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THE ROBOTS ARE COMING, OR ARE THEY?

What is the current state of play in Artificial Intelligence?

A. Can robots advance so far that they become the ultimate threat to our existence? Some scientists say no, and dismiss the very idea of Artificial Intelligence. The human brain, they argue, is the most complicated system ever created, and any machine designed to reproduce human thought is bound to fail. Physicist Roger Penrose of Oxford University and others believe that machines are physically incapable of human thought. Colin McGinn of Rutgers University backs this up when he says that Artificial Intelligence 'is like sheep trying to do complicated psychoanalysis. They just don't have the conceptual equipment they need in their limited brains.'

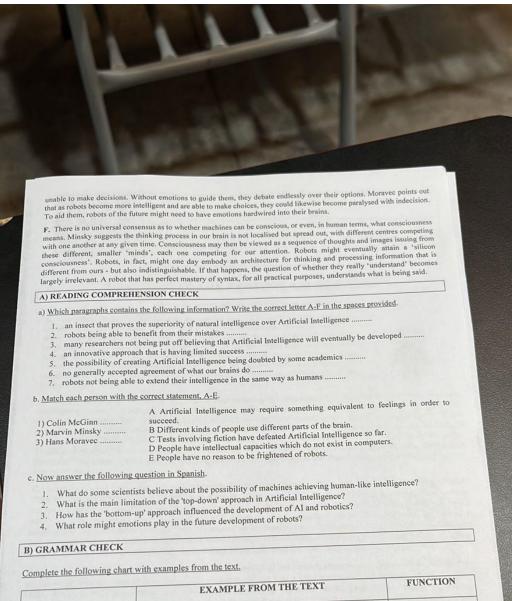


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- B. Artificial Intelligence, or AI, is different from most technologies in that scientists still understand very little about how intelligence works. Physicists have a good understanding of Newtonian mechanics and the quantum theory of atoms and molecules, whereas the basic laws of intelligence remain a mystery. But a sizeable number of mathematicians and computer scientists, who are specialists in the area, are optimistic about the possibilities. To them it is only a matter of time before a thinking machine walks out of the laboratory. Over the years, various problems have impeded all efforts to create robots. To attack these difficulties, researchers tried to use the 'top-down approach', using a computer in an attempt to program all the essential rules onto a single disc. By inserting this into a machine, it would then become self-aware and attain a human-like intelligence.
- C. In the 1950s and 1960s great progress was made, but the shortcomings of these prototype robots soon became clear. They were huge and took hours to navigate across a room. Meanwhile, a fruit fly, with a brain containing only a fraction of the computing power, can effortlessly navigate in three dimensions. Our brains, like the fruit fly's, unconsciously recognise what we see by performing countless calculations. This unconscious awareness of patterns is exactly what computers are missing. The second problem is robots' lack of common sense. Humans know that water is wet and that mothers are older than their daughters. But there is no mathematics that can express these truths. Children learn the intuitive laws of biology and physics by interacting with the real world. Robots know only what has been programmed into them.
- D. Because of the limitations of the top-down approach to Artificial Intelligence, attempts have been made to use a 'bottomup' approach instead that is, to try to imitate evolution and the way a baby learns. Rodney Brooks was the director of
 MIT's Artificial Intelligence laboratory, famous for its lumbering 'top-down' walking robots. He changed the course of
 research when he explored the unorthodox idea of tiny 'insectoid' robots that learned to walk by bumping into things instead
 of computing mathematically the precise position of their feet. Today many of the descendants of Brooks' insectoid boots
 are on Mars gathering data for NASA (the National Aeronautics and Space Administration), running across the dusty
 landscape of the planet. For all their successes, in mimicking the behaviour of insects, however, robots using neural
 networks have performed miserably when their programmers have tried to duplicate in them the behaviour of higher
 organisms such as mammals. MIT's Marvin Minsky summarises the problems of AI: 'The history of AI is sort of funny
 because the first real accomplishment were beautiful things, like a machine that could do well in a maths course. But then
 we started to try to make machines that could answer questions about simple children's stories. There's no machine today
 that can do that.'
- E. There are people who believe that eventually there will be a combination between the top-down and bottom-up, which may provide the key to Artificial Intelligence. As adults, we blend the two approaches. It has been suggested that our emotions represent the quality that most distinguishes us as human, that it is impossible for machines ever to have emotions. Computer expert Hans Moravec thinks that in the future robots will be programmed with emotions such as fear to protect themselves so that they can signal to humans when their batteries are running low, for example. Emotions are vital in the future robots will be programmed. People who have suffered a certain kind of brain injury lose the ability to experience emotions and become





	EXAMPLE FROM THE TEXT	FUNCTION
	EAAIN DE TROIT	
Passive Voice	The state of the s	
Relative Clause	and the second s	
Modal Verb in the Present		
False Cognate	Western that his are probable to the second	
Ing as adverb	Secretary the rest of the first of the secretary that the	

