Turing Test Assembly

Last night, the Oscars took place. It was a big night for the UK film industry, which is locally based and important to us: many OMTs go on to join the Arts and Creative industries. 4 of the technical Oscars were won by British people. There were two Brits up for the Best Actor prize, both playing British scientists. The winner was Eddie Redmayne, playing Stephen Hawking. However, this morning I would like to talk about the man played by Benedict Cumberbatch, Alan Turing. It is indeed about time that Alan Turing got the recognition he deserves. In addition to being one of the single most important figures in winning the Second World War by cracking the supposedly unbreakable German Enigma code, Alan Turing was one of the pioneers in one of the most exciting areas of scientific advance: the attempt to create Artificial Intelligence. That is to say, to build a machine that thinks like we do. The challenge to match what the brain can do is huge: the first problem is to create the hardware and the processing power required.

But even when we have machines which can work as quickly and as efficiently as the human brain, we will still be a long way from having created artificial intelligence. To build a machine that thinks will require software – computing programmes – vastly more complex than any we have today. Despite these challenges, many believe it can be done in the next few decades.

Imagine then, this scene, played out in an imaginary courtroom in the year 2080. The defendant is Bill Gates, representing the Microsoft Corporation

So Alan Turing decided that artificial intelligence existed where it was indistinguishable from the kind of intelligence exhibited by ordinary people. The Turing Test for artificial intelligence involves three participants – two humans and the computer. The three communicate with each other through typed messages appearing on their monitors.
They can offer opinions, ask each other questions and answer questions put to them. At the end of a set period of time, say an hour, if the humans cannot spot which is the computer, it can be said to have demonstrated at least as much intelligence as the human participants, and therefore can be considered intelligent.

Since one could ask anything at all of the others during a Turing Test, it is very hard for a computer to be programmed to anticipate what might be asked and simulate intelligence.

It is an interesting thought as to what questions one might ask in order to catch the computer out – I suppose questions about emotions would be tricky for it, as might questions about its earliest memories.

As a minor challenge to you, think about it today and see if you can come up with questions that would show if you are communicating with a human being, or a computer running a clever simulation of intelligence.

Of course, Turing was well aware of the criticism that his test wouldn't show real intelligence, but only reward a good simulation of it. His response was to say that we have no insight into the minds of other people, let alone computers. Just as we cannot look into the minds of our fellow humans, but must look at their words and deeds for a sign of an inner life, so we cannot look directly into the mind of a machine. After all, how else can we determine whether our computer has a mind, other than to see if it is acting mindfully?

And since we cannot know whether a computer is really intelligent or faking intelligence, we have no choice but to treat real minds and simulated minds alike. You might argue that a sufficiently complex simulation of intelligence is in fact, intelligence itself. If we could build a machine that perfectly replicates the functions of intelligence, we have built an intelligent machine. You are what you do.

So I suppose there will be some thorny legal questions to come, if we manage to build an artificial intelligence. Science fiction is full of examples of computers that became conscious and immediately decided to take over the world – a rather more likely outcome is one that becomes conscious and takes you to court.

But these thoughts about artificial intelligence also tell us something about our own – natural - intelligence and consciousness. The Turing Test reminds us that we are what we do.
If we want to be considered intelligent, we need to manifest intelligent behaviour.   If we want to be considered kind, we need to show kindness to others. Everyone in the

room means well and would like to do the right thing. That may be the case, but we are what we do. And if you did something, that says more about you than any amount of good intentions.

And one final thought about artificial intelligence. It has taken fifty years of study, billions of pounds of research and the undivided attention of some of the brightest