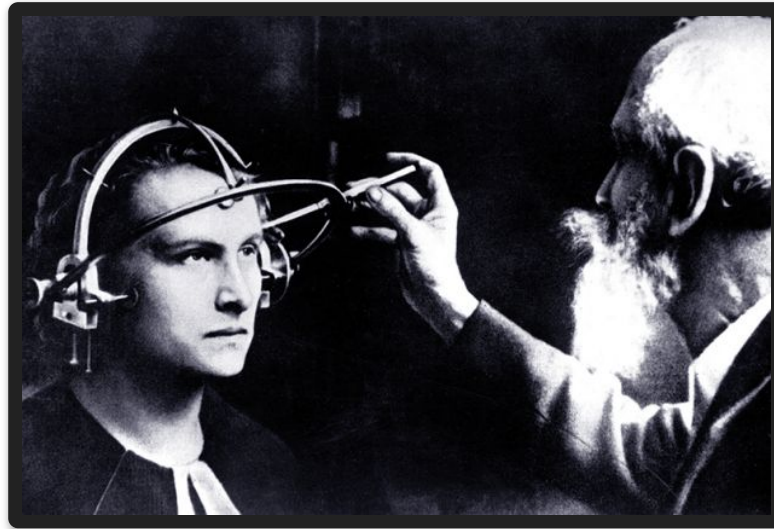


# *Psychology*

*a history in three chapters*



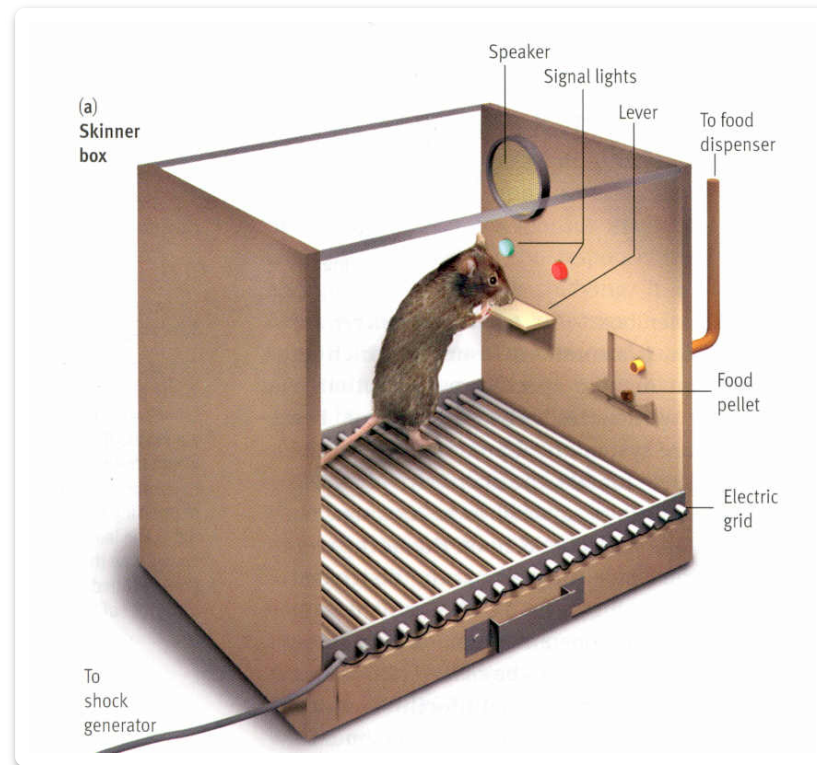
George Matthews, Plymouth State University

2020

# 1. Behaviorism

## 2. Neuroscience

## 3. Cognitive Science

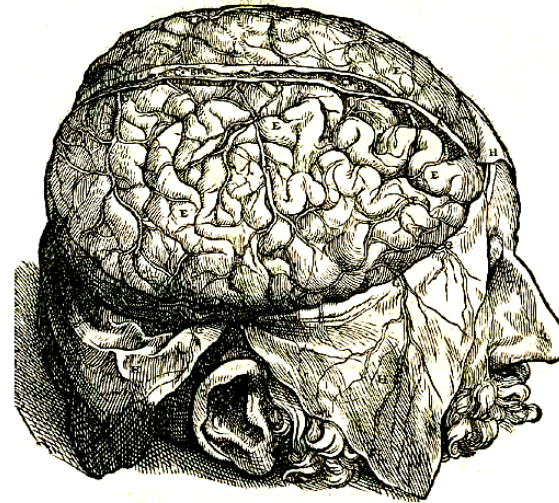


1. Behaviorism

2. Neuroscience

3. Cognitive Science

SECUNDA SEPTIMI LIBRI FIGVRA.



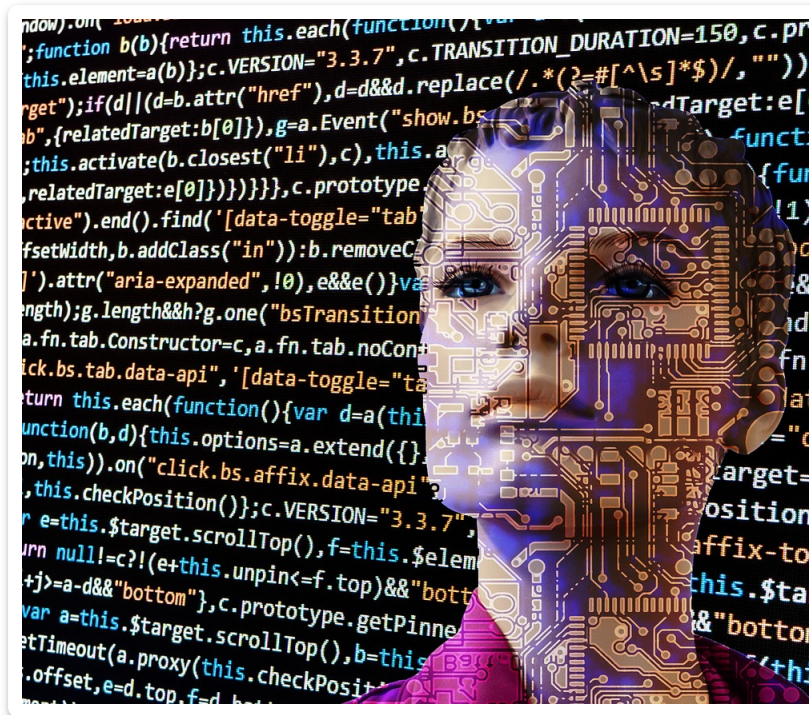
SECUNDÆ FIGVRAE, HÛSDEMQUE CHARACTERUM Index.

*PRÆSENS* figura sectionis serie primam subsequens, tertium duræ membrane sinum (quem prima figura C aliquot insignitum gerit) longa sectione secundum capituli longitudinem ducta ad apertum commonstrat. Insuper ad huius tertij sinus latera, per capituli quoque longitudinem duas deduxi sectiones, utrinque nimirum ad sinum singulas, quæ duram membranam duntaxat penetrarunt, & duræ membrane latera ab ea membranae separavit parte, quæ dextram cerebri partem à sinistra dirimit, atque in subsequenti figura a tribus D insignitur. Præter tres iam commemoratas sectiones utrinque aliâ quoque molitus sum, quæ ab aure ad verticem pertingens, solam

1. Behaviorism

2. Neuroscience

3. Cognitive Science



## *prehistory*

"I am really distinct from my body and can exist without it."



Rene Descartes  
1596-1650

## *prehistory*



Rene Descartes  
1596-1650

"I am really distinct from my body and can exist without it."

- Descartes gave a philosophical defense of the traditional conception that the mind, or soul, is essentially distinct from the body, otherwise known as **dualism**.

## *prehistory*

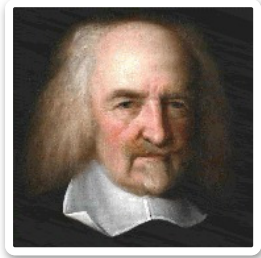
"I am really distinct from my body and can exist without it."



Rene Descartes  
1596-1650

- Descartes gave a philosophical defense of the traditional conception that the mind, or soul, is essentially distinct from the body, otherwise known as **dualism**.
- If science is the study of the physical universe, and the mind is separate from this universe, how can the mind be studied scientifically?

## *prehistory*

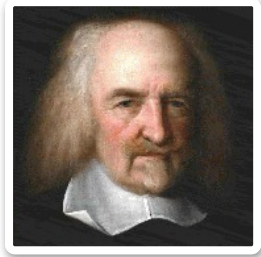


Thomas Hobbes  
1588-1679

"What is the heart but a spring, and the nerves but so many strings, and the joints but so many wheels, giving motion to the whole body?"



## *prehistory*

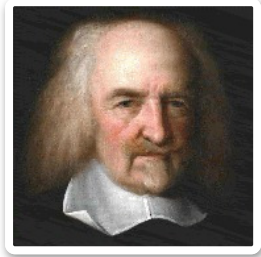


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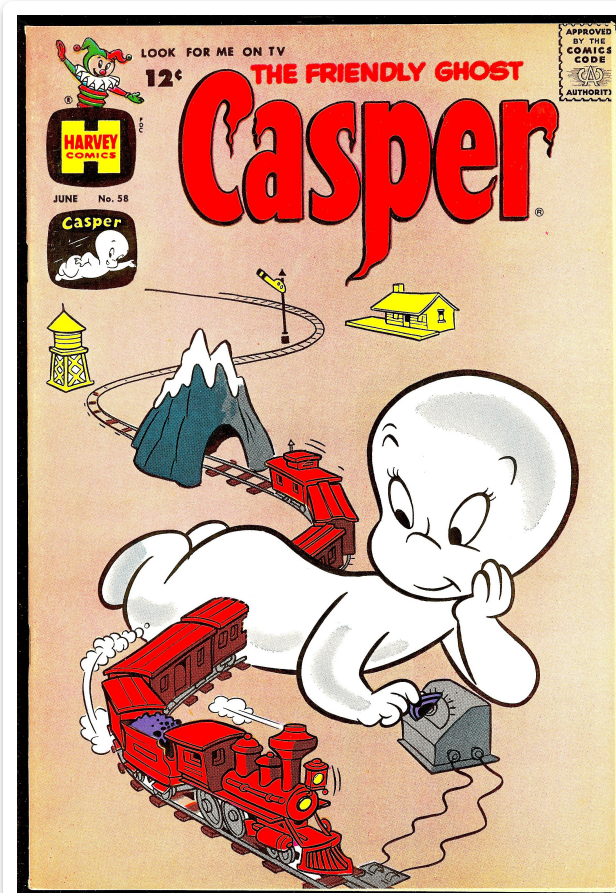
## *prehistory*



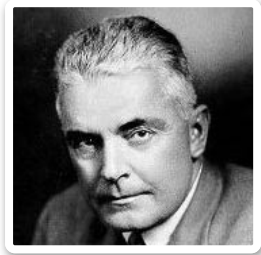
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- Hobbes suggested a mechanistic theory of mind, but this remained a metaphoric model.
- How can we study the mind scientifically when it seems to be different than physical phenomena which are accessible to public inspection and objective experimentation?



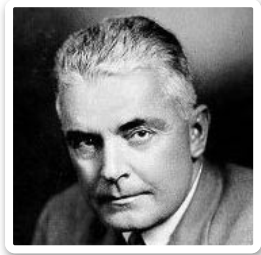
# *1. Behaviorism*



J.B. Watson  
1878-1958

"Psychology as the behaviorist views it is a purely objective experimental branch of natural science. Its theoretical goal is the prediction and control of behavior."

# 1. Behaviorism

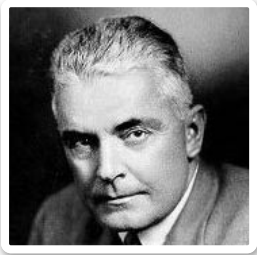


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# 1. Behaviorism



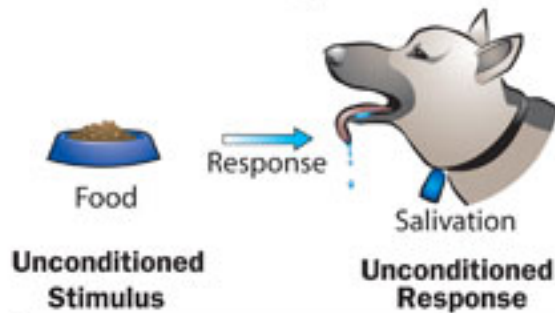
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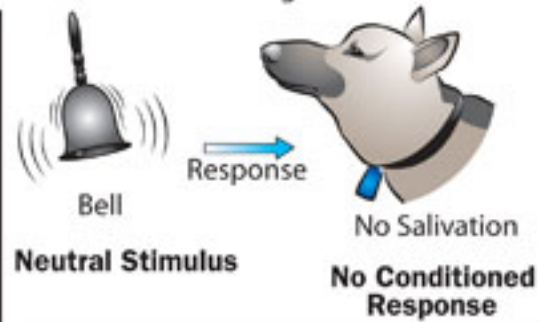
- Behaviorism ignores the "inner world" of conscious experience and focuses on what organisms with minds **do** in controlled experiments.
- Watson's vision of a scientific psychology was of a science with all of the predictive power of physics.

## How Dog Training Works

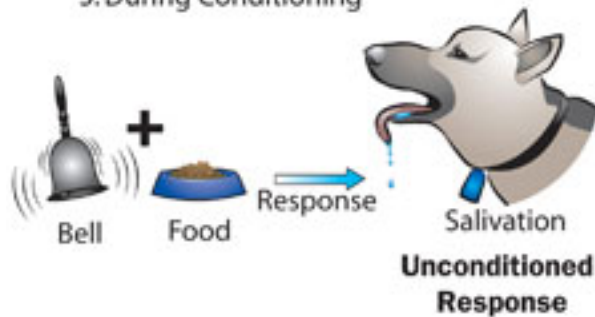
1. Before Conditioning



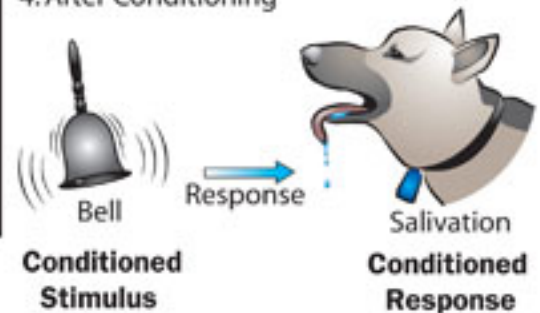
2. Before Conditioning



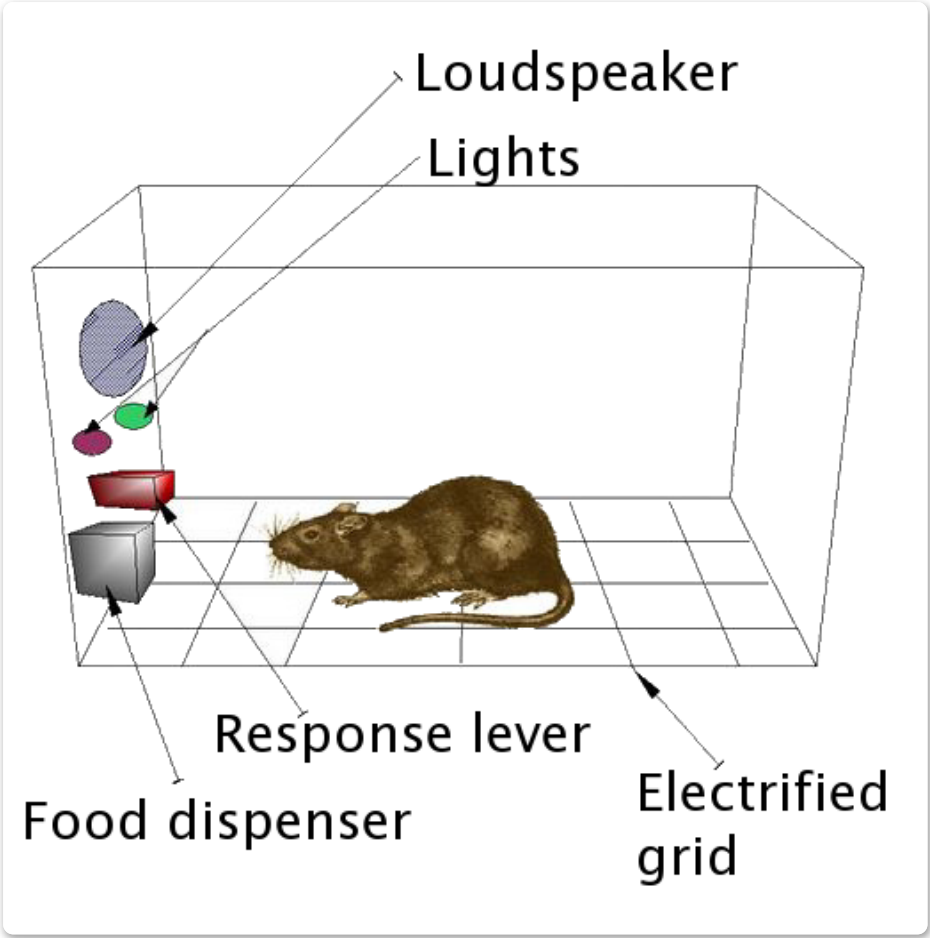
3. During Conditioning



4. After Conditioning



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*How predictable are people?*

# *How predictable are people?*

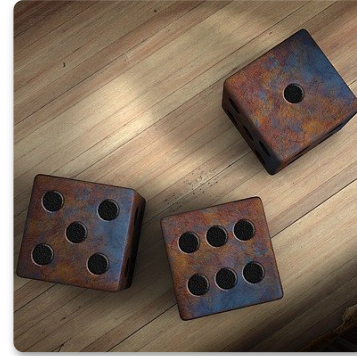


*As predictable as a clock?*

# *How predictable are people?*



*As predictable as a clock?*

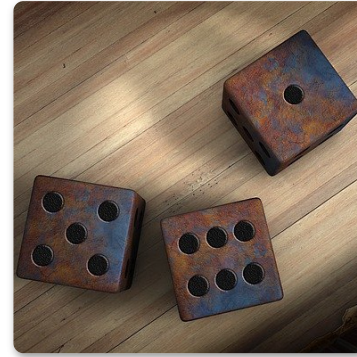


*As random as dice?*

# *How predictable are people?*



*As predictable as a clock?*



*As random as dice?*



*As chaotic as a storm?*

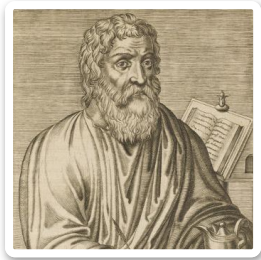
## 2. Neuroscience



Hippocrates of  
Cos  
5th Century BCE

"From the brain, and from the brain only, arise our pleasures, joys, laughter and jests, as well as our sorrows, pains, griefs and tears. Through it, in particular, we think, see, hear, and distinguish the ugly from the beautiful, the bad from the good, the pleasant from the unpleasant"

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- The role of the brain in mental life was suspected for thousands of years before a comprehensive theory was developed.

## 2. Neuroscience



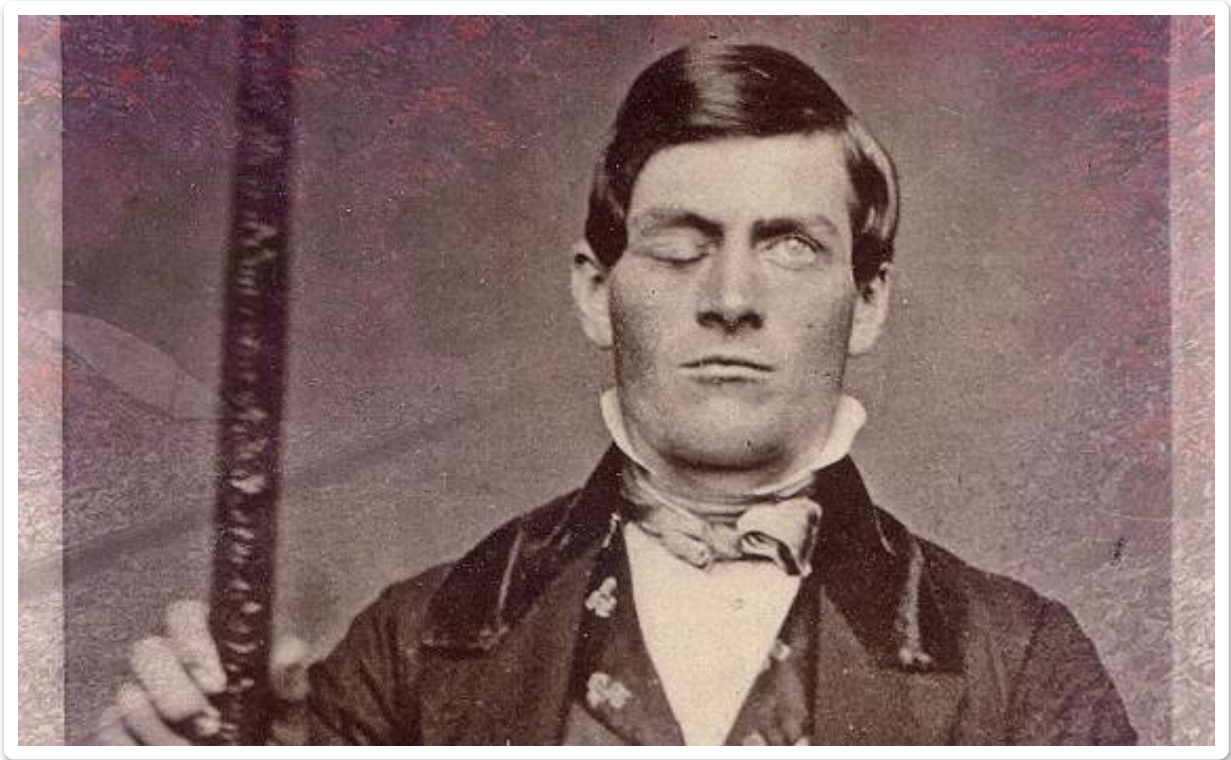
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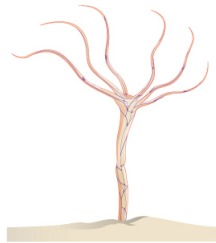
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- The role of the brain in mental life was suspected for thousands of years before a comprehensive theory was developed.
- What theoretical developments were crucial to the birth of neuroscience?

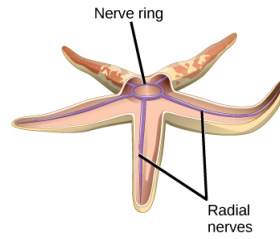




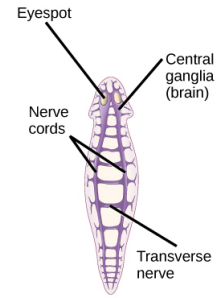




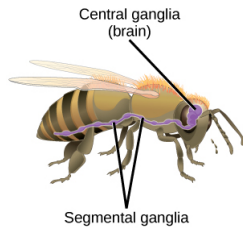
(a) Cnidarian (hydra)



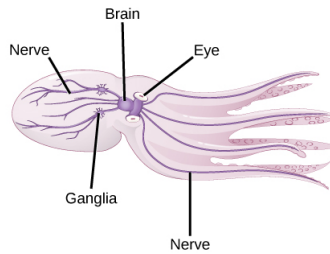
(b) Echinoderm (sea star)



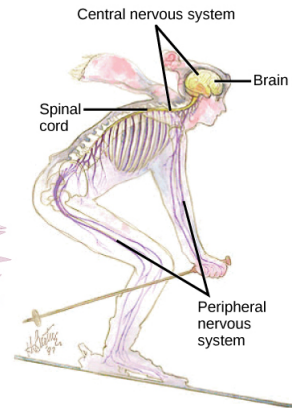
(c) Planarian (flatworm)



(d) Arthropod (bee)

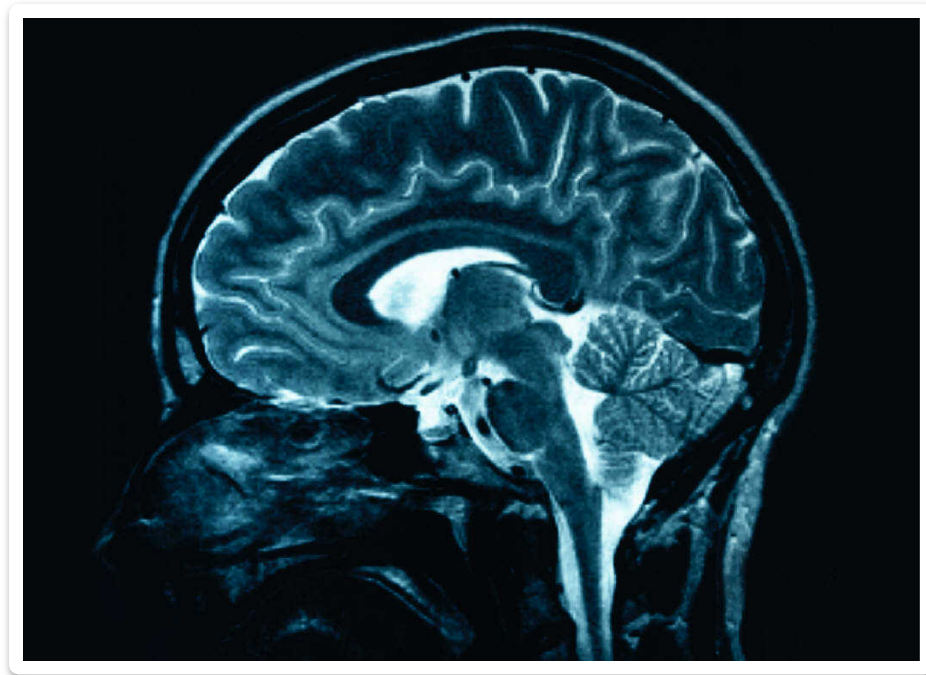


(e) Mollusk (octopus)

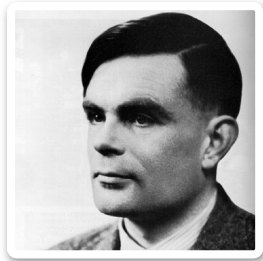


(f) Vertebrate (human)

*Is this all there is to me?*



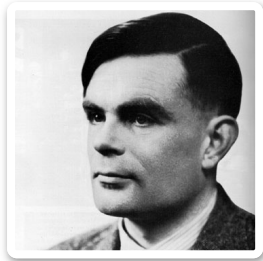
### *3. Cognitive Science*



Alan Turing  
1912-1954

"A computer would deserve to be called intelligent if it could deceive a human into believing that it was human."

### 3. Cognitive Science

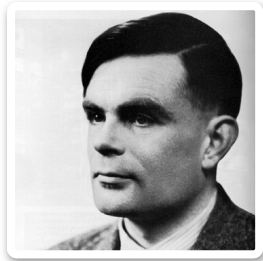


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- Turing laid the foundations for computer science as well the new sciences of the mind collectively called "cognitive science."

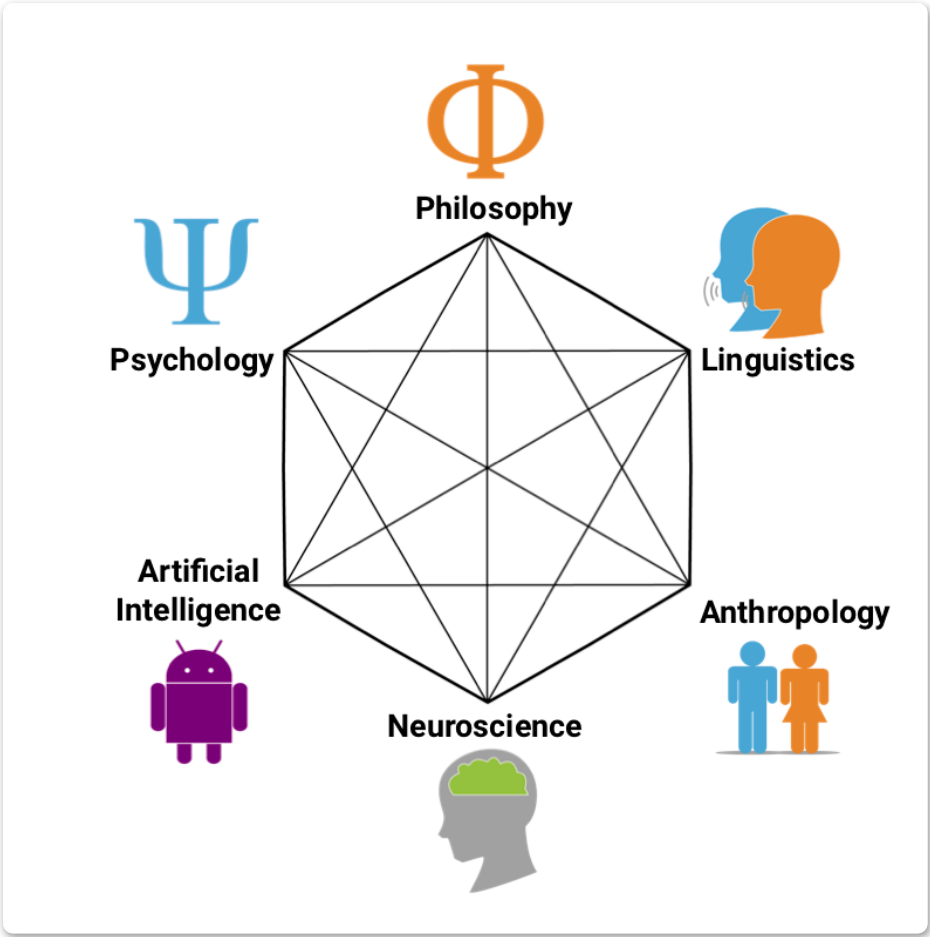
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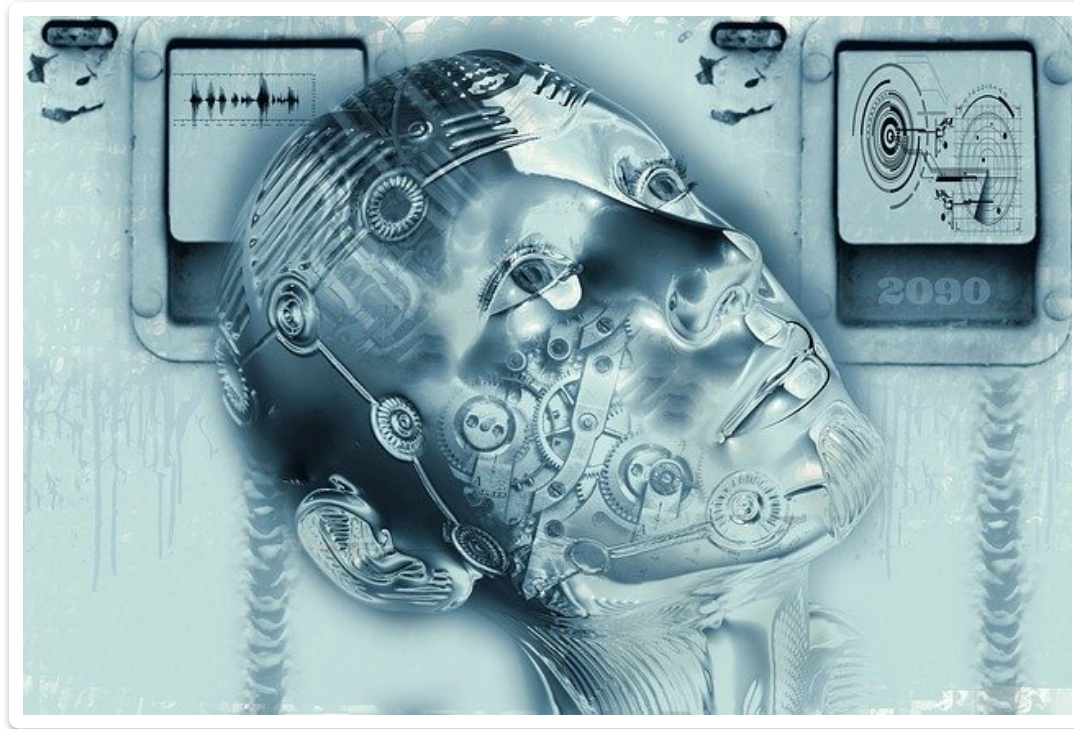
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- Turing laid the foundations for computer science as well the new sciences of the mind collectively called "cognitive science."
- Cognitive science looks at the ways in which minds process information enabling organisms who have them to adapt to changing circumstances in real time.



*Are we nothing but fancy biological machines?*







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