THE TURING TEST

"*Can machines think?*"

Alan Turing (1912-1954) was a British mathematician, logician and cryptographer, often considered one of the fathers of modern computer science. He is best known for his article *Computing Machinery and Intelligence*[1] relating the Turing Test.

The Turing Test is a test designed to get us a step closer to the answer of the question "Can machines think?". It consists of a person asking questions (we will call him/her the judge), and a person and a machine answering. The person and the machine must reply as if they were both human and, at the end of the conversation, the judge must decide who the machine is. If the judge is tricked and chooses wrongly, it would be said that the machine had "passed" the test, having the capability to perform human-like conversations. Here, the whole dialogue is done via written (typed) text.

The Total Turing Test is the original Turing Test taken further. Instead of a written conversation, the judge is now able to look at both the robot and the person and is, therefore, allowed to ask both to act upon things to observe them. For instance[2], the judge may, after asking if they can catch a baseball (and if so, how does it feel), throw each of them a baseball and see if they catch it or not.

To decide if a robot passing the Total Turing Test should be considered to have a mind, I think it is necessary to determine what a "mind" is. *Dictionary.com* defines "mind" as the human consciousness that originates in the brain and is manifested especially in thought, perception, emotion, will, memory and imagination.

Machines are programmed to act upon commands. When having conversations with *Chatterbots* on the internet, some of them take a different amount of time on answering different questions. Does this mean they are thinking harder in some questions? If this is the case, then the Total Turing Test is on the right track. I believe, though, that the responses they give to your questions are linked to key words in your enquiries. The only thinking done there was when the creator of each *chatterbot* wrote the different possible outcomes.

On the other hand, I do think they can perceive: they can perceive you are messing with them if you keep asking the same question. The comeback you would get would be similar to that of a human's. Again, the Total Turing Test is able to show this.

Emotion is a mental state. If something or someone has a mind, then it can feel emotions. Otherwise, no emotion can be felt. The Total Turing Test is able to show this through similar human linguistic behaviour.

I cannot see how the Total Turing Test would show the robot (or the human by that matter) to have a will. Take for example someone not wanting to answer a question. In this test, you are compelled to answer even if it is by saying "I do not want to answer".

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[1] http://cogprints.org/499/00/turing.html
[2] http://www.rpi.edu/~faheyj2/SB/SELPAP/ZOMBANIMALS/zombanimals2.pdf (page 2)

Memory is most definitely covered with the Total Turing Test. But this just implies that the questioned one has a way to store old conversation topics and is able to go back to it if a related term happened to emerge into the dialogue.

The last component of the definition of "mind" is imagination. The Total Turing Test allows imagination to take place. If this is personal and sudden imagination, or if it has been pre-programmed, is harder to prove.

Overall, the Total Turing Test may seem as a fairly good test for robots, but I do not think it should be enough to state that the robot passing this has a mind. I believe these tests work to accommodate a concept of intelligence that has been decided upon, but is not necessarily final. People are creating, then, machines that accomplish the details "intelligent beings" (by this concept mentioned before) should be able to accomplish, but if it had a mind, then it would be able to take decisions and make choices. In my opinion, a better test for mindedness would be the creation of a robot that was able to proof by itself that it had a mind, designing a further Turing Test to pass itself.

In conclusion, a robot passing the Total Turing Test can be classified as a machine able to imitate human behaviour, but it is far from proving that these have therefore minds.