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(Agathon)　　　　　　　　　　　；
(Aristophanes)　　　，　　　　　　F(Alan Tuning)
(Ludwig Wittgenstein)

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(Decision Problem)　　　　，　　　　　　　　　，　F
(effective method)　　　　　　　　　　　　(mechanical method)
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Godel)　　　　　(theorem of incompleterness)　　　　　(theorem of undecidability)　　F
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2   Must Read

1   Yesterday, I read a book called Cambridge Quintet: machines that can think For all the years, at least from the time I was in college. I am fascinated with concept of AI, which stands for Artificial Intelligence. I watched all the movies I knew and all the books I found that related to it. Not long ago, just about less one year, I started to really delve into the real research of this field. From what I have learnt, the field of AI is really broken into pieces. In my spare time, which is very few, I learnt some superfacial knowledge about natural language processing, how to solve problem by searching, which is to some extent about logic, and finally machine learning. I tried to bring those different, broken pieces into one whole integrated one. That is, I am, trying to get a big picture of the research field of AI. However, there seems a long way to go. Also, not long ago, not more than a month, I started to read the most famous textbook in this field -- Artificial Intelligence, A Modern Approach, which in the past I thought it is too thick to read thoughtly, thus I found lots of other books in this field, which is thinner. I want to list them for whatever reasons: * Artificial Intelligence - A Guide to Intelligent Systems * Artificial Intelligence - A Modern Approach (3e) * Artificial Intelligence A New Synthesis * Artificial.Intelligence.Illuminated * Artificial Intelligence, Introduction (Springer 2011) I read some parts of those books from time to time. And with some help got from some specific books exclusively about problem solving, natural language processing, and courses about machine learning, and especially the book writting by a Chinese researcher -- The Beauty of Mathematics, at the time I finally started to read the very thick book, I found, though I did not know all the academical detail, which is a lot, I seemed to know what the author want to talk about in different parts. To be honest, I indeed feels some kinds of accomplishment. Thus, I quickly read the introduction part and the summary part. In the introduction part, I got a concept of agent, which I think is already in my mind, but not that clear. In the summary part, I got somewhat similar big picture that I was trying to construct -- mainly it is hsitory events, what progress have scientists reached, where the constraints are. However, though I got some kind of big picture, I still have no idea what should I start with. Right now, I am in a lab where the main focus is using machine learning technique to recognize human face, which I have almost done nothing to get a insight into it. Maybe this could be a good start point? Who knows.Now, leave the question above. Finally return to the book I really want to talk about. Artificial Intelligence field is really a very hard field, in my opinion, there are linguistists, biologists, phylosiphier, mathematicians, and finally computer scientists in it -- it's really a inter-disciplinary subject. After all the tries to get the big picture, I asked myself days ago: what is needed to construct a intellectual being? And without clear aid(It is sure that the thought in the history has influenced me by osmosis), I seems to come to similar question, if not answers, to the point made in the Cambridge Quintet: machines that can think. This is my attempt to summarize the book with my understanding: In the book, the discussion begins with the question, can consciousness be made? To begin with, the discussion goes into the knowledge human knows about brain, which is mainly known as neural networks. This knowledge gives scientists the inspiration to develop a subfield of machine learning call neural networks, which simulates the mechanism of human neural networks. However, the mysteries of human brain still seems infinite. In the book Aritifical Intelligence - A Modern Approach, the author states that the understanding in Neuroscience could give hint to profound progress in AI. Based on the neural networks of human brain, Turing believes that the thoughts of human being is nothing more than the electrons exchange between neural cells, which builds the overall enormorous system of human mind. However, how could such hypotheis explains the meaning in the word of human life. For example, how could the word "sole", which is the conbination of s-o-l-e, have meaning? How the meaning is represented? In the book, an abstract answer may like this: if every part of a object who has meaning is treated individually, there exists no meaning. But if they are viewed as a whole, the meaning appears. A more concrete example is China Room Argument.Up to now, the discussion only focus on individual being, saying one human. However, humans live as a whole society. And intelligence could not be realised if there is only one. When society develops, language, gestures and other things which only have meaning under certain context, have been invented to convey thought with others. Some, which discussed in the precious part of the book, only makes sense under society context. Good examples have been made in the book. In my opinion, intelligence may consist of inborn capability and experience, which to some extent stands the ability to learn. We humans have the basic mechanism to survive and the learning mechanism to acquire more knowledge. To build

intelligence, the two must be understood thoroughly. After taking into account the influence of the phycical basis of human, the essence of meaning and the role of context, the book comes to the uniqueness of humans. The only thing I could make sense is this part tries to answer whether physical exstence determines the uniqueness of one person? Finally, a section is exclusively made for the role of society played in intelligence. To sum up, in the book, the author may try to discuss the following points, and appended with my belief, not proof: consciousness is physical; in the evolution process, humans have been hard wired the ability to survive, and the capability to learn, which I would like to call self programming. And the latter one significantly relates to interaction, which means society, culture, language and so on. One last word: after writting down all those words, it seems my understanding of artificial intelligence becomes clearer.

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