



It's time to abandon the human mind as the gold standard of intelligence, says Celeste Biever

Ultimate IQ

HOW intelligent are you? I'd like to think I know how smart I am, but the test in front of me is making me reconsider. On my computer screen, a puzzling row of boxes appears: some contain odd-looking symbols, while others are empty. I click on one of the boxes. A red sign indicates I made an error. Dammit. I concentrate, and try again. Yes, a green reward! Despite this small success, I am finding it tough to make sense of what's going on: this is unlike any exam I've ever done.

Perhaps it's not surprising that it feels unfamiliar – it's not your average IQ test. I am taking part in the early stages of an effort to develop the first "universal" intelligence test. While traditional IQ and psychometric tests

are designed to home in on differences between people, a universal test would rank humans, robots, chimps and perhaps even aliens on a single scale – using a mathematically derived definition of intelligence, rather than one tainted by human bias.

What's the point? The idea for a universal test has emerged from the study of artificial intelligence and a desire for better ways to measure it. Next year, the most famous test for gauging the smarts of machines will be widely celebrated on the 100th anniversary of the birth of Alan Turing, its creator. The Turing test is, however, flawed. To pass it, a machine has to fool a human judge into believing he or she is conversing with another person. But exactly

how much smarter are you than the cleverest robot? The test cannot tell you. It also cannot measure intelligence greater than a human's. Machines are getting smarter – possibly smarter than us, soon – so we need a much better way to gauge just how clever they are.

But a universal intelligence test will do more than provide a tool for AI research. Should we encounter an advanced civilisation from another planet, a test based on mathematical principles might tell us what we are dealing with. And here on Earth, it could help us identify life forms that display unfamiliar types of intelligence – who says ours is the only kind? In fact, devising a test free of human bias may be a route to discovering the true nature of intelligence itself. "Just using one species, it is very difficult to be precise about what intelligence is," says José Hernández-Orallo at the University of Valencia in Spain, who is one of the idea's proponents. We have always considered ourselves the gold standard of intelligence, but it's time to give up the notion that our brains are the benchmark.

Testing our own intelligence is easy enough via IQ tests, despite a few recognised flaws. But when it comes to accurately measuring non-humans, these tests are useless. They are not based on a mathematical or even formal

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