activity
- Galvani's experiments (end 18th c.) provided electrical view.
- Franz Gall (start 19th c.) founded phrenology: despite good args (e.g., damage) was eventually scorned.
- Localist view revitalized with Broca and Wernicke (mid 19th c.)
 - Identity theory more plausible for it
- Cajal (end 19th c.) posited the Neuron Doctrine
- Mid 20th c. established electro-chemical nature of the brain
- Penfield (1950s) stimulation experiments
- Perry & Gazzaniga (1960s) split-brain



Split brain



Joe



Identity theory: Statement

- Place' provides one of the first statements (cf Boring):
 - Consciousness should be identified as a brain process
 - Smart & Armstrong extended this to all mental states
- Smart added
 - Mental vocabulary is referent neutral
 - Ockham's razor favours identity theory over dualism
- Armstrong added:
 - Dispositions are explained by reference to inner structure (e.g. salt in water)
 - Therefore inner causes (neural states) explain behaviour

Identity theory: Challenges

- What is the identity supposed to be between?
- Types and tokens: e.g. words, animals, cars, etc.
- Type-type identity theory
- Token-token identity theory
- Unlike coins (Lyons), mental state-brain state identities do not seem forthcoming
- Lyons argues against any such identities with the cypress example.
 - Suggests the 'order' of labeling is importantly different
 - ...

Eliminativism

- Can't find type identities, we can
 - Wait
 - Eliminate
- Eliminative materialism argues against folk psychology as a viable theory (cf phlogiston, demonology).
- Rorty thought true elimination was impractical
- The Churchlands didn't:
 - Radically false theories can be dangerous (or silly?)