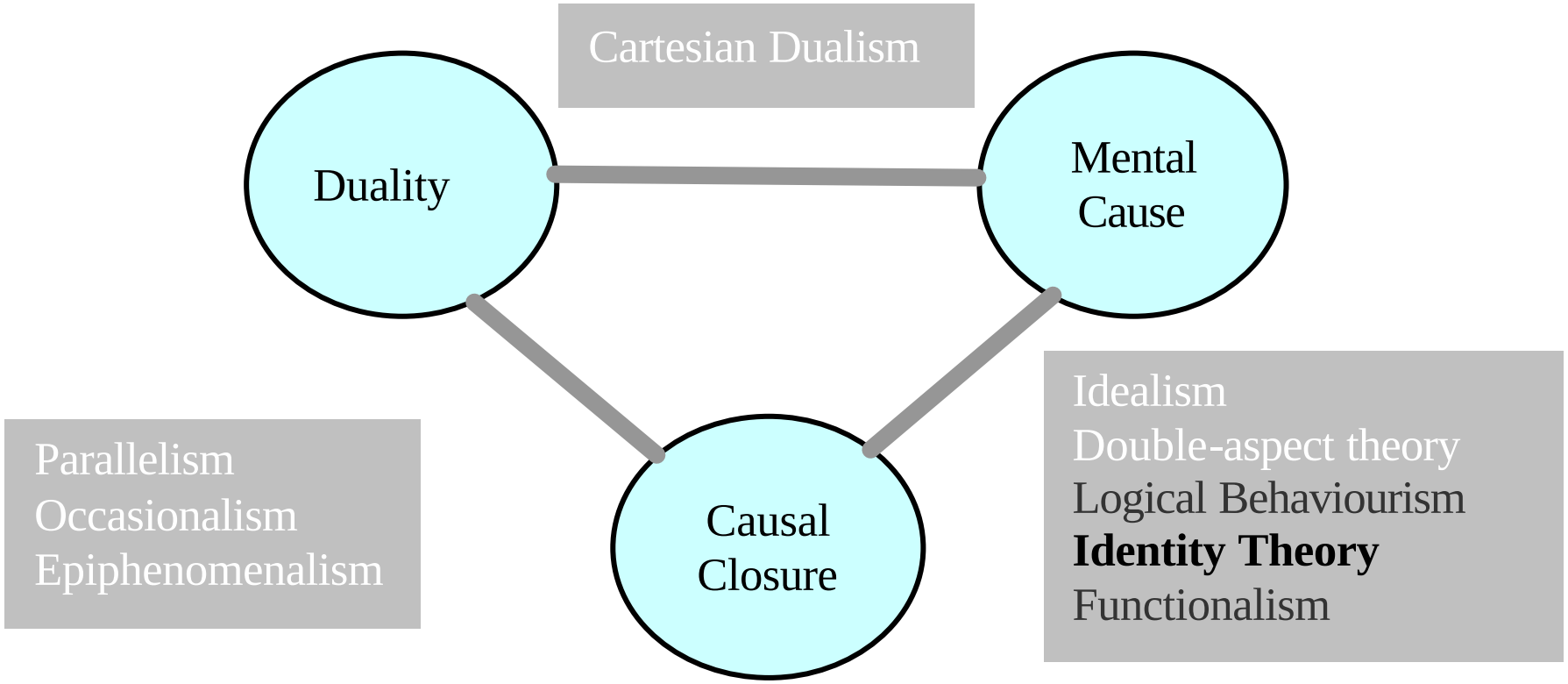
Mind & Body
The Identity Theory



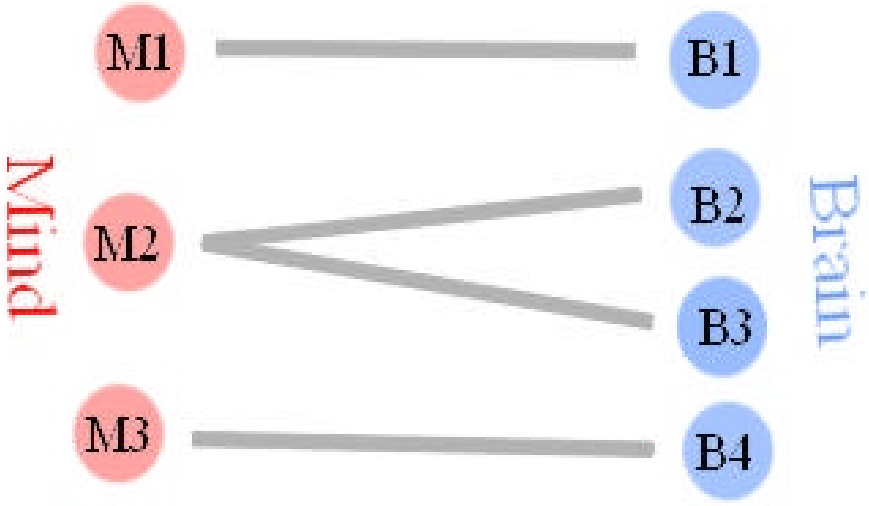
Mind-brain correlations

Common observations (alcohol and other drugs) and neuropsychological evidence (electro-encephalography, magneto-encephalography, evoked potentials, positron emission tomo-grams) suggest strict correlations between mental occurrences and neurological goings-on in the brain. Ideally:

The mind-brain correlation thesis

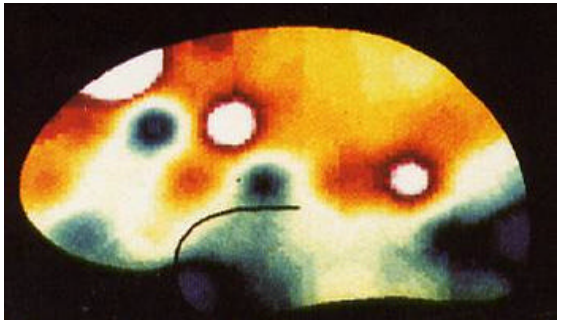
Each mental state (or process) correlates with some neurological state (or process)

Different mental states correlate with different neurological states (though one and the same mental state can have different neural correlates)

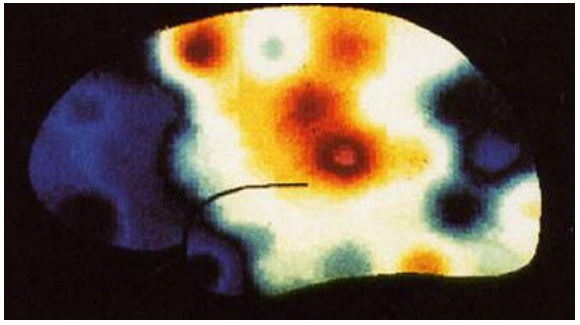


Four possible reactions

1. The correlations are based on causal interactions between minds and brains (Cartesian Dualism)
2. The correlations are the result of epiphenomenal by-products of neural activity (like the shadow of a billiard ball rolling across the table (Epiphenomenalism)
3. Each mental and material event is willed by God in such a way that they occur in orderly patterns (Parallelism, Occasionalism)
4. Mental occurrences can simply be taken as brain processes (Identity Theory)



Counting silent



Counting aloud

The identity thesis

Mental states/processes **are** brain states/processes. Hence, we can **identify** sensations and other mental phenomena with (physical) brain processes.

pain = C-fiber activation.
Visual consciousness = continuous firing in cortex area V1.

Some philosophers hold that though experiences are brain processes they nevertheless have fundamentally non-physical, psychical, properties, sometimes called 'qualia'. The identity thesis is denying the existence of such irreducible non-physical properties.

We can take the identity theory (in its various forms) as a species of **physicalism**. However, this is an **ontological**, not a translational physicalism. It would be absurd to try to translate sentences containing the word 'brain' or the word 'sensation' into sentences about electrons, protons and so on. Nor can we so translate sentences containing the word 'tree'. After all 'tree' is largely learned ostensively, and is not even part of botanical classification. If we were small enough a dandelion might count as a tree. Nevertheless a physicalist could say that trees are complicated physical mechanisms.

Proponents of the identity theory

- H. Feigl: *The "Mental" and the "Physical"* (1958)
- J.J.C. Smart: *Sensations and Brain Processes* (1959)
- U.T. Place: *Is Consciousness a Brain Process?* (1956)
- D.M. Armstrong: *A Materialist Theory of the Mind* (1968)

See **J. J. C. Smart's paper** *The Identity Theory of Mind* in the **Online Reader**

Motivation

- Simplicity (Occam's razor): Identification in general reduces the number of entities and thereby enhances ontological simplicity.
- Simplest way to explain the causal efficiency of mental states in agreement with the assumption that the domain of physical phenomena is causally closed.
- Allows speculations about law-like psycho-physical correlations (consider the phenomenon of colour perception, for example).

The concept of identity: Three kinds of empirical identification

Identification of two observable entities	*The morning star is the evening star* (cf. Frege) *Uluru is Ayres Rock* (travelling in Australia)
Identification of an observable with a theoretical phenomenon	*Water is* H_2O (on earth) *Temperature is mean kinetic energy of molecules* *Lightning is an electrical discharge*
Identification a functionally defined phenomenon with a theoretical phenomenon	*Gene is DNA* *Pain is C-fiber firing* *Consciousness is a particular brain process*

> The logical objections which might be raised to the statement 'consciousness is a process in the brain' are no greater than the logical objections which might be raised to the statement 'lightning is a motion of electric charges'. [Place 1954]

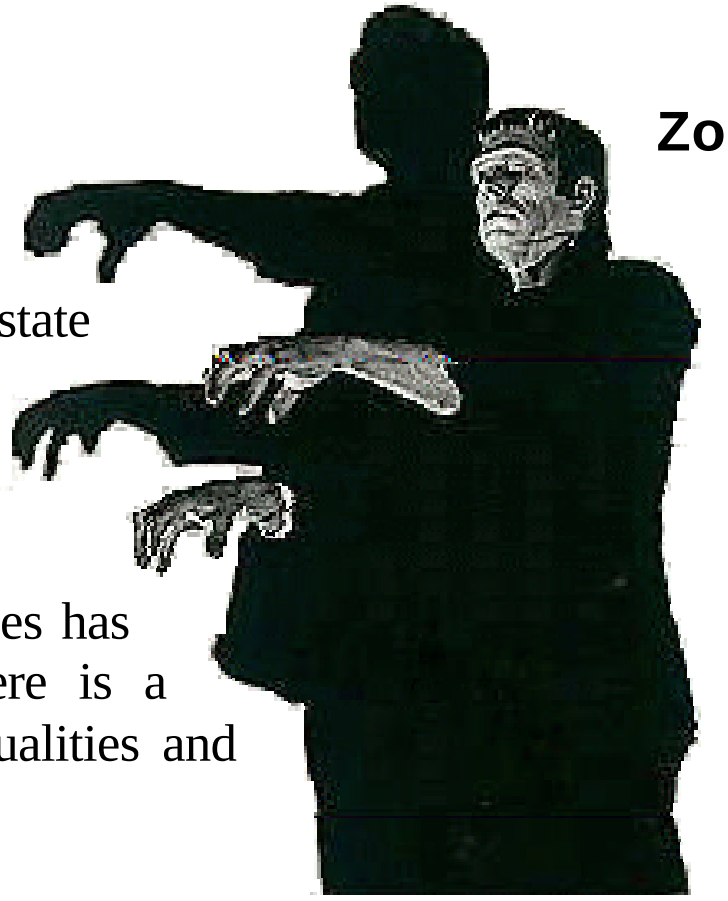
Type vs. Token Identity

- When asking whether mental things are the same as physical things, or distinct from them, one must be clear as to whether the question applies to concrete particulars (e.g., individual instances of pain occurring in particular subjects at particular times) or to the *kind* (of state or event) under which such concrete particulars fall.

- Token Identity theories hold that every concrete particular falling under a mental kind can be identified with some neurophysiological happening or other: instances of pain, for example, are taken to be not only instances of a mental state (e.g., pain), but instances of some physical state as well (say, c-fiber excitation).

- Token Identity is **weaker** than *Type* Identity, which goes so far as to claim that mental kinds *themselves* are physical kinds. So the Identity Theory, taken as a theory of types rather than tokens, must make some claim to the effect that mental states such as pain (and not just individual instances of pain) are contingently identical with physical states such as c-fiber excitation.

A potential counter example: Zombies



How can we know that others have (conscious) minds at all? You cannot observe other's state of mind. There is the possibility of zombies, creatures identical to use in every material respect, but altogether lacking conscious experiences.

The apparent conceivability of zombies has convinced philosophers like Chalmers that there is a unbridgeable *explanatory gap* between material qualities and the qualities of conscious experience.

However, Robert Kirk has argued for the impossibility of zombies. If the supposed zombie has all the behavioural and neural properties ascribed to it by those who argue from the possibility of zombies against materialism, then the zombie is conscious and so not a zombie.

Advantages of the identity theory

- It solves Descartes' problem by reducing the mental realm to the physical. The strictly materialist position taken by the identity theory shares its simplicity with Berkeley's idealist position. The identity theory, however, is able to explain the causal efficiency of mental states in agreement with the assumption that the domain of physical phenomena is causally closed.

- It allows to derive the causal role of mental phenomena from their physical substrate. This is a principle possibility, seldom realized in detail.

- It highlights the role of empirical investigations about the mind and mind-brain correlations. ing the role of dispositions. An agents is in a certain "state of mind" not only in virtue what he is actually doing, but also in virtue what he is disposed to do.

Disadvantages of the identity theory

- Violations of Leibniz's Law, which states that if A is identical with B, then A and B must have in common all of their (non-intensional) properties. After-images, for example, may be green or purple in colour, but nobody could reasonably claim that states of the brain are green or purple. And conversely, while brain states may be spatially located, it has traditionally been assumed that mental states are non-spatial.

- The possibility of zombies (??)

- Putnam's *multiple realizability* argument: (1) according to the Mind-Brain Type Identity theorist, for every mental state there is a unique physical-chemical state of the brain such that a life-form can be in that mental state if and only if it is in that physical state. (2) It seems quite plausible to hold, as an empirical hypothesis, that physically possible life-forms can be in the same mental state without having brains in the same unique physical-chemical state. (3) Therefore, it is highly unlikely that the Mind-Brain Type Identity theorist is correct.