



Scan to try this lesson
in the TBoard app



WHEN A MACHINE SEEMS TO THINK

THE IMITATION GAME

In 1950, writing in the journal *Mind*, Alan TURING asked his readers to picture a game. An INTERROGATOR sits alone with a keyboard, exchanging typed messages with two hidden CORRESPONDENTS - one a person, one a machine - and must say which is which. The machine wins by being mistaken for the human; Turing called the setup the IMITATION game. He had opened with the question of whether machines can think, then discarded it as too meaningless to deserve discussion, and put in its place something a judge could actually settle.

SPELL Spell: TURING

TURING

SPELL Spell: CORRESPONDENTS

CORRESPONDENTS

KNOWN A judge trades typed messages with a hidden person and a hidden machine, and the machine succeeds by being mistaken for the human. Turing named the game after what the machine is doing. What is that word?

IMITATION

KNOWN What is the term for the one who sits alone with a keyboard and must decide which of the two hidden writers is the machine?

INTERROGATOR

OPEN What question would you want put to the two hidden writers first?

Open response - use practitioner judgment

THE SWAP

The swap was the whole move. Whether a machine has an inner life cannot be settled from outside; whether it can hold up its end of a conversation can. Turing routed the exchange through a TELEPRINTER so that VOICE, FACE, and HANDWRITING carried no information, leaving the interrogator nothing but performance to judge. What counts is the role the output plays, not the stuff producing it - a position later named FUNCTIONALISM, whose COROLLARY is SUBSTRATE independence: the same mind might run on neurons or on silicon. Turing guessed that within fifty years a machine would leave an interrogator right no more than seven times in ten.

SPELL Spell: TELEPRINTER

TELEPRINTER

SPELL Spell: COROLLARY

COROLLARY

KNOWN What is the name for the position that what matters is the role an output plays, not the stuff producing it?

FUNCTIONALISM

KNOWN The claim that the same mind might run on neurons or on silicon is independence from what?

SUBSTRATE

SEMI_OPEN Name two of the bodily cues the teleprinter kept from the interrogator.

NEEDS 2 OF VOICE / FACE / HANDWRITING

OPEN What might a stranger get wrong about you if they knew you only through typed words?

Open response - use practitioner judgment

MATH Turing guessed an interrogator would be right no more than seven times in ten. At that rate, how many of 300 exchanges would the interrogator judge correctly?

210

ANSWERING THE OBJECTIONS

Turing spent much of the paper answering objections he expected. The THEOLOGICAL objection held that thinking belongs to the soul, which machines lack. The MATHEMATICAL objection leaned on INCOMPLETENESS, the result that any consistent formal system rich enough for ARITHMETIC contains truths it cannot prove - a limit Turing noted that human REASONERS have no evident way around either. The argument from CONSCIOUSNESS insisted a machine could write a sonnet only by the chance fall of symbols, never because it felt anything. He even entertained TELEPATHY, conceding it would wreck the test, and proposing a telepathy-proof room.

SPELL Spell: REASONERS

REASONERS

SPELL Spell: ARITHMETIC

ARITHMETIC

KNOWN What is the name of the result that any consistent formal system rich enough for arithmetic contains truths it cannot prove?

INCOMPLETENESS

SEMI_OPEN Turing anticipated and answered several objections to his test - name two of those objections.

NEEDS 2 OF THEOLOGICAL / MATHEMATICAL / CONSCIOUSNESS / TELEPATHY

OPEN Turing took even telepathy seriously enough to design a room against it. What objection would you raise that he did not think of?

Open response - use practitioner judgment

THE CHINESE ROOM

In 1980 John SEARLE asked what passing would actually prove. Lock a man who knows no Chinese in a room with a rulebook and baskets of characters; slips come in under the door, he matches shape to shape by the rules, and slips go out that native speakers read as fluent Chinese. The room passes. The man understands nothing. A program, he argued, is pure SYNTAX - the rule-governed shuffling of uninterpreted symbols - and syntax alone never yields SEMANTICS, the grasp of what a symbol is about. His Chinese Room has drawn replies, the best known being that the whole system understands even if the man inside does not.

SPELL Spell: SEARLE

SEARLE

SPELL Spell: SEMANTICS

SEMANTICS

KNOWN What is the term for rule-governed shuffling of symbols, as opposed to any grasp of what those symbols mean?

SYNTAX

OPEN What would you put on a slip to send under that door?

Open response - use practitioner judgment

MATH Turing's imitation game paper appeared in 1950, and Searle answered it with the Chinese Room in 1980. How many years separated them?

30

READING A MIND INTO SOFTWARE

The test also grades the judge. In the 1960s Joseph Weizenbaum wrote ELIZA, whose best-known script turned a user's own sentences back into a therapist's questions with almost no model of anything. People confided in it, and some resisted being told how thin it was. That readiness to read a mind into shallow output is now called the ELIZA effect, a kind of ANTHROPOMORPHISM aimed at software. Ned Block pressed from the other side: imagine a machine holding a canned reply for every conversation a judge could type. It would pass, and it would be a LOOKUP table.

SPELL Spell: ANTHROPOMORPHISM

ANTHROPOMORPHISM

SPELL Spell: LOOKUP

LOOKUP

KNOWN Reading a mind into shallow output, trusting a program that only turns your own sentences back at you, is named after an early chatbot. Which one?

ELIZA

OPEN What would you type to a machine to find out whether anyone was really there?

Open response - use practitioner judgment

MATH Suppose a judge could open with any of 30 questions, and follow each one with any of 30 remarks. How many two-line conversations would Block's lookup table have to store a reply for?

900

THE PROBLEM OF OTHER MINDS

You have never verified that anyone else is conscious. You infer it from behavior - someone winces, answers, laughs at the right moment - which is close to the evidence the imitation game allows. Turing saw this: the only way to be certain a man thinks is to be that man, so we extend one another a POLITE convention instead of a proof. Philosophers call the difficulty the problem of other MINDS, and its extreme form, SOLIPSISM, holds that your own mind is the only one you can know. When a chatbot answers you well, you are deciding how far that convention reaches.

SPELL Spell: POLITE

POLITE

SPELL Spell: MINDS

MINDS

KNOWN What is the name for the extreme view that your own mind is the only one you can ever know?

SOLIPSISM

OPEN If you wanted to find out whether a chatbot really understood you, what would you ask it first?

Open response - use practitioner judgment