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Breaking The Code: Alan Turing

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Analysis of Responses to Turing's 'Mind' Paper in the 1990s

During the 1990s, rapid advancements in computer science and technology created the perfect backdrop for renewed debates about artificial intelligence and the Turing Test. Personal computing became mainstream as affordable machines from companies like IBM, Apple, and Dell entered homes and classrooms. The introduction of the World Wide Web in 1991—and later Internet Explorer in 1995—transformed how people accessed and shared information, accelerating public engagement with emerging technologies. A major turning point came when IBM's Deep Blue defeated world chess champion Garry Kasparov. This event reignited global conversations about whether machine "intelligence" could rival human reasoning. At the same time, popular films such as Terminator 2 (1991) and The Matrix (1999) reflected growing cultural fascination about the possibility of machines gaining consciousness. Overall, the decade created an environment where technological breakthroughs and cultural narratives combined to make questions about machine thinking more urgent and widely discussed than ever.

We categorized our research into 3 main categories: Negative Responses (disagreements), Neutral responses (indifferent), and positive responses (agreements). The negative articles that we referenced heavily focus on three main arguments. The first argument is based on the Limits of Computability and Formal Systems. The core of this negative position stems from the assertion that thinking is not entirely computable and therefore cannot be fully captured by a

Turing machine, which represents the concept of an effective procedure or algorithm. The second argument is the Challenge Posed by "Natural Problems". A crucial line of argument centers on the type of problems humans solve successfully versus those that can be successfully formalized for machines. This negative case highlights a distinction between problems that can be broken down into discrete, formalized, algorithmic steps and "natural problems," which are successfully solved by people in their daily lives but are not completely defined in formal terms. The final negative argument is based on the inefficiency of the Turing Test, frequently critiquing the Turing Test as a standard for confirming intelligence or mentality, suggesting that passing the test does not equate to actually having a mind. In general, the negative arguments are structured around the claim that human thought involves capacities (such as solving ill-defined "natural problems" and possessing genuine mentality) that transcend the formal, algorithmic boundaries imposed by the theoretical model of the Turing machine.

In our research we only discovered one article that was genuinely neutral, which was “Machines Who Think” by Constance Holden. Rather than arguing strongly for or against machine intelligence, Holden frames the debate as an evolving conversation among researchers, philosophers, and technologists. She reports the hopes, skepticism, and disagreements surrounding artificial intelligence without positioning herself on one side, instead emphasizing the complexity of defining “thinking” in the first place. By highlighting the uncertainties, competing predictions, and the lack of consensus in the field, Holden’s article avoids making a definitive claim about whether machines will pass the Turing Test or possess genuine thought. Her analysis of the era and both sides of the argument rather than taking a stance was purely neutral, and offered insight instead of an opinion.

As for what we categorized as positive responses, our two cited articles - written by Justin Leiber and Dale Jaquette - more so served as a defense of Turing's paper against widespread misinterpretations and counterarguments to many of the more critical responses. This doesn't mean they didn't positively support Turing's ideas, but it's important to make note of the fact that in both articles, their avid defense is also accompanied by points of caution regarding feasibility and superiority of the Turing Test. With the 1990s only seeing the true beginning of the technological boom that would drive the 21st century, belief in both current and future mechanical abilities were still feeble. Leiber and Jacquette, in their respective articles 'On the Turing Test and Why the Matter Matters' and 'Who's Afraid of the Turing Test', spent the most time defending Turing's 'Mind' paper against critical responses that were theoretically and philosophically centered. Examples include the role of the true definition of intelligence in the test, sufficiency conditions, and the place of moral objections in a purely scientific test.

With the first real world application of the Turing test only being administered by 1991 - 41 years after the publication of 'Mind'- prior debates were only ever able to circle around thought experiments. With such debates lacking the concrete base of real world implementation, most - if not too much - of the focus was aimed towards the specificity of Turing's words, often causing misunderstandings and overassumptions. One of the most significant overassumptions, the Church-Turing fallacy, spread the idea that any process of the human mind could be described and simulated step-by-step with a digital computer. However, the true scope of the Church-Turing thesis was actually much more limited, and concluded that only mechanical steps - universally comprehensible instructions- could be calculated by a Turing machine. With many of these arguments overlooking Turing's intentional vagueness, such widespread inaccuracy often led to the test's very structure being over-confined.

Such a critical 41 year oversight only serves to further highlight the true significance of the test's first execution in 1991. Arguments in response to the Turing test, both positive and negative, were then able to be actively challenged, thus allowing flawed assertions like those of Searle's or French's to be fleshed out and subsequently addressed by Leiber or Jacquette.

John Searle, an American philosopher, argued that passing the test would only signify imitation and not true understanding. He compared this to the Chinese Room thought experiment; an experiment where a clerk who knew no chinese could still manipulate and translate the symbols when given sufficient rules to do so in their own language. Not only can we see Searle falling to the Church-Turing fallacy, but Leiber counters the entire basis of the argument due to the fact that this ignores the real-world time constraints set by the Turing test.

Searle's definitional argument over true intelligence is also seen in Robert French's critical response paper 'Subcognition and the Limits of the Turing Test.' He argues that the Turing Test only measures for culturally-orientated human intelligence instead of general intelligence, thus indicating fault with the test, not the candidate. It is not an exaggeration to say that the entirety of Jacquette's 1993 paper was a rebuttal to French's assertion. The main counter was the entirety of his argument being based on the test acting as a necessary condition for intelligence where in reality, Turing only proposed it as a sufficient condition. In other words, under the Turing test, the candidate is only deemed intelligent if it passes, but under French's interpretation, as long as the candidate is intelligent, then it can pass the Turing test. This is unsound because it assumes the test's ability to recognize all types of intellect, therefore treating it as a *theory* for intelligence, rather than a *test* that simply clarifies boundaries for human-like intellect. This single misinterpretation can be found in many of the various criticisms towards Turing's 'Mind' paper.

The conclusion of the test itself revolves around there being enough evidence to certify the candidate as intelligent, but never implies the nature of said intelligence. Furthermore, as Jaquette points out, Turing never constrained the investigators to being human, thus the claim of the test only measuring for human-like reasoning stems from an assumption - albeit an understandable one. The counter arguments of Jaquette and Leiber allowed for caution and criticism against Turing’s test to be recentered and more appropriately focused on the more robust assertions.

R.A. Young’s claim that “passing the Turing Test only measures competency in conversation” highlights a central critique of the test by reducing its scope. Young argues that the Turing Test evaluates only how well a machine can imitate human dialogue, not whether it possesses genuine understanding or internal mental states. In this view, conversational skill alone is not enough to demonstrate real thought, since a machine could produce convincing language without truly comprehending it. By emphasizing the difference between outward behavior and inner cognition, Young positions the Turing Test as an incomplete measure of intelligence, challenging the idea that passing it proves a machine can genuinely think.

Dale Jaquette offers another major philosophical critique of the Turing Test by arguing that it relies on a “behavioristic confusion” between a criterion for thinking and a definition of thinking. His point is that the test measures only outward performance, how human-like a machine’s responses appear, rather than the internal mental processes that would constitute genuine understanding. Jaquette contends that the Turing Test mistakes observable behavior for the actual nature of thought, assuming that if something acts like it thinks, it must truly think. This conflation, he argues, is misleading: a machine could convincingly imitate human conversation while lacking any real mentality or conscious awareness. In this way, Jaquette challenges the philosophical foundation of the Turing Test, claiming it cannot meaningfully answer the question of whether machines actually think.

The Gödelian argument offers another influential critique of the Turing Test by drawing on Kurt Gödel's 1931 Incompleteness Theorem, which shows that some mathematical truths cannot be proven within any formal system. Supporters of this argument claim that human reasoning goes beyond what any machine algorithm can achieve, because humans are able to recognize the truth of certain logical statements that machines, bound by formal rules, cannot. Philosopher David King captures this idea by arguing that if the human mind is not equivalent to a Turing machine, then the Turing Test ultimately becomes irrelevant as a measure of human intelligence. In this view, the test fails not just because it focuses on conversational performance, but because it assumes that human thought is computational in the first place—a claim the Gödelian argument directly challenges.

It's fair to say that for the 90s, this was the decade where everything was challenged, redone, and then challenged again. Theoretical thought finally moved into real world implementation, and with it came new perspectives towards the Turing Test. As technology began to evolve, caution and doubt against the test started to shift from its historic philosophical and theoretical center towards a more mechanical and scientific approach. The decade started with French's theoretical-based paper in 1990, then to Jacquette's 1993 counter that reshifted perspective, and then ,regardless of disposition, ended with more mechanical and simulation-based arguments in the following years by Young, Torrence, and King. Turing was ahead of his time, and the shift in perspective of the 1990s showed just how far ahead he was. Technology had to reach a point where the possibility of such advanced mechanics could be properly discussed - not just imagined. A point where people were brave enough to think about the feasibility of creating such high powered machinery and simulated subcognitive substrates instead of mulling over philosophical definitions and whether they served as inhibitors. The 90s was the death of the static environment that had held the Turing test hostage for 40 years, as well as the rebirth of the new perspectives, fears, and courage that would be found as the years finally started to catch up to Turing's true vision.

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