from functionalism to externalism
(knowable) proposition $p$ is knowable \textbf{a priori} iff $p$ can be known independently of experience otherwise, proposition $p$ is knowable (only) \textbf{a posteriori}

<table>
<thead>
<tr>
<th>a posteriori and necessary:</th>
<th>a posteriori and contingent:</th>
</tr>
</thead>
<tbody>
<tr>
<td>water = H$_2$O</td>
<td>it’s sunny</td>
</tr>
<tr>
<td>2 + 3 = 5</td>
<td>??</td>
</tr>
</tbody>
</table>

a priori and necessary: $2 + 3 = 5$

Image by MIT OpenCourseWare.
The view that mental states are functional states—states specified in terms of their causal relations to inputs, outputs, and other states.
suppose functionalism is true

could you (at least ‘in principle’) write down the functional characterization of mental states just by reflecting on the meanings of mental vocabulary?

the analytic functionalist (or ‘commonsense functionalist’) says ‘yes’

the psychofunctionalist (or ‘empirical functionalist’) says ‘no’—science will tell us the functional story, not conceptual analysis
Lewis (the author of *On the Plurality of Worlds*) is an analytic functionalist.

see ‘Mad pain and Martian pain' in Readings

Putnam is a psychofunctionalist.

psychofunctionalism is probably the more popular version.

we will return to this issue when we discuss Chalmers’ paper ‘Consciousness and its Place in Nature’.
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

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
Searle’s official argument against strong AI fails

but he does have a point, namely that merely implementing a program is arguably insufficient for (underived) intentionality

something else is needed—perhaps certain kinds of causal connections between the system and its environment
if we were trying to develop a functionalist account of belief, would the relevant sensory inputs involve distal objects in the system’s environment (tomatoes, refrigerators, snow, etc.)?

or would the inputs be independent of the system’s environment—patterns on the system’s ‘retina’, e.g.?

if the latter, then a system could believe that there are tomatoes in the fridge even if it’s never had any tomato input
brain in a vat in distant galaxy

Image removed due to copyright restrictions.
Brain in a vat.

is this possible with no Cambridge input?
philosophical toolkit: extrinsic and intrinsic properties

perfect duplicates:

not-so-perfect duplicates:

Image by MIT OpenCourseWare.
the all-purpose duplicating machine

a perfect ‘3D printer’

Images by MIT OpenCourseWare.
property $P$ is **intrinsic** iff it is necessarily shared between perfect duplicates

otherwise, $P$ is **extrinsic**

there are many complications here, but we will ignore them; see the handout on properties and particulars
being cylindrical
having mass 200g
being red
  (intrinsic)
being a Campbell’s soup can
having weight 200g
being in the cupboard
  (extrinsic)

Images by MIT OpenCourseWare.
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 (?)
- ‘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.
an item from the Weekly World News

Images removed due to copyright restrictions. To read the article "Earth Twin's Found" by Erik Van Datiken, go to [http://weeklyworldnews.com/aliens/8326/earths-twin-found](http://weeklyworldnews.com/aliens/8326/earths-twin-found).
Harvard Square  twin-Harvard Square

Hilary  twin-Hilary

Courtesy of Frederick Jao. Used with permission.
Harvard Square

‘Cambridge is pretty!’

Hilary

twin-Harvard Square

‘Cambridge is pretty!’

twin-Hilary

Courtesy of Frederick Jao. Used with permission.
Hilary and twin-Hilary say different things

Hilary’s utterance is about Cambridge (not Twin-Cambridge, of which he has never heard)

his utterance is true iff Cambridge is pretty

the aesthetics of twin-Cambridge are totally irrelevant—if we imagine that twin-Cambridge is an imperfect duplicate of Cambridge (a twin Harvard Square, but exceptionally attractive elsewhere), then Hilary’s utterance remains false, although twin-Hilary’s utterance is true
thinking, not uttering

Harvard Square  twin-Harvard Square

Hilary  twin-Hilary

‘Cambridge is pretty’  ‘Cambridge is pretty’

Courtesy of Frederick Jao. Used with permission.
Hilary’s thought is about Cambridge (not Twin-Cambridge, of which he has never heard)

his thought is true iff Cambridge is pretty

the aesthetics of twin-Cambridge are totally irrelevant—if we imagine that twin-Cambridge is an imperfect duplicate of Cambridge (a twin Harvard Square, but exceptionally attractive elsewhere), then Hilary’s thought remains false, although twin-Hilary’s thought is true
Putnam on twin Earth, Burge, and Clark and Chalmers