

DODO

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1 INTRO

1.1 What is Dodo?

Dodo is/will be an agi (artificial general intelligence) experiment. For those who do not know what this is, artificial general intelligence is a computer program capable of human level intelligence. I.e., it can do anything a human can do, including learning new knowledge and even go to college :)

1.2 Why?

Why Dodo? Why forex? Human level intelligence is a large undertaking. No, that is a understatement! It is a *humongous* undertaking! Not only does one have to worry about the agi architecture, one has to worry about all the complex input that one has to support - particularly vision, which in itself involves a myriad of different ideas and concepts. So you have vision? How about relating all the objects in the world that it can see and making sense of all of that? It is large. It is complicated. Not that it cant be done, but why not eliminate this all together and focus on the agi architecture: problem solving, imagination, language, etc?

It is simple - reduce the input to one relatively uncomplicated object - streams of price data, particularly forex! But can this single input support all of the architecture that we need to demonstrate? Well, lets see...

1. Can it apply problem solving and imagination in forex ... yep! trading strategies, price action, order management,
2. Can it apply language ... yep! language is a convenient to represent ideas between 2+ entities and also useful to think in terms of
3. Can it demonstrate reflective thinking, consciousness, ... yep! sure, its a small world with it *only* knowing about price streams, but this form of thinking is needed for #1

As we can see, using one sensory input wouldn't prevent us from fleshing out and demonstrating a whole architecture! What it *does* do is take out the complexity that complex sensory inputs would present to agi. This is highly desirable, because With complexity comes a tunnel like approach:

Will this awesome idea i just came up with about how to create agi work out? Well, lets see, i have all of these sensory inputs i have to have support for. Lets just work on this for months/years to see if my one idea works....

Or, equally worse, the idea would be tested on *toy problems* which really aren't representative of what an agi needs to be able to do. Forex is not a 'toy' problem. It is a world in which only one sensory input is needed - but, as we saw above, a relatively complete agi architecture will be needed in evolving from a 'baby' agi up to an 'adult' forex agi.

Another advantage of this approach is that it is fun! Forex=money if one is successful with Dodo! Not that the money is the fun part - it is getting a profit via AGI applied to a chaotic market that is fun! Best yet, there are plenty of free forex demo accounts using metatrader that one can use. And it is really trivial to get a live account. Of course, we will not use metatrader to program our AGI in! See <https://github.com/Storkle/clj-forex>. It will use the java platform, but not java (heck no!), probably clojure+scala.

2 REQUIREMENTS

2.1 World

We define a *world* as a place in which an agent can receive sensory inputs. Furthermore, an agent can be considered to have ‘general intelligence’ in any such world. *General*, in this sense, means it can achieve human level competence in the world it lives in, not just in results, but in commonsense thinking, goal planning, etc necessary in the world. It does not mean general in the sense that it can reason about anything (i.e. an agent in the forex market with only access to forex price stream data might be considered general even if it has no clue about the outside world. After all, the outside world is not one of its sensory inputs). Certain worlds are better than others at developing an agi which can eventually scale to the sensory inputs of a human and all of the reasoning that goes with that. It was argued in the introduction that a forex market would be a good world. On the other hand, a world which requires complex prior knowledge, such as a stream of data from scientific measurements, would be a horrible choice. Similarly, attempting to tackle everything (i.e. common sense with random facts as inputs) would be an equally horrible ideal. In general, the following are necessary conditions (in my opinion!) for a useful world/agent combo.

1. *General Intelligence* - Ability to exercise general intelligence in the world.
2. *Scalability* - Exercise most/all aspects, albeit on a smaller scale, that a similar agent would have to exercise in the human world. *But what are most-all aspects?*
3. *Quick turn around* - Allow quick experimentation of ideas.
4. *Fun Factor* - This is a long term project -in order to be sustained, it has to be fun, fun, fun!

Some correlaries:

1. *Non complex sensory input(s)* - Raw sensory input(s) that do not detract from quick experimentation with ideas - i.e. not complex. *But what is a non-complex sensory input?* Have a very small, non-high dimensional, sensory input(s) (i.e. not vision)
2. *Non trivial sensory input(s)* - Have raw sensory input(s) which allow the exercising of aspects that one would encounter in the human world - i.e. not trivial

For reasons described in the Introduction, **forex price streams** have been chosen as *The World*.

3 RESEARCH

Such a large task, even on a small world such as forex, will require many smaller goals. Accordingly, each goal will receive a brief description here, but will be developed in a separate org file.

3.1 FX1

FX1 will clone the experiment described in the EM-ONE Thesis, except in clojure. The architecture is based on the *Emotion Machine*, and it is the best high level architecture that I have read about. I **highly** recommend reading *Emotion Machine*, anyone can understand it. Anyways, FX1 will act as the bare scaffolding on which we will further develop/experiment with concepts.

Questions to think on:

A main assumption is that we have to use symbols or words as representations. But maybe we should be thinking of why symbols are useful? In the human mind words have various meanings in various contexts.

They allow us to express ourselves abstractly so we dont have to go into unnecessary details which might be so common that it is unnecessary to repeat them, or are otherwise irrelevant. Somewhere below the symbolic language, is a hierarchy which encompasses the raw sensory input, that abstracts the world in a certain way (verbs,objects,associations per context). Is there a better or alternative way to do this than 'labels'?

4 RESOURCES

4.1 *Emotion Machine and Society of Mind*

Books

4.2 *OpenCog*

4.3 *MMP initiative (core part is an architecture based on Emotion Machine)*

4.3.1 **About**

MMP Article

4.3.2 **EM-ONE Thesis**

4.3.3 **Funk2**

Funk2 is an open source programming language that has been created to make the Emotion Machine architecture. It is a core part of the MMP. This work started by being based off of Push Singh's EM-ONE Thesis in which he implements a limited form of the Emotion Machine architecture in common lisp. A thesis proposal for Funk2 is here Funk2 Thesis Proposal.

Github Repository

4.4 *Other Websites*

<http://neuromin.de/an/neuralmom.html>