Brain scan: Terry Winograd - Where humans still beat computers

https://www.economist.com/node/21712481

Jan 5th 2017

The Winograd Schema tests computers’ “understanding” of the real world

THE Turing Test was conceived as a way to judge whether true artificial intelligence has been achieved. If a computer can fool humans into thinking it is human, there is no reason, say its fans, to say the machine is not truly intelligent.

Few giants in computing stand with Turing in fame, but one has given his name to a similar challenge: Terry Winograd, a computer scientist at Stanford. In his doctoral dissertation Mr Winograd posed a riddle for computers: “The city councilmen refused the demonstrators a permit because they feared violence. Who feared violence?”

It is a perfect illustration of a well-recognised point: many things that are easy for humans are crushingly difficult for computers. Mr Winograd went into AI research in the 1960s and 1970s and developed an early natural-language program called SHRDLU that could take commands and answer questions about a group of shapes it could manipulate: “Find a block which is taller than the one you are holding and put it into the box.” This work brought a jolt of optimism to the AI crowd, but Mr Winograd later fell out with them, devoting himself not to making machines intelligent but to making them better at helping human beings. (These camps are sharply divided by philosophy and academic pride.) He taught Larry Page at Stanford, and after Mr Page went on to co-found Google, Mr Winograd became a guest researcher at the company, helping to build Gmail.

In 2011 Hector Levesque of the University of Toronto became annoyed by systems that “passed” the Turing Test by joking and avoiding direct answers. He later asked to borrow Mr Winograd’s name and the format of his dissertation’s puzzle to pose a more genuine test of machine “understanding”: the Winograd Schema. The answers to its battery of questions were obvious to humans but would require computers to have some reasoning ability and some knowledge of the real world. The first official Winograd Schema Challenge was held this year, with a $25,000 prize offered by Nuance, the language-software company, for a program that could answer more than 90% of the questions correctly. The best of them got just 58% right.

Though officially retired, Mr Winograd continues writing and researching. One of his students is working on an application for Google Glass, a computer with a display mounted on eyeglasses. The app would help people with autism by reading the facial expressions of conversation partners and giving the wearer information about their emotional state. It would allow him to integrate linguistic and non-linguistic information in a way that people with autism find difficult, as do computers.

Asked to trick some of the latest digital assistants, like Siri and Alexa, he asks them things like “Where can I find a nightclub my Methodist uncle would like?”, which requires knowledge about both nightclubs (which such systems have) and Methodist uncles (which they don’t). When he tried “Where did I leave my glasses?”, one of them came up with a link to a book of that name. None offered the obvious answer: “How would I know?”