The Approach

The question is not new. γνῶθι σεαυτόν (gnothi seauton) was inscribed in the forecourt of the Temple of Apollo at Delphi in the ancient Greece. We faced the challenge by posing fundamental question: "How to simulate my mental process?" Contrary to the Greeks we have luckily two advantages. We have experience with Newton's laws and theoretical physics. That gives us knowledge, that very complex and diverse behavior of surrounding world can be very precisely described, simulated and predicted by a few, simple, but not apparent local laws. The second advantage is an unparallel, massive and cheap computational power hidden in our daily used computers.

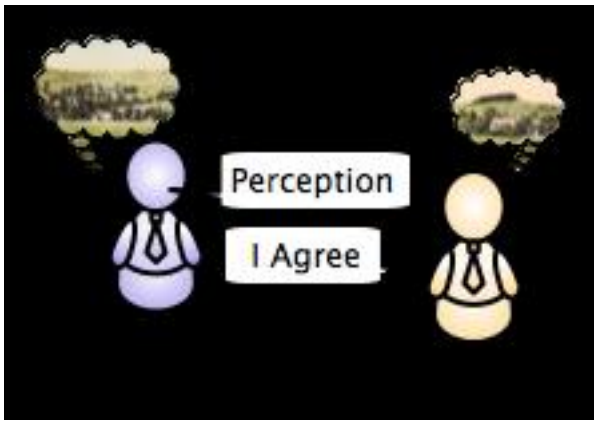
To answer the question, lets use the following approach:

1. Firstly, become aware of which part of the mental process one wants to simulate.
2. Unite the language for mental process description.
3. Create simple and not apparent local laws of a neuron.
4. Conduct and describe simulations of a neural network within the theory created in the previous step.
5. Use a metaphor to describe the activities on the DBN network by unified language from point two.

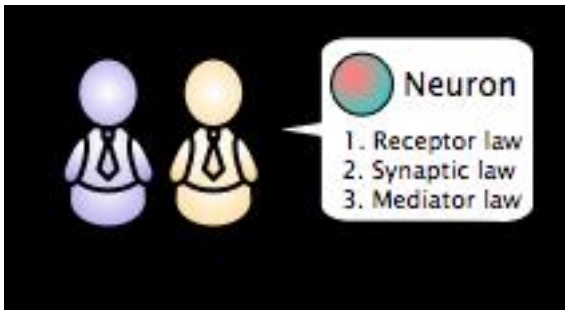
Our approach differs from the common contemporary approach. We do not presume, that observation of a brain, can lead us to understanding of our mind. Therefore in our theory we do not focus on observation, which largely consists of localization of excited neurons or deciphering neural code. In contrast our approach is based on notions derived from observation of mind and a mathematical theory built on cellular level to support it. However, we do not ignore the astonishing amount of results obtained by neurological observations. We use these for inspiration as well as for keeping our theory within boundaries.

Now let's get to the points in more detail.

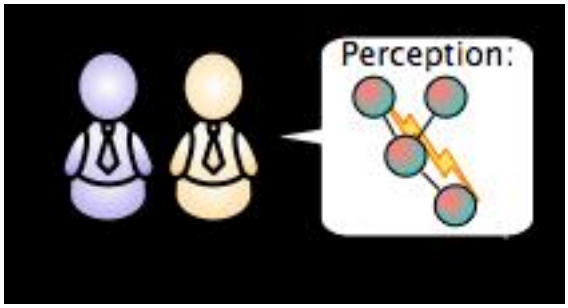
1. The only mental process one can seriously simulate is his own. Unlike other aspects of the surrounding world, mental process cannot be observed, measured and therefore the simulation can be compared only to the self-awareness. Of course, we can presume, that we are all made of cells and therefore the theory should fit well for all of us. As long as one is aware of his mental process (which does not have to be necessarily described by words yet) he must choose which part he wants to simulate. We do not want to get into discussion whether all aspects of the mental process can be simulated, because we have nothing to say about this subject. Of course, more aspects are simulative, more useful the theory is.



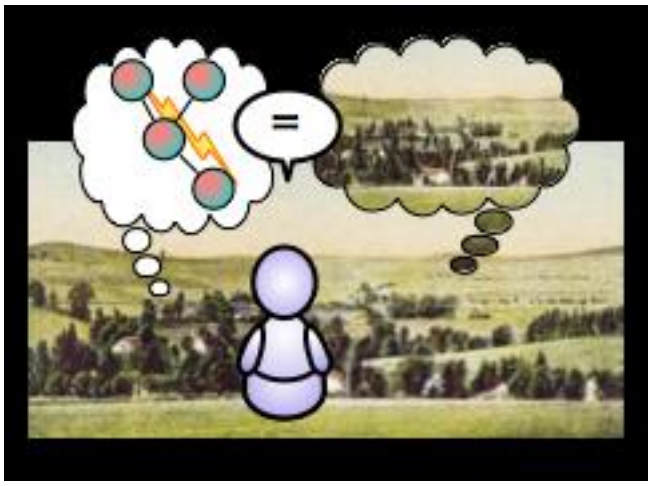
2. Second step is to describe the selected parts of mental process by words. From this point a collaborative effort is possible for more researchers. Once we agree on common understanding of the introduced notions and they relations, we can expect they relate to the same parts of the mental process and we can share the results. The common and widely accepted model of a mental process is usually taught at psychology classes. The theory is not restricted to this model only, self-observation can be a useful guide aswel.



3. For the actual simulation we created a mathematical model of a neuron - Digital Biological Neuron (DBN). The model is based on fundamental laws of an eukaryotic cell, the Digital Biological Cell (DBC). The Digital Biological Neuron is specified by four laws, two of the laws describe the communication between the neurons, while the remaining two allows the network creation.



4. First, we decided to simulate some of the ants patterns to see if DBN can bring sufficient results. The simulation has shown that DBN has a great potential and you can run the simulation right from this site and see on your own. The simulation also includes comparison to ants simulated a classic way: a set of rules of what to do if this or that happened. Then we got more serious and we created the theory for simulation of neural network. The results are theorems, which describes activity on interconnected DBNs.



5. The final step is to use a metaphor to describe the activities on the DBN network by unified language from point two. On one hand we have observations of a mental process, on the other there are few strict mathematical laws, which result in a theory. These two points are completely separate, only linked by a metaphor. This could raise suspicions as to why the approach is valid. Similarly, to the answer in the question we say: If you do not see it, that is it. But if you want to know more, keep reading. If not for any other reason than, that a better explanation has yet to be found.