

Can Machines Think?

Here are two arguments, one for the claim that machines think and one against.

The first, the **High School Test argument** below, claims that despite the fact that we program computers and they follow only the rules in the programs we feed them, they *can* think and create – it is a counter-argument against Lady Lovelace’s objection in Turing’s essay.

The High School test argument against Lady Lovelace’s objection.

“The Analytical Engine has no pretensions to *originate* anything. It can do *whatever we know how to order it to perform.*” wrote Lady Lovelace.

One of the prime situations when you, as a student, most appear to the outside world like you are thinking is when you are taking a test. You will probably agree, that internally, you are thinking at such times (assume a difficult test, and a strong motivation to do well). Let’s say that it’s an algebra test on something like factoring quadratic polynomials. On the test will be a number of techniques and shortcuts which both require recognition of patterns and also some trial and error. You are thinking...*hard*. It’s fine if you’d like to change the test in this scenario to something more complicated, for instance the testing of the use of other, more complex algebraic rules.

Your teacher, on the other hand, claims to have taught you everything you know in this domain. You are simply using whatever rules and recognizing whatever patterns that you covered in class. In fact, some of the techniques in your mental toolbox were not even directly taught to you. Instead, your teacher set up particular situations where you and the other students discovered a technique “on your own” knowing the tools of algebraic manipulations, having learned logical techniques and recognizing when a problem is solved. All this and even the use of subgoals (partial solutions) was covered in class.

During the manipulations on the test, you discover another technique not covered in class, and use it successfully to solve one of the problems. It turns out that this technique is not known to the teacher, who doesn’t have a strong background in this area. Whether or not this technique is known to others is not relevant here.

Are you thinking during the test? Are you creating something new? ...this despite the claim by your teacher to have “programmed” you to do everything that you are capable of in this domain?

The second argument, **The Chinese Room Argument (CRA)**, this one against “strong AI” – the notion that machines actually think – was created by the philosopher John Searle. It has a rich history of philosophers and computer scientists arguing for and against it (mostly against). I’ll let John Searle make his case to you directly in this video (<https://www.youtube.com/watch?v=18SXA-G2peY>), but there are many other sources where you can read about it, and the numerous reactions to it.

The Wikipedia article on the CRA says, “The Chinese Room Argument was introduced in Searle's 1980 paper "Minds, Brains, and Programs", published in [Behavioral and Brain Sciences](#).^[14] It eventually became the journal's "most influential target article",^[2] generating an enormous number of commentaries and responses in the ensuing decades, and Searle has continued to defend and refine the argument in many papers, popular articles and books. David Cole writes that "the Chinese Room argument has probably been the most widely discussed philosophical argument in cognitive science to appear in the past 25 years".^[15]