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The advent of incredibly advanced computers and "artificial intelligence" has engendered some interesting philosophical questions regarding, among other things, the limitations of the human mind, but also its unique abilities. There is no doubt that humans possess mental functions that computers, at the current level of technology, cannot hope to emulate. While Lewis Thomas's claim that being "coded for error" is the catalyst for human progress has some merit, it greatly oversimplifies human progress and how it came to be. Furthermore, his conjecture that computers should be used to "select, at random, the next way to go," grossly overestimates the range of computers' capabilities.

The human mind, as Thomas claims, does indeed seem to possess a nearly infinite capacity for error. Even the most cursory glance at human history reveals scores of failures, from failed socialist utopias, to complete societies that have crumbled for one reason or another, but undoubtedly in large part due to human fallibility. Even day to day life is permeated with failure, from doing poorly on a test to losing a set of keys. It is also true to some degree that these constant failures refine human endeavor, showing the path not to take if not that which should have been taken. As Thomas points out, "If we were not provided with the knack of being wrong, we could never get anything useful done." This is one of the fundamental driving sources of evolution, usually applied to biology on a very broad scale, but which is equally valid when applied to human psychological development. Natural selection, be it of organisms or of ideas, depends on variability and failure. The best idea or means of survival for a given situation comes about via a complex cycle of failure and slight refinement based on these failures.

Thomas extends his hypothesis beyond its logical conclusions, however. While focusing on all the things humans do wrong, he seems to neglect the fact that, although it seems we are doomed to failure, we nevertheless attempt to succeed. Progress is sometimes marked by complete, blind accidents, but more often than not, however, progress is much more orderly. It occurs because humans know things about the world, make hypotheses based on this knowledge, and test these. The process may not be as explicit or as consciously undertaken as a scientist experimenting in his lab, but it happens nonetheless. What sets humans apart is not their capacity for failure, but their

ability to see the possibilities beyond the failure. Contrary to Thomas's claim, animals are not limited to "absolute infallibility." Animals, just like humans, fail consistently, be it at procuring food, fending off predators, or finding a mate. Error is not so much a result of some pyschological fluke programmed into the human genome, but is a natural reaction to living, trying to survive in a given environment. The difference between animals and humans is that humans are able to analyze failures to a much greater degree. They can better understand exactly what it was that caused them to fail, refine their technique, and try again. Failure is not unique to humans, but is a prominent and necessary element throughout the natural world.

Computers do indeed "represent an extension of the human brain," although it is debatable whether they are a "vastly improved" version of that organ. A computer can process more information faster than the human brain, and can do many things that humans can't. Still, it functions only as an extension of certain aspects of the brain, namely logic. The computer is programmed to be, ideally, a logically infallible machine, free from human foibles that sometimes obstruct the progress of our own logical thinking. And while modern computers seem to be able to perform such seemingly creative tasks as producing "art," this is not art in the true sense of the word, but a mind-boggling synthesis and application of innumerable facts and theories of aesthetics. The point is that computers do not err, nor can they be programmed to err, as humans do. Thomas's final proposal that we have computers choose our possibilities (and therefore failures) for us is absurd. Human success is based on error, on trial and retrial, but the possibilities that we seek out for trial are not based on rigid logical truths but rather on whims and hunches that often folllow patterns that show little or no logic. Following pure logic may even be detrimental at times, since there are still many things beyond the scope of human or artificial capacity to understand, and perhaps humans have greater capacity to understand their logical limits. A computer could easily produce possibilities far more fallacious than any that would otherwise be undertaken by humans. Although things may shift someday as human knowledge continues to expand, at the current stage of technological development, computers are unable to mimic the uniquely human processes that are vital for decision-making and progress.

Human capacity for error is important for human development, but it is far from the most important factor. We still have an extremely impoverished understanding of the human mind, of its mechanisms and its abilities. Perhaps someday computers will be able to mimic human thought processes closely enough to analyze and react as we do, but this will require a much deeper understanding of the human mind and the world as a whole. For now it is beneficial to recognize the limits of both the human mind and the computer.