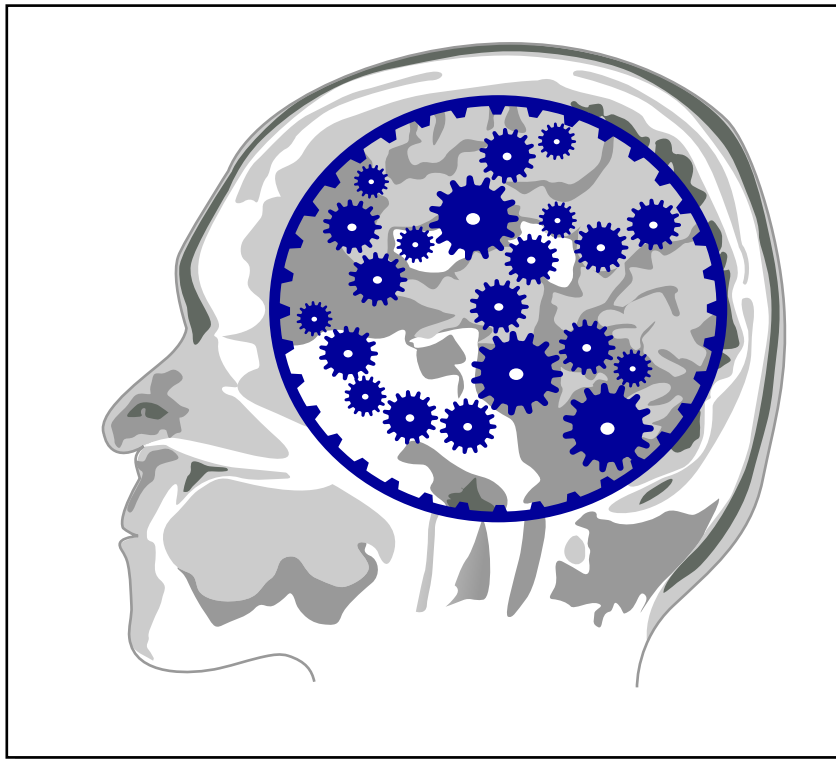


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- functionalism, contd.

Figure by MIT OCW.

the martian

- the thing to say about martian pain is that the martian is in pain because he is in a state that occupies the causal role of pain for martians (his population)
- ditto (mutatis mutandis) for us

Image removed due to copyright restrictions.
Representation of a martian.

the madman is in
pain because he is in
the state that
occupies the causal
role of pain for
mankind

he is an
exceptional
member of that
population

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the state that
occupies the role
for the population
does not occupy
it for him

role state vs. realizer state

- functionalism as explained earlier is “role state functionalism”
- recall the toy functionalist theory of pain:

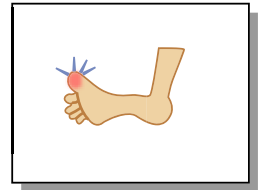


Figure by MIT OCW.

- S is in Pain iff S is in the first of two states X, Y, that are related to one another and to the possible inputs and outputs of S as follows:
being in X and stubbing its toe causes S to remain in X and emit “Ow!”; being in Y and stubbing its toe causes S to be in X and emit “Ow!”; being in X and having an icepack on the toe causes S to be in Y and emit “Phew!”; being in Y and having an icepack on the toe causes S to remain in Y and produce no output

role state vs. realizer state

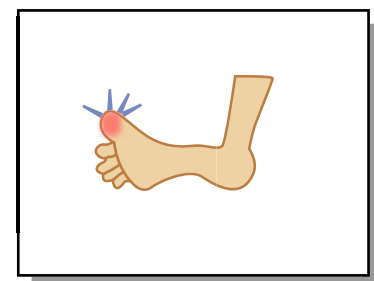


Figure by MIT OCW.

- put a bit more explicitly:
- S is in Pain iff there are two states X , Y , that are related to one another and to the possible inputs and outputs of S as follows:
being in X and stubbing its toe causes S to remain in X and emit “Ow!”; being in Y and stubbing its toe causes S to be in X and emit “Ow!”; being in X and having an icepack on the toe causes S to be in Y and emit “Phew!”; being in Y and having an icepack on the toe causes S to remain in Y and produce no output
and: S is in X

role state vs. realizer state

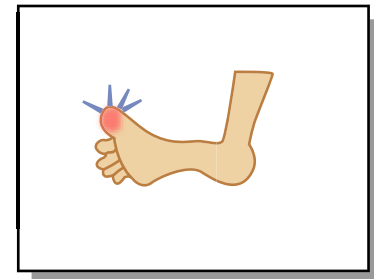


Figure by MIT OCW.

- suppose that two neural states (having one's α fibers fire [state Alpha], having one's β fibers fire, [state Beta]) are such that:

being in Alpha and stubbing its toe causes S to remain in Alpha and emit "Ow!"; being in Beta and stubbing its toe...

...remain in Beta and produce no output

and: S is in Alpha

- assuming the toy functionalist theory is correct, is the state of being in pain the very same state as being in Alpha?

role state vs. realizer state

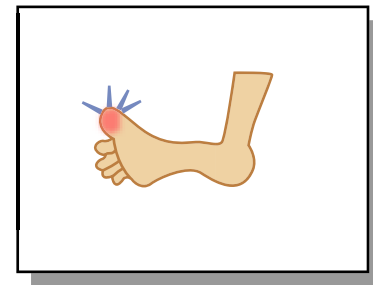


Figure by MIT OCW.

- no
- there could be two hydraulic states of some system S^* (having one's γ valves open [state Gamma], having one's δ valves open [state Delta]) such that:

being in Gamma and stubbing its toe causes S^* to remain in Gamma and emit “Ow!”; being in Delta and stubbing its toe...

...remain in Delta and produce no output

role state vs. realizer state

- if the state of being in pain just is the state of being in Alpha, then S* (only in Gamma) is not in pain
- more exactly, according to Lewis, not in human pain
- but, assuming the toy functionalist theory is correct, S* is in pain if it's in Gamma

Image removed due to copyright restrictions.
Representation of a martian.

S* (in Gamma)

role state vs. realizer state

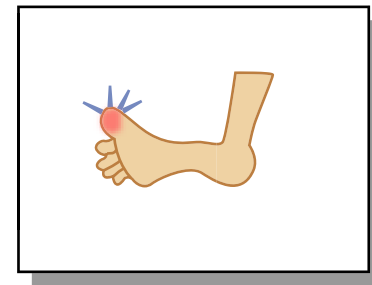


Figure by MIT OCW.

- Alpha and Gamma are two states that each “realize” the state of being in pain
- according to the **role state** functionalist, neither one is identical to the state of being in pain
- the state of being in pain is a “role state”—the state of having some realizer state or other
- according to the role state functionalist, both the biological system S and the hydraulic system S^* are in pain
- according to the **realizer state** functionalist (e.g. Lewis), there is no one state of pain that S and S^* share

role state vs. realizer state

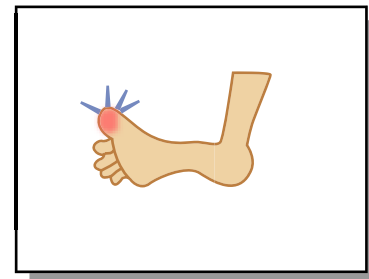


Figure by MIT OCW.

- according to Lewis, mental states should be relativized to kinds of creatures. S is in one mental state (pain-for-humans), S* is in a different mental state (pain-for-martians)
- the motivation for realizer state functionalism is the idea that the realizer state does the causing, not the role state
- sleep inducing drugs share the same role state—“dormativity”
- but isn’t it the Diphenhydramine HCl in Tylenol PM that puts you to sleep, not its dormativity?
- the issue is controversial; some think that the realizer state and the role state can be causes

another argument for the identity theory

- according to Lewis we can define 'pain' by armchair reflection on our commonsense psychological theory
- this gives Lewis an argument for the identity theory that is different from Smart's appeal to Ockham's razor:

(1) (human) pain = the state that realizes causal role R (in humans) [by armchair reflection, or "conceptual analysis"]

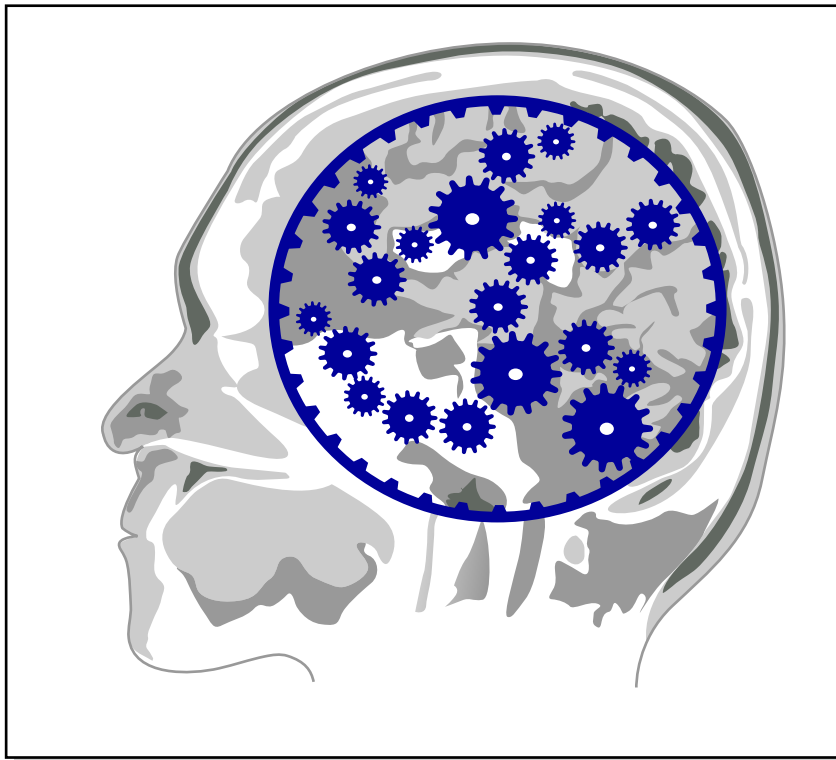
(2) the state that realizes causal role R (in humans) = c-fibers firing [by science]

hence:

(3) (human) pain = c-fibers firing

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- externalism

Figure by MIT OCW.

recall our earlier discussion of the Chinese room:

STRONG STRONG AI

there is a computer program (i.e. an algorithm for manipulating symbols) such that any (possible) computer running this program literally has cognitive states



Figure by MIT OCW.

WEAK STRONG AI

there is a computer program such that any (possible) computer running this program and embedded in the world in certain ways (e.g. certain causal connections hold between its internal states and states of its environment) literally has cognitive states

- if we were trying to develop a functionalist account of belief, would the relevant inputs and outputs involve distal objects in the system's environment (tomatoes, refrigerators, snow, etc.)?
- or would the inputs and outputs just be neural signals inside the creature's head?
- if the latter, then a system could believe that there are tomatoes in the fridge even if it's never had any tomato input

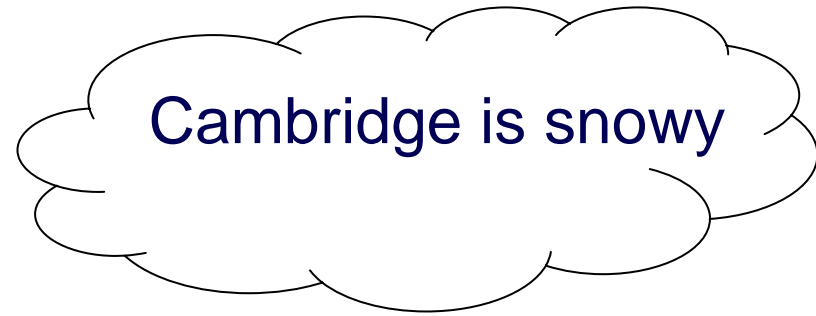
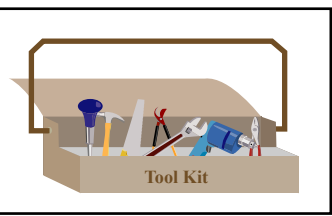


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Brain in a jar.



from the philosophical toolkit:

Figure by MIT OCW.

extrinsic and intrinsic properties

perfect duplicates:



Figure by MIT OCW.

not-so-perfect duplicates:

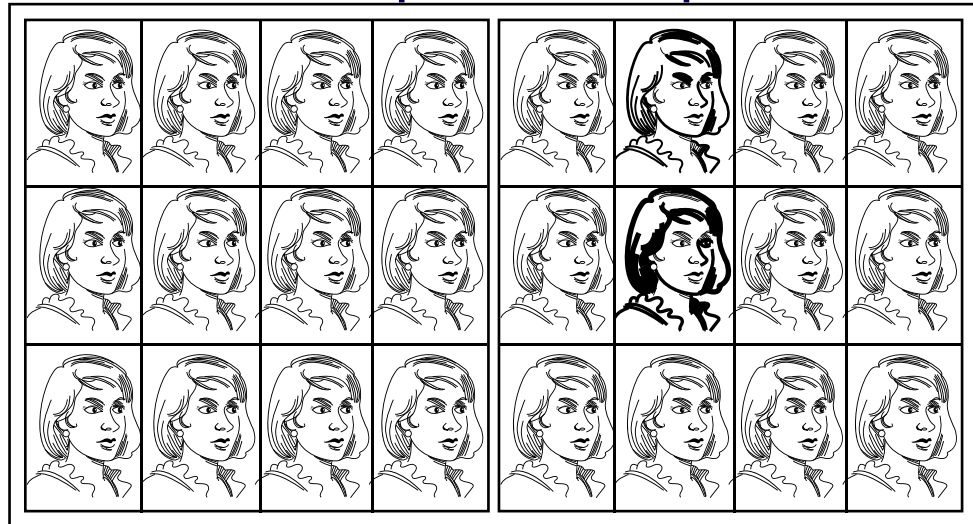
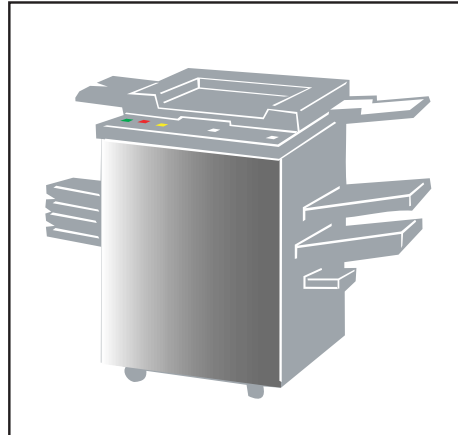
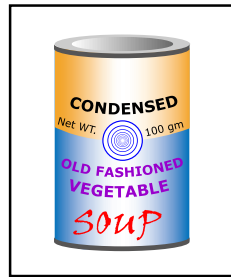
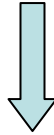


Figure by MIT OCW.

extrinsic and intrinsic properties

the all-purpose
duplicating machine



Figures by MIT OCW.

extrinsic and intrinsic properties

- property P is intrinsic iff it is necessarily shared between perfect duplicates



Figures by MIT OCW.

- otherwise, P is extrinsic
 - (there are many complications here, but we will ignore them; see the handout on properties and particulars)

extrinsic and intrinsic properties

- being cylindrical
- having mass 200g
- having red lettering (intrinsic)



Figures by MIT OCW.

- being a Campbell's soup can
- having weight 1960 N
- being in the cupboard (extrinsic)



are mental properties intrinsic?

- yes, according to.
- Descartes (well, arguably—his dualism raises complications)
- the identity theory (taken as theory of all mental states, not just properties like being in pain)
- functionalism and behaviorism (on one natural way of spelling these theories out)
- commonsense (?)
 - however, contrast Lewis on pain (exercise: is being in human-pain intrinsic, on Lewis's account?)
- “thoughts are in the head!”

are mental properties (of kind K) intrinsic?

- yes, according to internalism (about mental properties of kind K)
- no, according to externalism (about mental properties of kind K)
- we are about to look at some famous arguments for externalism about “propositional attitude” properties like wanting a glass of water, believing that Cambridge is pretty, etc.

a “twin earth” thought experiment

Image removed due to copyright restrictions.

"Hubble Space Telescope Snaps Photo of Look-Alike Planet with Continents and Oceans -- Just Like Ours!" newspaper article.

Minds and Machines

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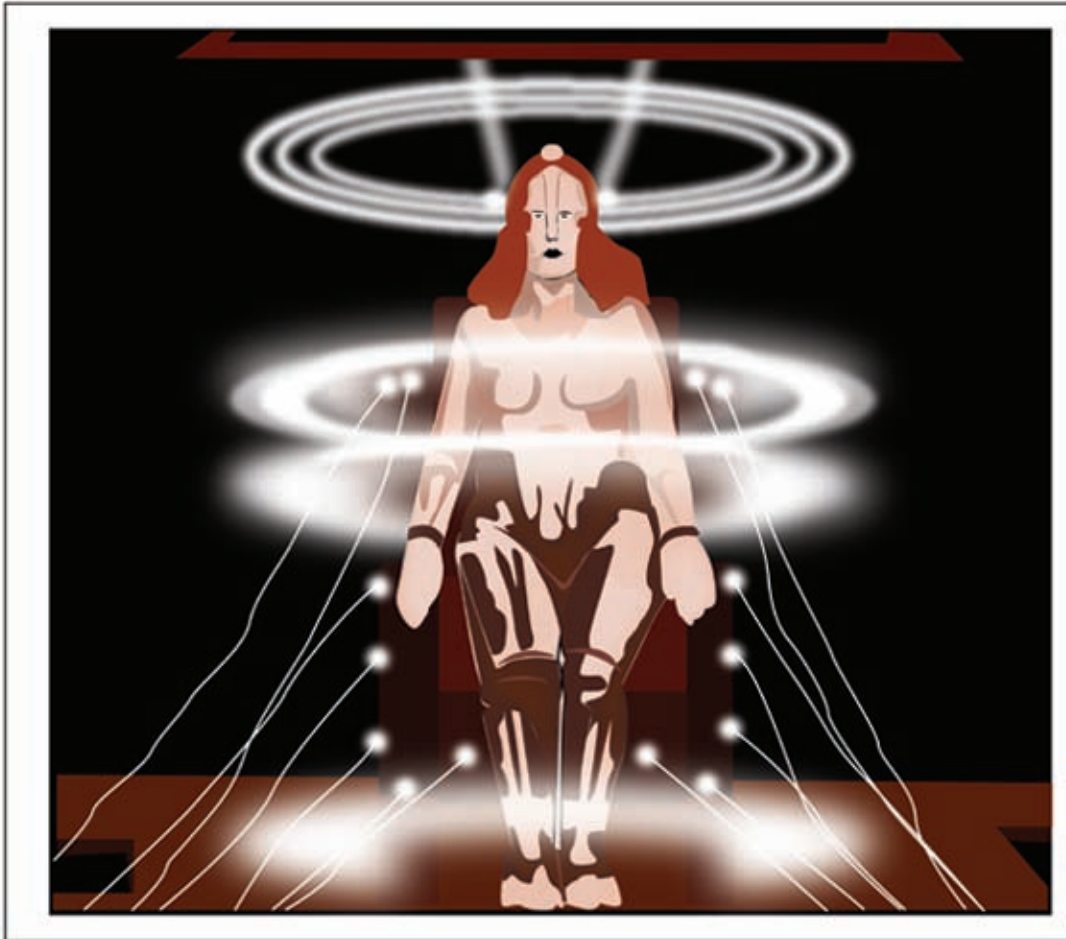


Figure by MIT OCW.

- read Putnam, Burge, Clark & Chalmers