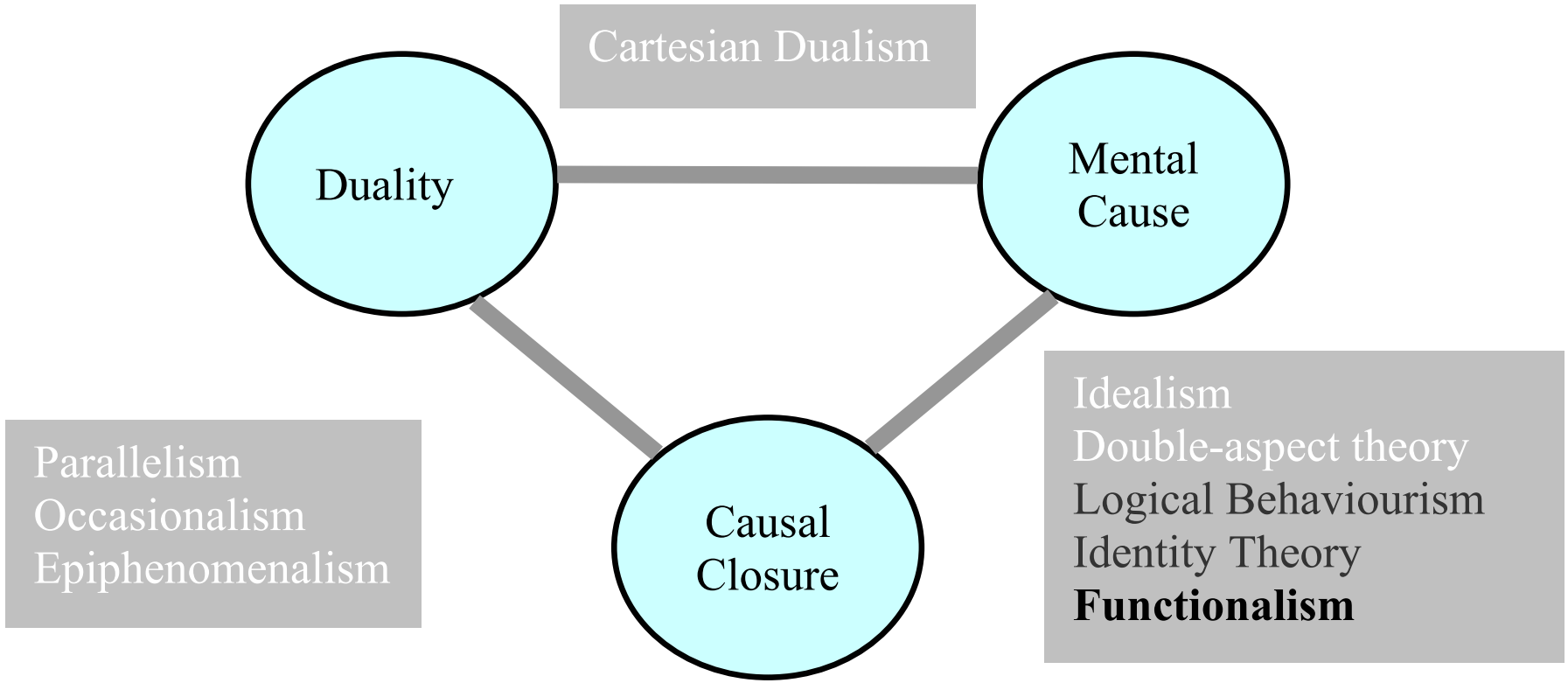
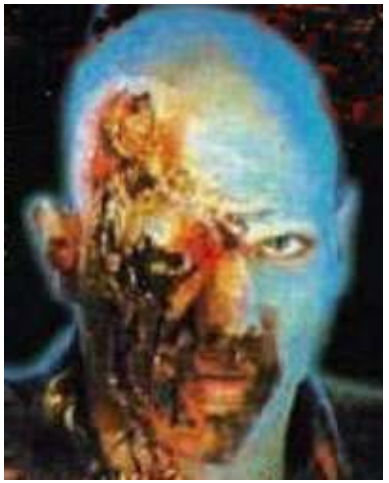
Mind & Body
Functionalism

The decline of the identity theory was a consequence of a new conception of mind: **functionalism**.



Integrating the advantages of behaviourism and identity theory

Identity theory: It interprets the causal efficiency of mental states in an interesting way – in principle it allows to derive the causal role of mental phenomena from their physical substrates.



Behaviourismus: It highlights the relational and functional character of "mental states". To have a mind is just to possess a particular sort of organization, one that issues in what we call "intelligent behaviour". This conforms with Putnam´s **multiple realizability argument** (see the corresponding article in the reader).

Functionalism is able to integrate both aspects.

The advantage of functionalism

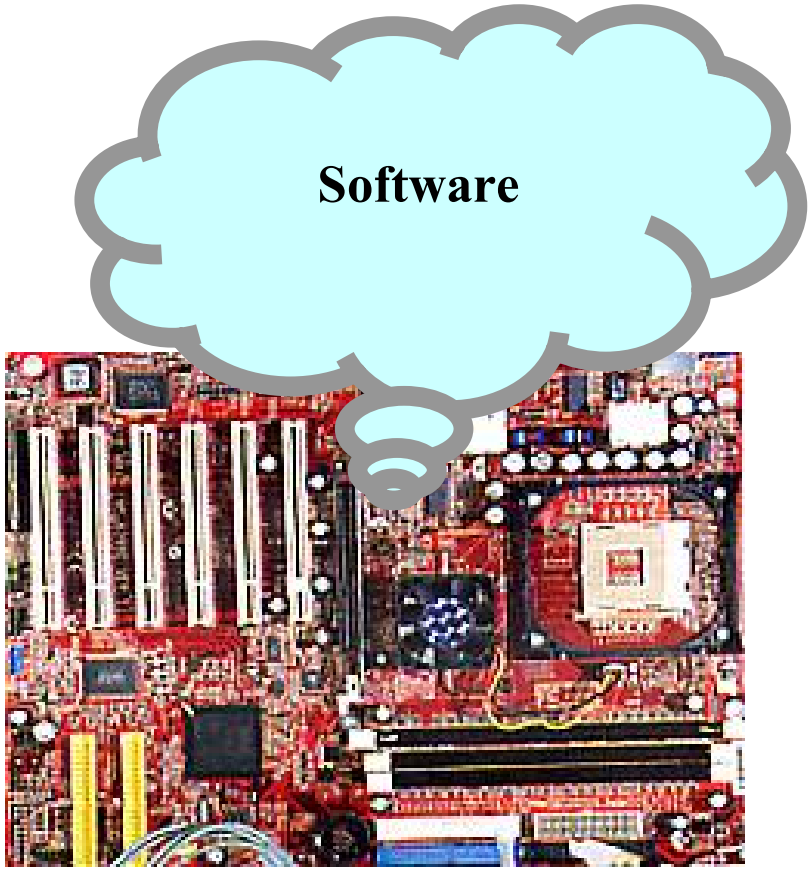
	Multiple realization	Mental causes
Behaviourism	+	–
Identification Theory	–	+
Functionalism	+	+

The computer metaphor I

The emergence of functionalism coincided with the rise of computing machines in the 1950s and 1960s. When we consider the computational operations in a computer, we **abstract** from its hardware.

Are computational processes material processes?

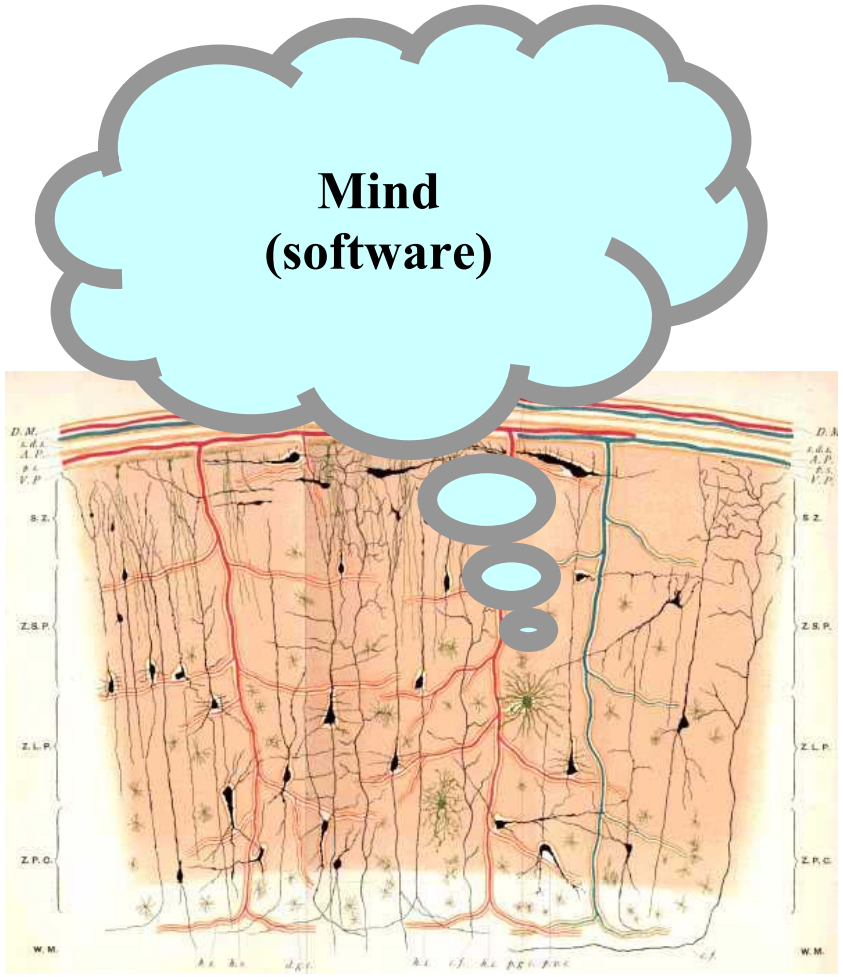
- Computational processes are **realized** in material systems.
- Computational processes are multiply realizable.



The computer metaphor II

Are mental processes material processes?

- Mental processes are **realized** in material systems (brains).
- Mental processes are multiply realizable. (Especially, that's true for *pain*).
- For understanding the mind it's useful to abstract away from whatever realizes the computational processes of the mind.



The computer metaphor III

The idea of the computer metaphor is not to suggest that we are mechanical robots, rigidly programmed to behave as we do. The idea, rather, is that minds bear a relation to their material embodiments analogous to the relation computer programs bear to devices on which they run. Consequences of this view are:

- Against the dualism of substances: Minds are not distinct immaterial substances causally related to bodies.
- Talk of minds is merely talk of material systems at a "higher level".
- Brain processes are like hardware processes. They realize thoughts, feelings, computations. But such things are multiply realizable (in a potentially endless array of organisms or devices).

Proponents of functionalism

- Putnam and Fodor saw mental states in terms of an empirical computational theory of the mind.

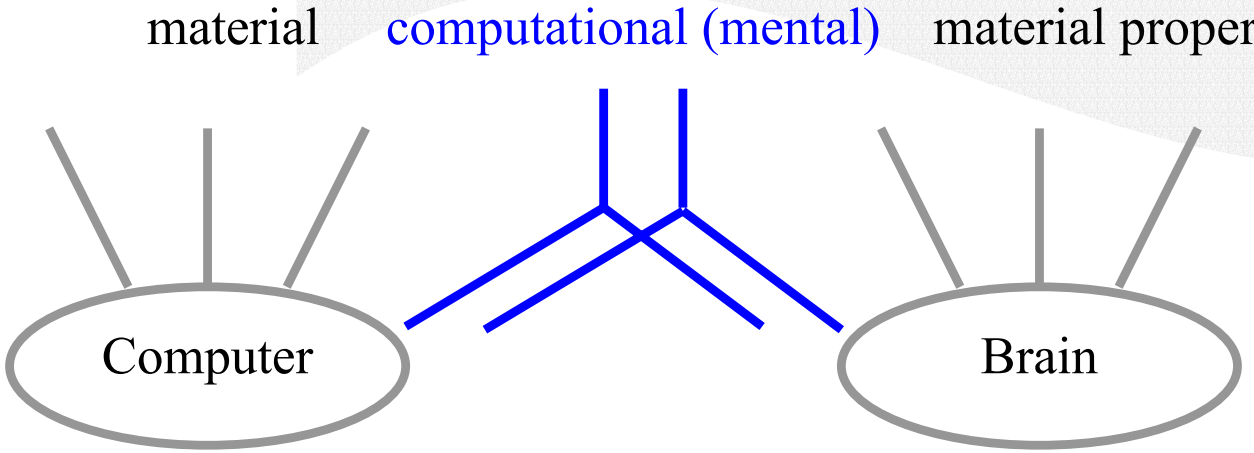
- Smart's "topic neutral" analyses led Armstrong and Lewis to a functionalist analysis of mental concepts (a special kind of functionalism that identifies functional properties with their realizers).

- Wittgenstein's idea of meaning as use led to a version of functionalism as a theory of meaning, further developed by Sellars and later Harman.

See **Putnam's paper** *The nature of mental states* in the **Online Reader**

Functionalist ontology

- One type of substances: material substances (including brains)
- Mental (like computational) properties are not material properties (and vice versa). However, both are properties of material substances.
- The reason is that material properties concern a fixed material object whereas mental properties abstract away from whatever realizes the computational processes.



Functional properties

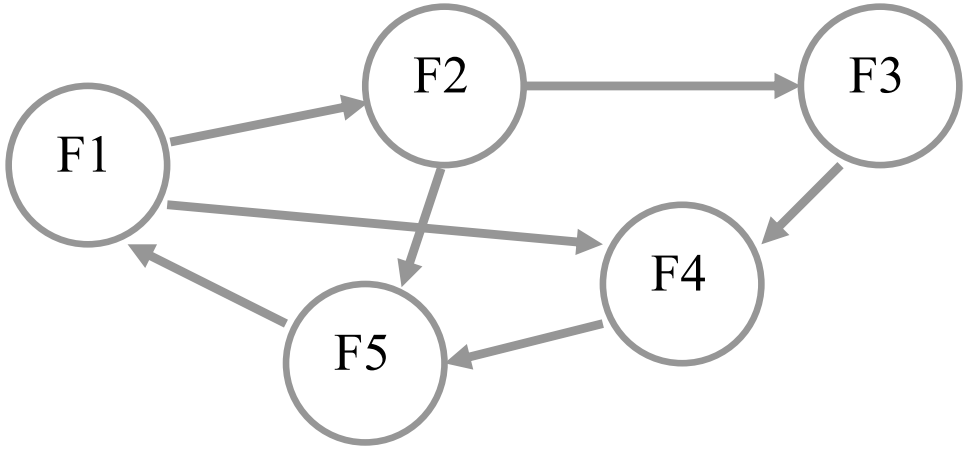
- Being a *vice-president*, – *clock*, – bath tube, – *eye*, – *heart* can be seen as functional properties. They are filling a causal role within a complex system. Things are vice-presidents, clocks etc. not because they have a definite kind of composition or internal organization, but because of what they do – their *job description*.

- What is it "to fill a role"? Functionalists prefer a causal conception for that. Something occupies a particular role if it responds in a particular way to causal inputs with causal outputs. Seeing minds as computational systems means to consider them as abstract automatons: given a state of the system, it responds in a particular way to causal inputs with causal outputs. (see this course II/6)

- Functional properties are abstract. Although your eye is a material object, the property of being a eye is **not** a material, low-level property. It is a property your eye possesses in virtue of filling a certain causal role (visual perception).

Holism

- Functional properties and mental states (such as being in pain) are taken as determined by their place in a causal network. Hence, both the location and the structure of the hole network determines the functional property / mental state.



- Behaviourism fails in attempting to provider non-circular accounts of states of the mind (by looking for explicit definitions in terms of behavioural predicates). Functionalism, instead, is using implicit definitions – in form of a system of axioms representing the causal connections. This allows to give a non-circular accounts of states of the mind (using the trick of Ramseification – existential quantification over the theoretical terms, i.e. the mental predicates)

Advantages of functionalism

- Functionalism is able to explain the causal efficiency of mental states in agreement with the assumption that the domain of physical phenomena is causally closed. Mental states are **realized** in material systems (or: mental states are "determined by" / "supervene on" material systems).

- Functionalism is strictly anti-reductionistic: mental properties cannot be reduced to physical properties. This deals with the problem of identity theory, the violations of Leibniz's law.

- It conforms with Putnam´s *multiple realizability argument.*

- It conforms with current main stream in Artificial Intelligence, Cognitive Psychology, and Cognitive Linguistics. (Is this kind of success an advantage? Methodological Behaviourism also was the main stream for a long period of time)

Disadvantages of functionalism

- It plays down the role of empirical investigations about the mind-brain correlations while highlighting the role of high-level, functional considerations. However, reductionism is the most powerful experiment in natural sciences in order to give *explanations* and deserves much more attention.

- Functionalism is a very powerful *descriptive* instrument. However, it is not really *explanatory*.

- In case of artefacts, the functional role is determined by the creator. The *intention* of the creator is decisive for calling an object a clock, for example. (A defect clock is still called a clock). This kind of *observer-dependency* still holds for natural objects: we want to see them in a certain way. Functionalists wrongly take functional roles as observer-independent, *objective* properties. (see Dennett, Searle, this course II/6)

Problems of functionalism

- **Zombies**: A creature that satisfies the functionalist's conception of pain, yet lacks qualitative "feels" (per definition). Perhaps Zombies cannot be physically possible, but we can conceive them. And functionalistic theories cannot exclude them.

- **Qualia**: In general, functionalism doesn't deal with the qualitative features of our mental live (*there is **something** it is like* to be in pain). Functionalists do not necessarily deny the existence of Qualia, what the deny is that theses qualitative features are constitutive for mental states (including *pain*). See II/5.

Appendix: Kim's "Epiphenomenal and Supervenient Causation" (using material of L. Maguire: http://www-philosophy.stanford.edu/fss/lm.html)

Kim's aims

- to give an account of the relationship between macro- and micro-events/properties
- to explain causation on the macro-level
- to model mental causation on macro-level causation
- to show that epiphenomenalism is not a serious problem

Epiphenomenal causation (=a sort of apparent causal relation)

Example 1: a mirror reflection of an object at time 1 does not cause the mirror reflection of that object at time 2. Both images have the same cause and so are causally related in a certain sense, but one does not cause the other, even if it might appear that way (a reflection of two billiard balls)

Example 2: the succession of symptoms of a disease, appear to cause one another, but really something else which underlies the symptoms and is doing the causing.

Example 3: Macrocausation (according to Kim), e.g. the rising of temperature after compressing a certain quantity of air (based on the "real" causal interactions of the molecules of the air)

Kim's theses

There is one aspect of the functionalist conception shared by many nonfunctionalists as well: the idea that mental properties are supervenient on physical properties. This takes for granted that there can be no mental difference unless there is a physical difference.

In detail, these are the three main theses that were proposed by Jaegwon Kim:

- All macrocausation should be considered to be epiphenomenal causation
- Macrocausation is a specific type of epiphenomenal causation, namely supervenient causation. (Macro properties, like being liquid, or solid, or soluble... are supervenient or dependent on the micro properties)
- Mental causation is a type of macrocausation and so a type of supervenient causation.

What is macrocausation?

- Macro-micro is relative: chairs and tables are macro and atomic level is micro, but relative to the particle/sub-atomic level, the atomic level is macro. All medium sized objects, anything we can see with the naked eye, are macro objects.

- Two billiard balls hitting one another would be an example of macrocausation. Any causal relation between objects we can observe, then, is macrocausation, and so a type of epiphenomenal causation.

- It is an assumption of physics that what goes on on the macrolevel is determined by what's going on on the microlevel. Macro level properties have no causal power in its own. They are completely dependent on the micro properties. Therefore, all macrocausation should be considered to be epiphenomenal causation

Mereological supervenience = microdeterminism (top-down, bottom-up)

- the properties of the whole supervene on the properties of the parts
- the micro level determines the macro level.

If you believe this, as you should if you believe in physics, then you can not allow for the possibility of irreducibly macro causal relations, relations that do not depend in some way on the micro causal relations.

Example: Two macro events, **water being liquid** and **sugar being soluble**. They are related by means of a (causal) macro law:

*If you put something **soluble** in something liquid, then that thing will **dissolve***

This law ought to be determined by micro laws, or laws that governed events at the microlevel. Lawlike connections between macro properties, like solubility and liquidity, should be dependent on laws connecting micro properties. Otherwise we would have to believe that water is irreducibly liquid and sugar is irreducibly soluble.

Strong supervenience

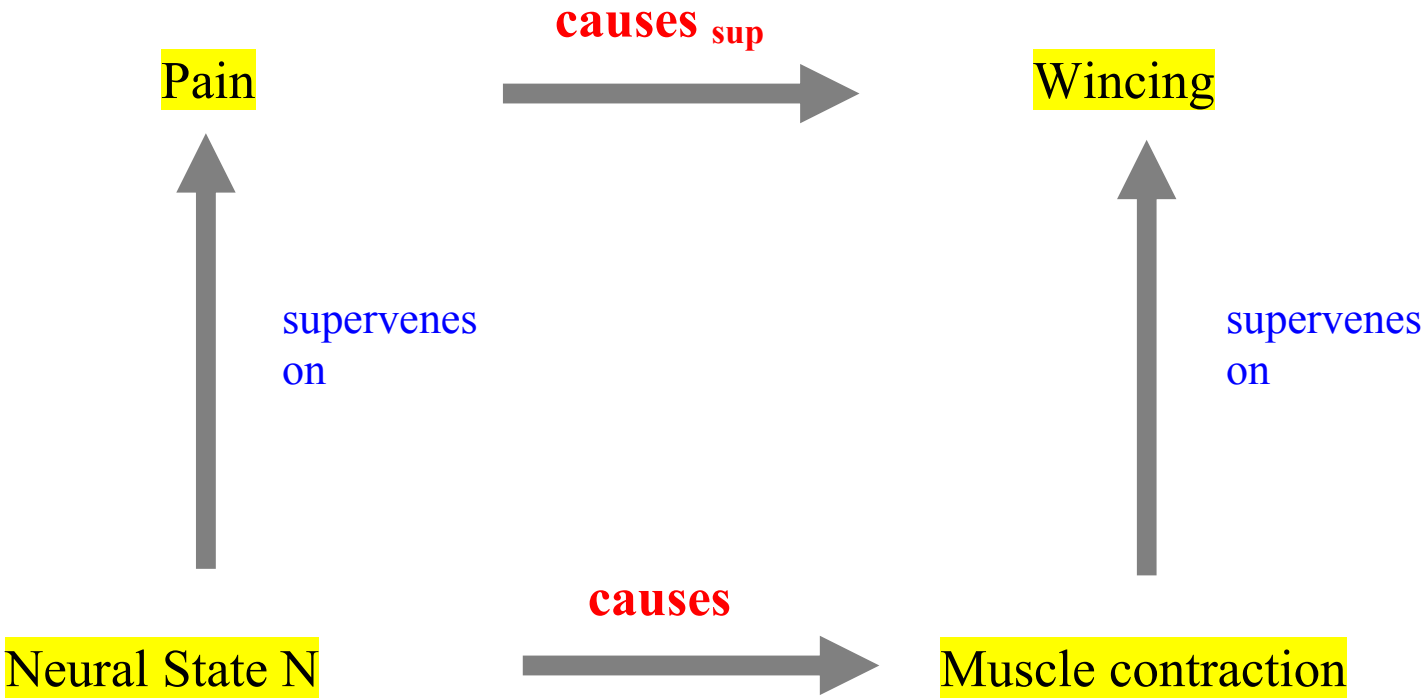
Refers to supervenience which supports counterfactuals (has modal force).

According to the view of strong supervenience, two macro-events F and G are in a mereological supervenient causal relation if the following holds:

- the macrocausal relations can be viewed as reducible to microcausal relations
- the mechanism of the reduction involves identifying the microstates on which the macrostates in question depend, or with which they are correlated, and showing that a proper causal relation obtains for these microstates

If there are causal relations between macroevents that are not microdetermined, then these relations are "an accute embarrassment to the physicalist view of the world."

Example



$causes_{sub}$ = superveniently causes (is a supervenient cause of)

Token identity theory can be true even if mind-body supervenience fails (Lawlike relations between macro events are essential)

Using this model for mental causation

What makes epiphenomenal causation "real"? There's nothing "unreal" about water causing sugar to dissolve, whereas there is no real causal connection between the symptoms of a disease. Why?

Mereological supervenience. Macro-micro - relation of supervenience, so that makes macrocausation perfectly "real". When there is no such supervenience, as in the case of symptoms, then there is no causation going on:

"some epiphenomenal causal relations are supervenient causal relations, and these are among the ones that are "real"; there are also cases of epiphenomcanal causation that do not involve direct causal connections, and these include ones in which the events involved are successive causal effects of some underlying process."

Mental causation is a type of supervenient causation, i.e, it does not have this "symptoms structure"

Multiple realization

The multiple realizability of mental properties has been used by many nonreductionists as the main weapon against the possibility of psychophysical reduction.

What Kim wants to demonstrate is this: although it may well rule out uniform, global mind-body reduction, *it in fact entails the possibility of locally reducing psychological theories and states to physical/biological bases.*

For details, see J. Kim, Philosophy of Mind, pages 233-236.