Philosophy and the Sciences

Introduction to the Philosophy of the Cognitive Sciences

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What is consciousness?

Why do creatures with brains like ours have consciousness?
What makes certain bits of our mental life conscious and others not?

What is consciousness?

One of the hardest problems in science is the nature of consciousness. We know that we have consciousness. We do not just blindly process information, make discriminations, take actions. It also feels a certain way to do so from the inside.

What do we mean by 'consciousness'?

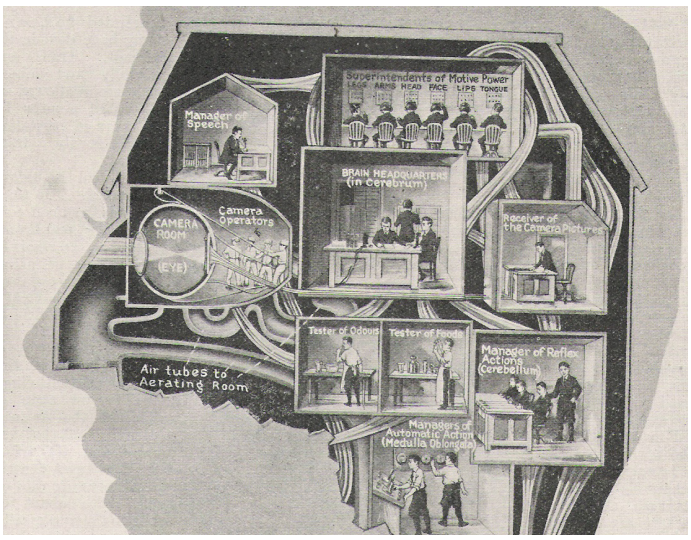
1. **Sentience** — A creature is receptive to its surroundings and it can act in an intelligent way.

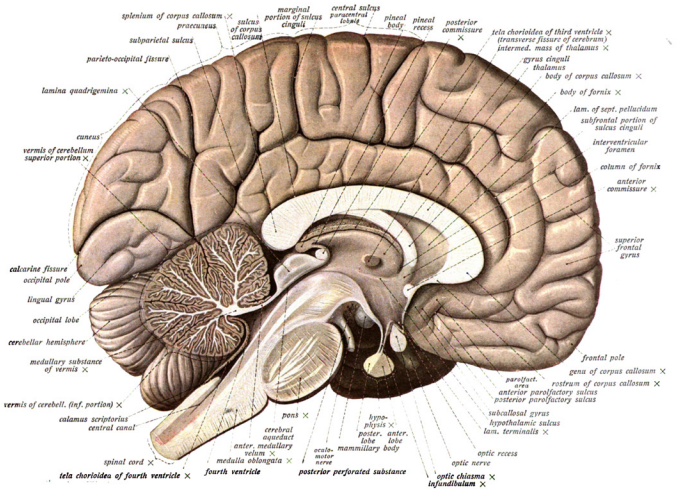
2. **Wakefulness** — Not asleep or otherwise incapacitated.

3. **Access consciousness** — A thought that is widely broadcast in a creature's brain and guides many of its actions.

4. **Phenomenal consciousness** — Subjective feelings that accompany many episodes in our mental life.

Our focus is phenomenal consciousness. The **hard problem of consciousness** is to explain what it is about us, as physical beings,that produces phenomenal consciousness.





Why is the hard problem so hard?

There is a gap between our two perspectives on phenomenal consciousness: **phenomenology** and **neuroscience**. Science has good track record at unifying knowledge. But explaining how subjective feelings (accessed by phenomenology) are brought about by our brains and behaviour (studied by the natural sciences) is a particularly difficult problem.

The philosophers Frank Jackson, David Chalmers, and Thomas Nagel have argued that this, the hard problem of consciousness, will never be solved.

Frank Jackson's argument that the hard problem will never be solved is called *the Knowledge Argument*. Imagine that a brilliant neuroscientist, Mary, who knows all there is to know about brain function, has never seen colour. One day, Mary does see colour: she sees a red rose.

Jackson argues that at this point Mary learn something new: what it is like to see red. If Jackson is right and Mary does learn something new then the hard problem of consciousness will never be solved.

Scientific investigations into consciousness

What sorts of questions do scientists ask when we investigate consciousness? And how much progress have we made in turning these questions from philosophical musings, into issues that can be investigated empirically?

The two questions that scientists are most interested in these days, both fall under the heading 'neural correlates of consciousness' or NCC for short. Both questions are concerned with, what kinds of neural activity correlate with, happen at the same time as, processes related to consciousness.

The first of these, asks what neural activity determines the state or level of consciousness that a person is in; what kind of activity determines whether we are awake or asleep, in a comma or in a vegetative state and so on.

The second question asks what processes determine the content of our consciousness; our momentary awareness of ourselves and of the world around us, at any given time.

It's useful to think of one's state of consciousness, as a combination of two factors: wakefulness, or what one's level of consciousness is; and awareness, having conscious content. But these are not the only states that exist.

What sort of brain activity determines one's state of consciousness?

There's no single brain area whose activity is solely responsible for either awareness or wakefulness. The brain is a **vastly integrated system**, and a person's state of consciousness is the outcome of many subsystems' **combined activity**.

There are, however, certain brain areas, whose activity contributes to specific aspects of consciousness. Wakefulness is highly dependent on activity in the **subcortical structures**. Awareness is mostly dependent on activity in the **cortex**.

Awareness can be divided into two complimentary elements. The first is **external awareness**, the awareness we have whenever we navigate through the environment and interact with it. The second element of awareness is the kind that occurs when we're not focused on the external environment, but on our internal world; daydreaming, retrieving memories, or planning for the future.

How much of the world around us are we actually aware of?

At any given time, we're actually aware of a surprisingly small subset of the information entering our brain through our senses.

This is shown by the phenomenon of '**inattentional blindness**'.

Which are the processes that shape our awareness of the things we do perceive? To investigate this, researchers often use something called '**bistable images**'

This is a case of **dissociation between perception and awareness**. The external stimulus, the thing that's out there in the world, does not change. Yet our perception does change. Since the only change is happening in our own brains, if we understood the process that causes this to happen, we would have a window into how the brain selects content for representation and consciousness. Researchers explore which areas of the brain would be active at the same time as perceptual switches.

At this point, there is no theory that offers a full unified account of consciousness and how it arises from the activity of physical systems.