Can Machines Think?

Artificial intelligence and the Chinese Room Argument
## The Brain vs. The Mind

<table>
<thead>
<tr>
<th><strong>Brain</strong></th>
<th><strong>Mind</strong></th>
</tr>
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**Is the brain identical to the mind?**
Is the brain identical to the mind?

**Brain**
- A physical organ
- Made of living cells like neurons

**Mind**
- A unified set of “mental events”
- “Made of” things like emotions, experiences of taste, ideas, pains, pleasures etc.

How could it be?

The things on the left are just very different from the things on the right!
Is the Brian caused by the Mind?

Many have thought that even though the brain and the mind are not exactly the same thing, the brain must be the cause of the mind.

Maybe the mind is the action of the brain, just like digestion is the action of the stomach.

But how could the brain cause the mind?
But how could the brain cause the mind?

Could it be that the brain is something like a computer?

And if so, maybe the mind is the software that the computer runs on.

If so, then a program complex enough, running on a computer powerful enough, would actually BE a mind!
Artificial Intelligence: The Quest to Create a Mind

**The Turing Test:** A test of intelligent behavior. A machine is said to be able to “pass the Turing test” if a human being can interact with it without being able to tell whether it is a machine or another human being.

**Strong AI:** We can definitely create a mind. Any computer program that can pass the Turing test *really is a mind.*

**Weak AI:** We might be able to create a mind if we created something like the brain. But no computer program could ever be a mind.

**No AI:** We cannot create a mind. All we can create are machines that *act like* minds, but don’t really think.
The Chinese Room
A Thought Experiment by John Searle
The Chinese Room
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**Syntax:** A system of rules for arranging symbols.

For example:
A sentence is a string of alphabetic characters, beginning with a capital letter and ending with either a ‘.’ or a ‘!’ or a ‘?’. 

**Semantics:** A system of symbols with *meanings* corresponding to them.

For example:
The word “dog” is a string of symbols that *means* something: it signifies a particular kind of animal.
The Chinese Room
A Thought Experiment by John Searle

Syntax: A system of rules for arranging symbols.

Semantics: A system of symbols with meanings corresponding to them.

The person in the Chinese Room can behave as though he understands Chinese. But he doesn’t, because he does not know the meaning of the Chinese characters!

The Moral of the Chinese Room:
Manipulation of symbols is not the same thing as thinking.
Syntax is not semantics.