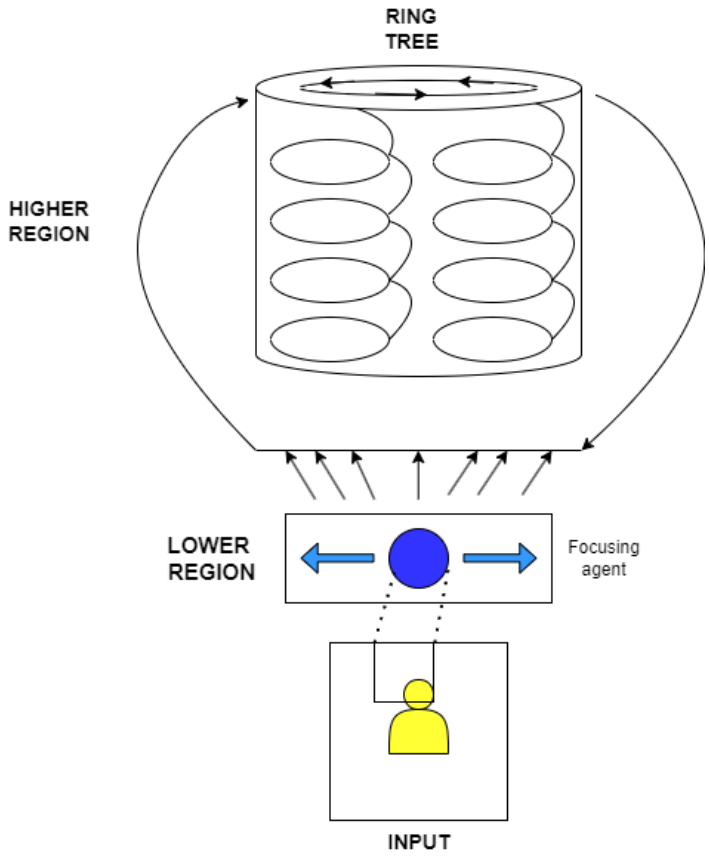
CRX Lite

This model comprises two systems: a lower region (small jump) and a higher region (higher jump). The lower region processes small bits of the overall input image and feeds them into the Ring tree. The Ring tree, receiving multiple input bits from the lower region, generates outputs by identifying similarities between the incoming inputs and stored information.

The lower region includes a focusing agent that collects the smallest truths (non-reducible forms of information) and responds to requests from the higher region to locate specific smallest truths within the input source. Additionally, the lower region possesses a short-term memory that collectively recalls these small-term memories. It then provides the correctly ordered short-term memory to the higher region, enabling it to retrieve the corresponding long-term memory in sequence.

In essence, the lower region identifies lower-level similarities, while the higher region identifies higher-level similarities within the input source.



Focusing agent

A focusing agent scans the input, processing it bit by bit and feeding each piece into the Ring. This agent moves along the input source, storing the scanned positions for future recall. Consequently, whenever the agent revisits a particular position, it will automatically move in the stored direction. This ensures that the same information, in the same sequence, can be retrieved, which facilitates the activation of long-term memory in higher brain regions. This storage of sequence is what we call the 'smallest truth,' a learned feature of any input. Because the smallest truth is an emergent, inherent property of an information processing system.

Ring tree

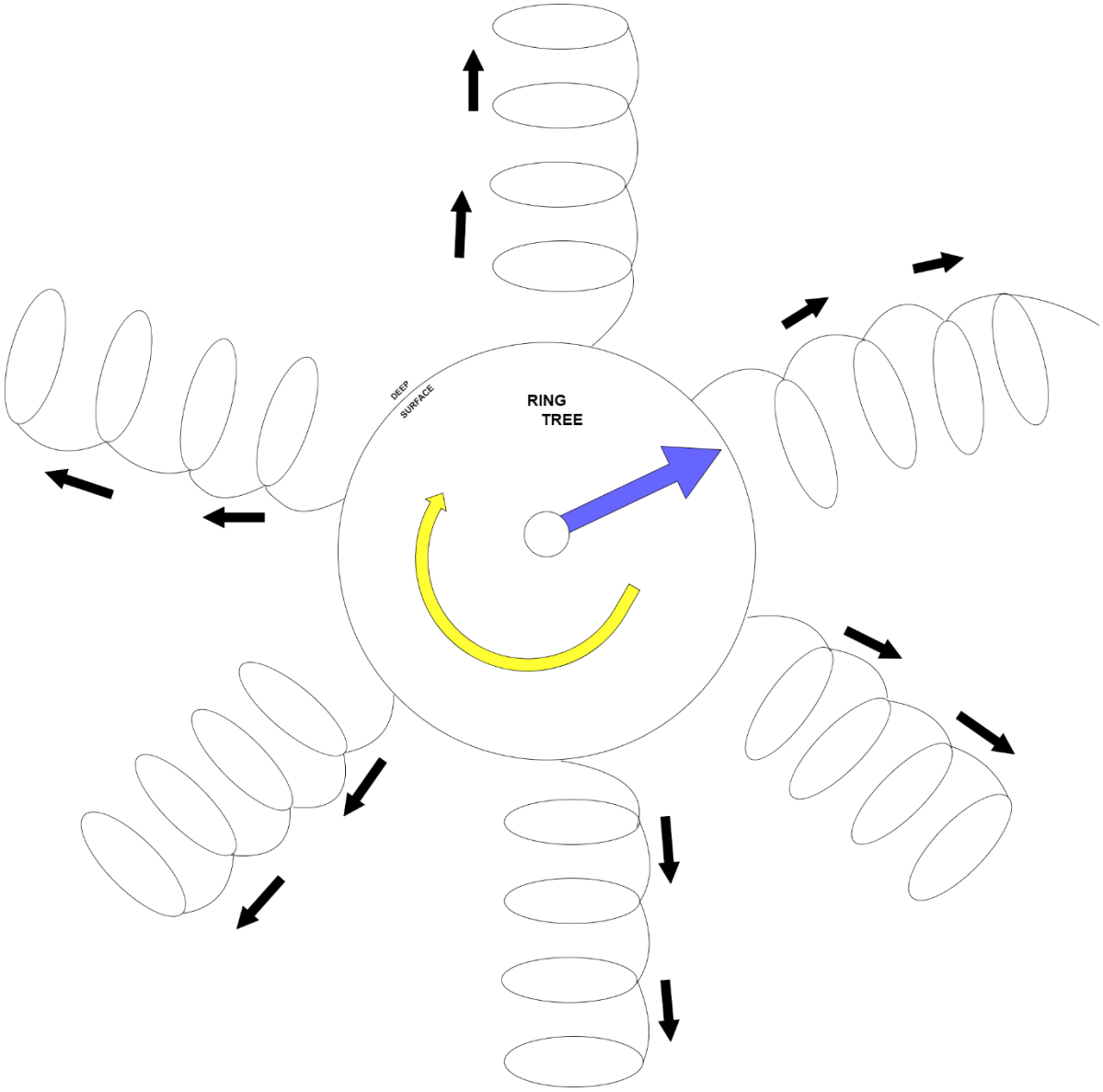
This method offers an alternative approach to creating a biologically inspired neuron model. Traditional models require tracking the position and movement of billions of neurons across each iteration, a computationally intensive task. Leveraging modern technology, we can instead extract the core logic of the brain and implement it in a more streamlined, custom-designed manner.

One crucial principle to adhere to is the linearity of thought, specifically how ring formations evolve with each piece of information. I have achieved this by simply storing each ring formation sequentially. This circumvents the substantial computational burden that the brain handles effortlessly but poses a challenge for computers. For instance, in the brain, each neuron behaves agentically, driven by receptors and the effects of neurochemical triggers. Replicating this 'aliveness' in a computer is complex; mimicking it is far more resource-intensive than the actual biological process. To emulate this, we would need to create billions of 'dead' neurons and, for each iteration, modify their behaviour billions of times. This would demand an immense computational effort. Therefore, I have chosen to focus solely on storing the ring formation sequence for each piece of information, rather than simulating neuronal 'aliveness.' This sequential storage method is significantly more efficient than attempting to simulate an entire neural network transitioning between 'dead' and 'alive' states

The cycles or rings are stored in a tree-like structure that expands as the model generates more rings in response to incoming impulses. This tree can branch off into secondary rings if multiple rings are needed from a primary ring. If inputs from the source, already stored in the main root, arrive in a different sequence, branches are created. Ring trees are structured such that activating any ring within the tree triggers the subsequent activation of rings located below it. After activating a ring, the model proceeds to activate the next in-line ring (either in a branch or the main root, as confirmed by a dual process), and this process continues until either the rings are exhausted or a change in input, detected by the dual process, shifts the model's focus to a different ring tree.

The ring trees are attached to a surface where a searcher function identifies similarities between incoming inputs and the attached ring trees, triggering their activation. To determine similarity, at least three to four rings from the ring tree and three to four bits of input are considered. Below this surface, in what we call the 'deep,' all ring trees reside, and all connections are contained within this deep layer.

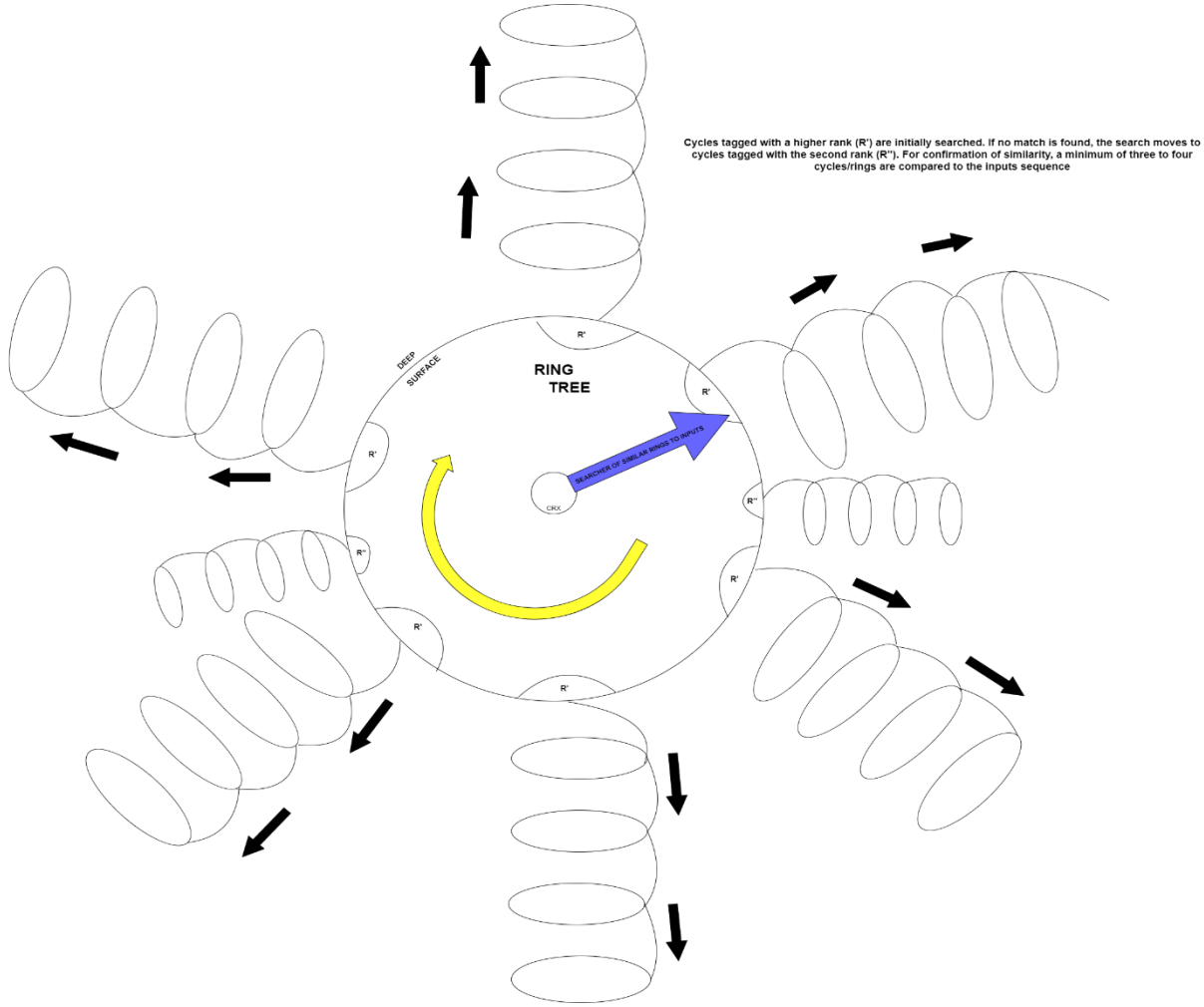
Over time, the model evolves to establish intricate connections within the deep layer, where all rings are subsets of the smallest truths. Because our reality excels at providing contrast and diversity, yet also maintains similarity (as humans, being similarity-lovers, have created all things in reality based on similarities between other information), this combination leads to the activation of different ring trees with similar smallest truths, resulting in novel outputs



R’ – R’’ – R’’ – R^N

The model ranks the ring trees based on their frequency of activation and the extent of their branching, arranging them in the order R' – R'' – R''' – RN on the surface. The searcher initially seeks a match within the R' tagged ring trees. If no match is found, it proceeds to R'', and so on. The size of this R-TAG is dynamically adjusted, as the ranking prioritizes different rings based on changes in branch connections and activation counts, which fluctuate over time with varying input exposures. These Rn tagged cycles represent common information from the model's environment. By exposing

this common information on the surface, the model significantly reduces search time.

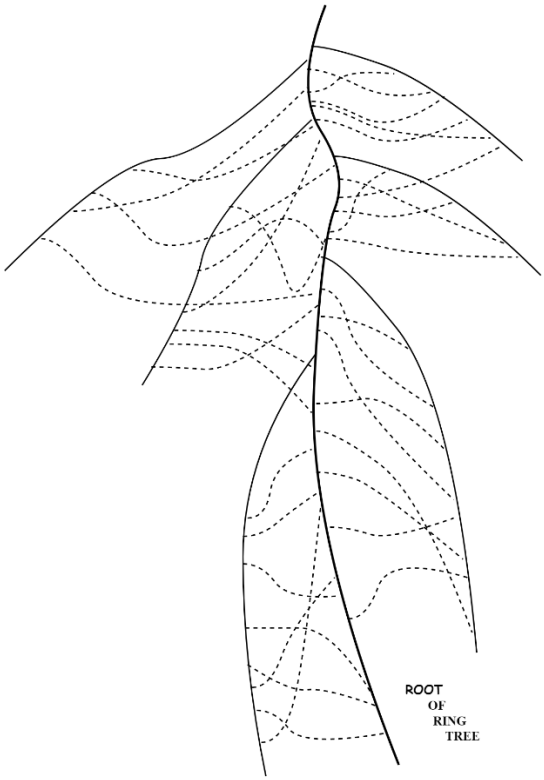


Root

The root structure expands as more information is input into the model. This information is stored in the form of roots. The root structure is advantageous because it allows us to simulate how each ring affects the formation of other rings, while preserving the sequential order of the information.

Dual process

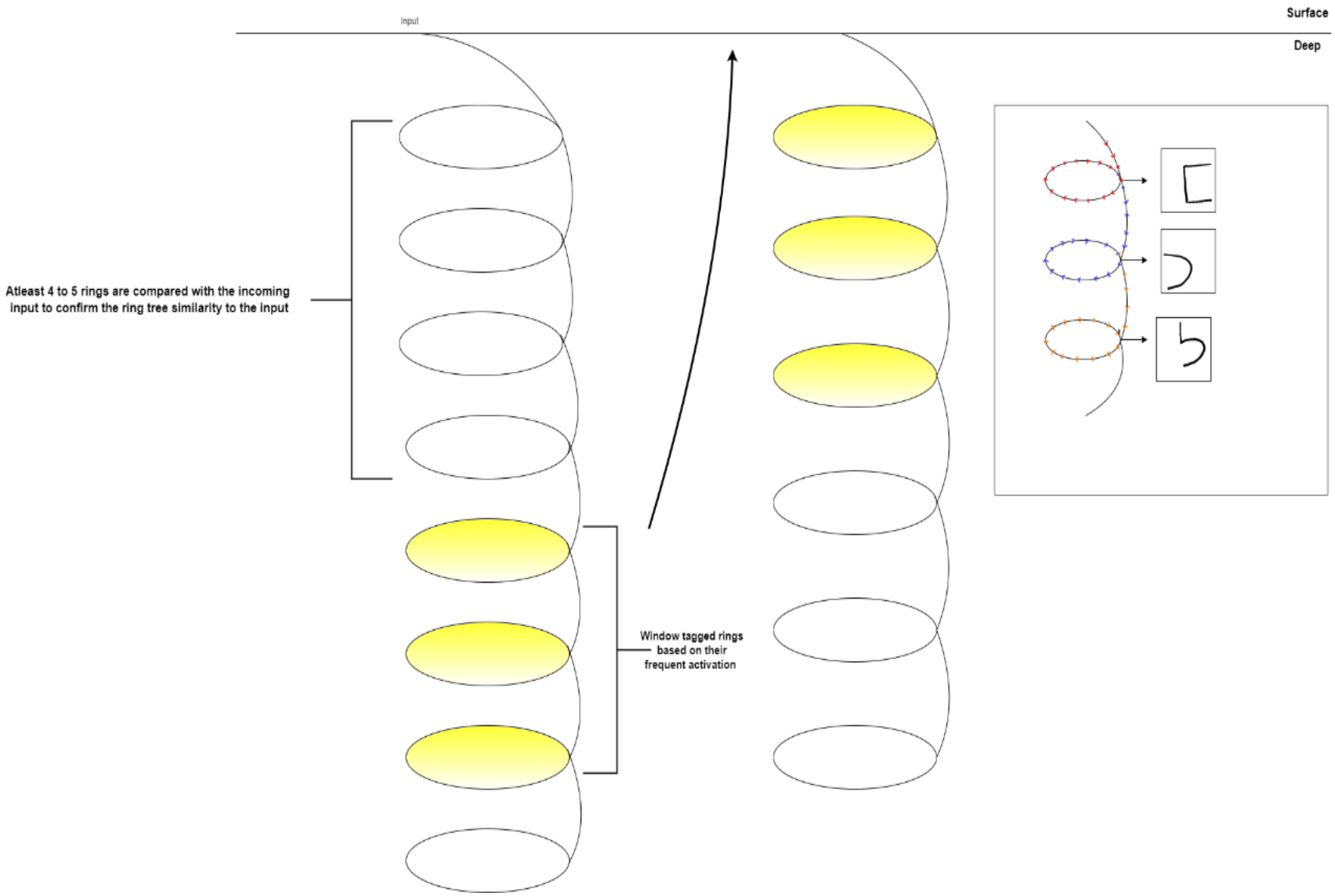
The dual process is a mechanism by which the model seeks confirmation from the input source to validate its path traversal. When a ring is activated, it triggers the activation of the next ring, which is then output by the model. This subsequent ring acts as an expected input, and the model, using the focusing function in the lower region, attempts to locate this expected input within the input source. If the expected input is found, the model continues along the path, confirming each step. If, however, the expected input is absent from the input source, the model restarts the process by activating attached ring trees at the surface, prioritizing common information likely to be present in the input source. The dual process applies to both the main root and any branches.



Storage

Information, or smallest truths, is stored sequentially, one by one, in the form of trees. These trees are composed of rings, which contain information about patterns. These patterns describe the input, output, and connections that create the pathways linking inputs to outputs. Rings are arranged sequentially, and they can form branches and connections between ring trees. The ring trees are attached to a surface, where the searcher has access to the first few nodes of each tree. The searcher then determines the similarity between the incoming input and the initial inputs of the ring tree.

Information entering the model is stored as cycles or rings, forming a tree-like structure. The model creates a 'window' on the cycles or rings of each tree based on their frequent activation. These window-tagged rings represent commonly occurring information, allowing the model to easily identify frequently received data. After a certain threshold, these window-tagged rings and subsequent attached rings gets separated and form a distinct tree structure onto the surface. Because the model prioritizes checking rings on the surface before exploring deeper roots, the window-tagged rings facilitate easier searching and the filtering of relevant information.



Retrieving

Inputs retrieve stored information by traversing down the root. This retrieval process generates separate branches as required by the input. Utilizing the dual process, the model produces an output and seeks confirmation to continue along the path. As the model progresses down the root, each node yields an output and simultaneously searches for the expected input to confirm further traversal. If a node has branches, the model pauses and expects additional input to determine the correct path—whether to continue along the main root or a branch.

Removal of stored information

Information removal is accomplished by decaying branch connections for branches, merging the most frequently activated branch into the main structure, and converting the main structure into a branch for easier removal.

The removal of a branch adheres to this rule: if a ring has a high concentration of branches, or if the number of branches on a ring increases significantly, the model completely removes the branch with the fewest activations from that crowded set of branches.

Rules for making a rings into the ring tree

As the model receives the smallest truths of the inputs, it can create rings. These rings represent collections of neurons and their connections, or patterns. When these smallest truths are stacked as rings in a tree-like structure, they form a ring tree. These trees can branch into separate ring trees if highly activated, window-tagged rings are present.

Rules for making a connections

If the input sequence finds related or similar rings, the impulse propagates down that particular ring tree as long as the dual process requirements are satisfied.

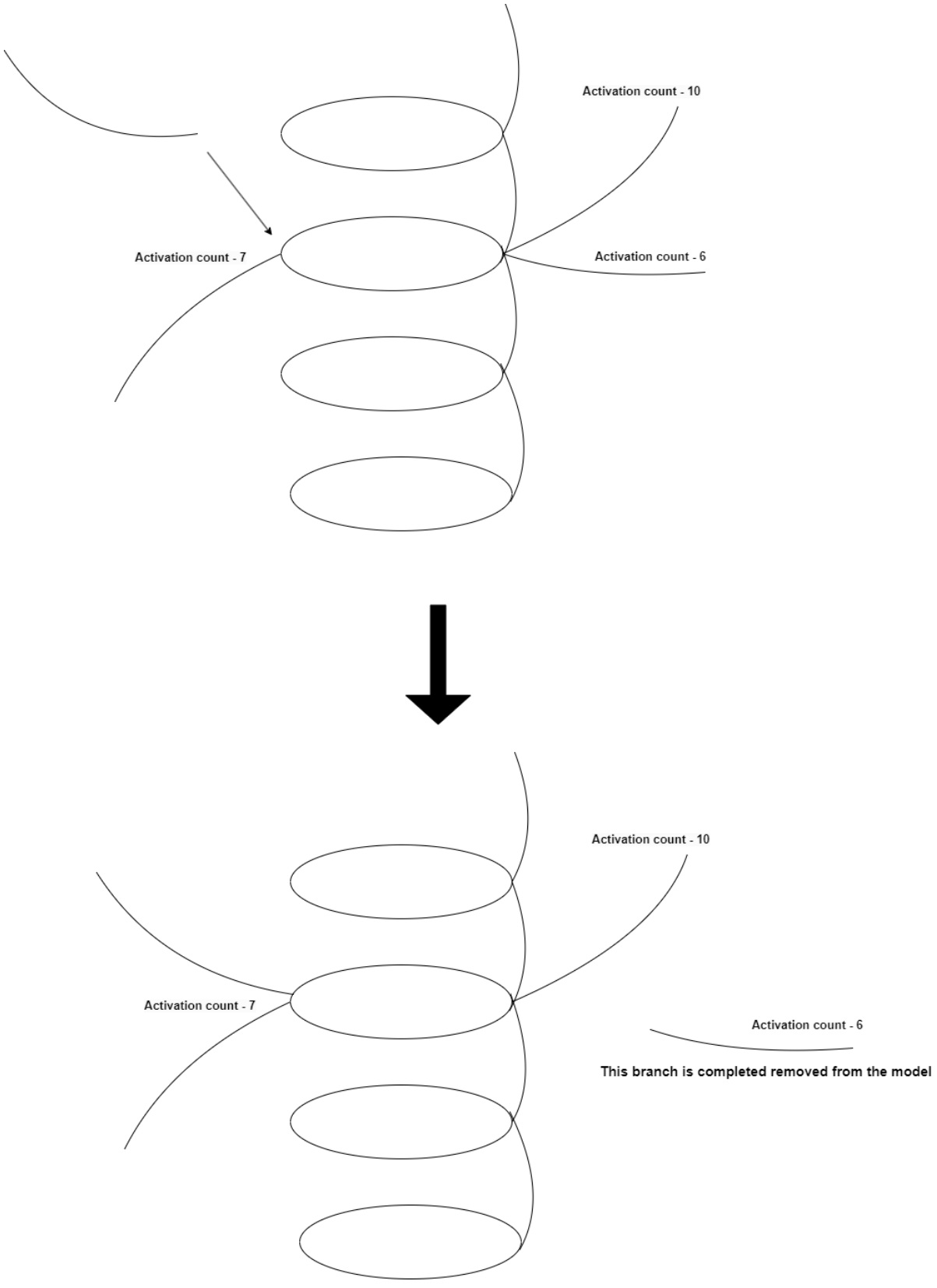
If the next incoming input cannot find a similar ring:

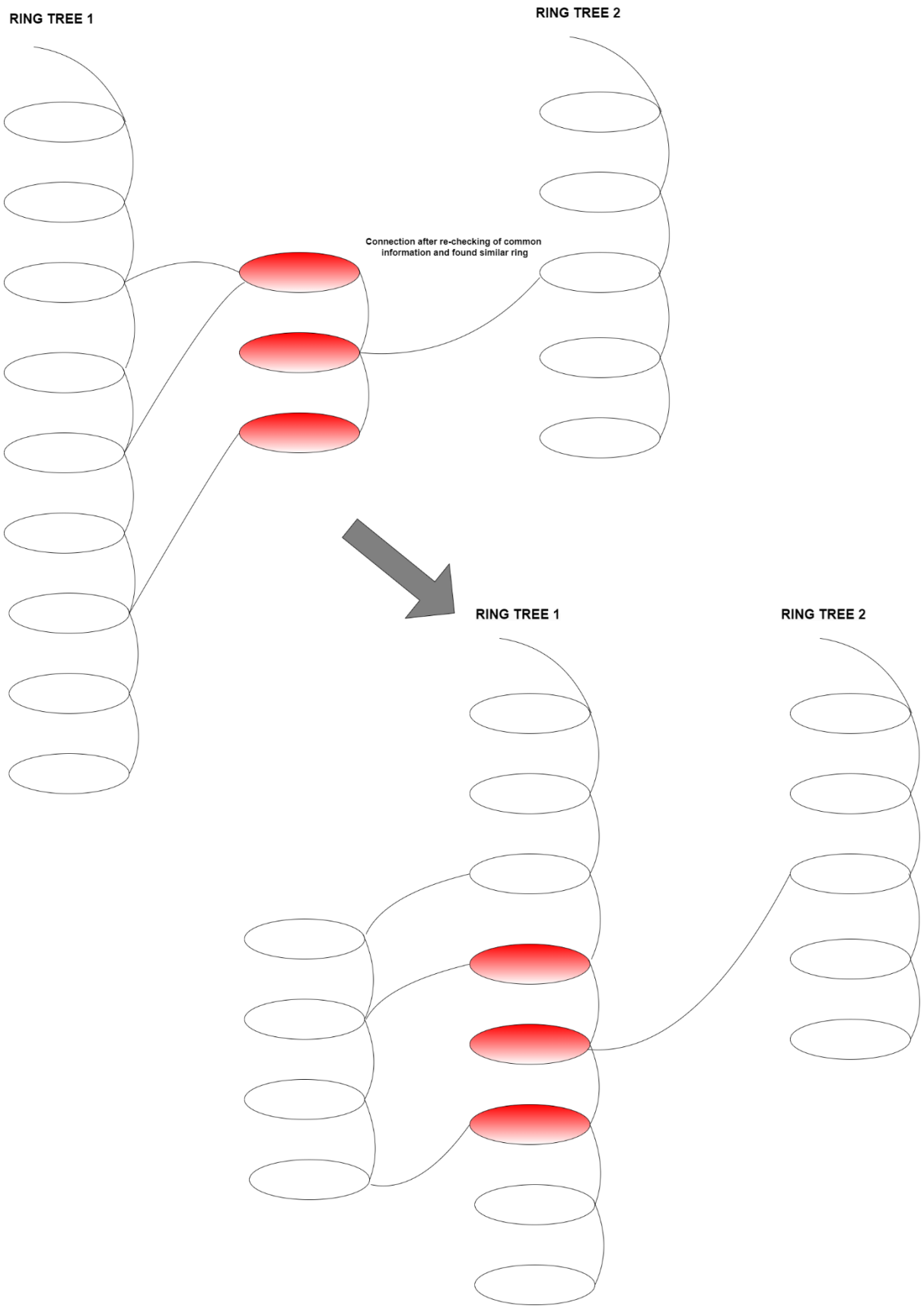
1. It searches for similar rings within the main structure of the same ring tree. If found, it creates a separate branch.
2. If no similar ring is found within the same ring tree, the model temporarily holds this path. It then retrieves another input from the source, which will contain common information. This common information activates other ring trees by finding similarities at the ranked ring tree positions. The model may encounter previously held rings within the roots. It then compares the similarities between the two held rings. If they are similar, a connection is established between these two ring trees at those specific rings—this applies to both main roots and branches when searching for residing information.
3. If no similarity is found, it is assumed that this information does not exist in the model's storage. Therefore, new rings are created and appended to the currently active ring.

Activations

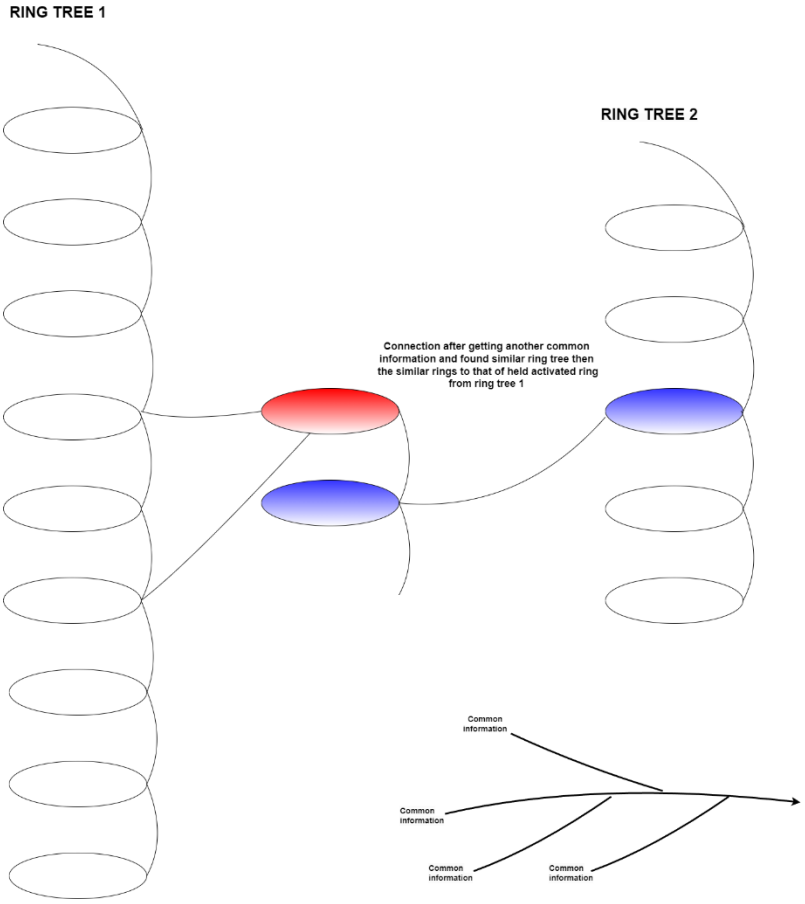
1. As an impulse travels down the ring tree, and the dual process requirements are met, outputs are generated along the path.
2. During ring processing, if a ring contains a branch, the dual process requires additional input to determine the similarity between the branch and the main structure, thereby deciding the

direction of travel. Specifically, the dual process continuously requests three to four input bits from the source and compares these bits with the bits in the branch and main structure rings. The impulse then proceeds in the direction where the higher similarity is found.

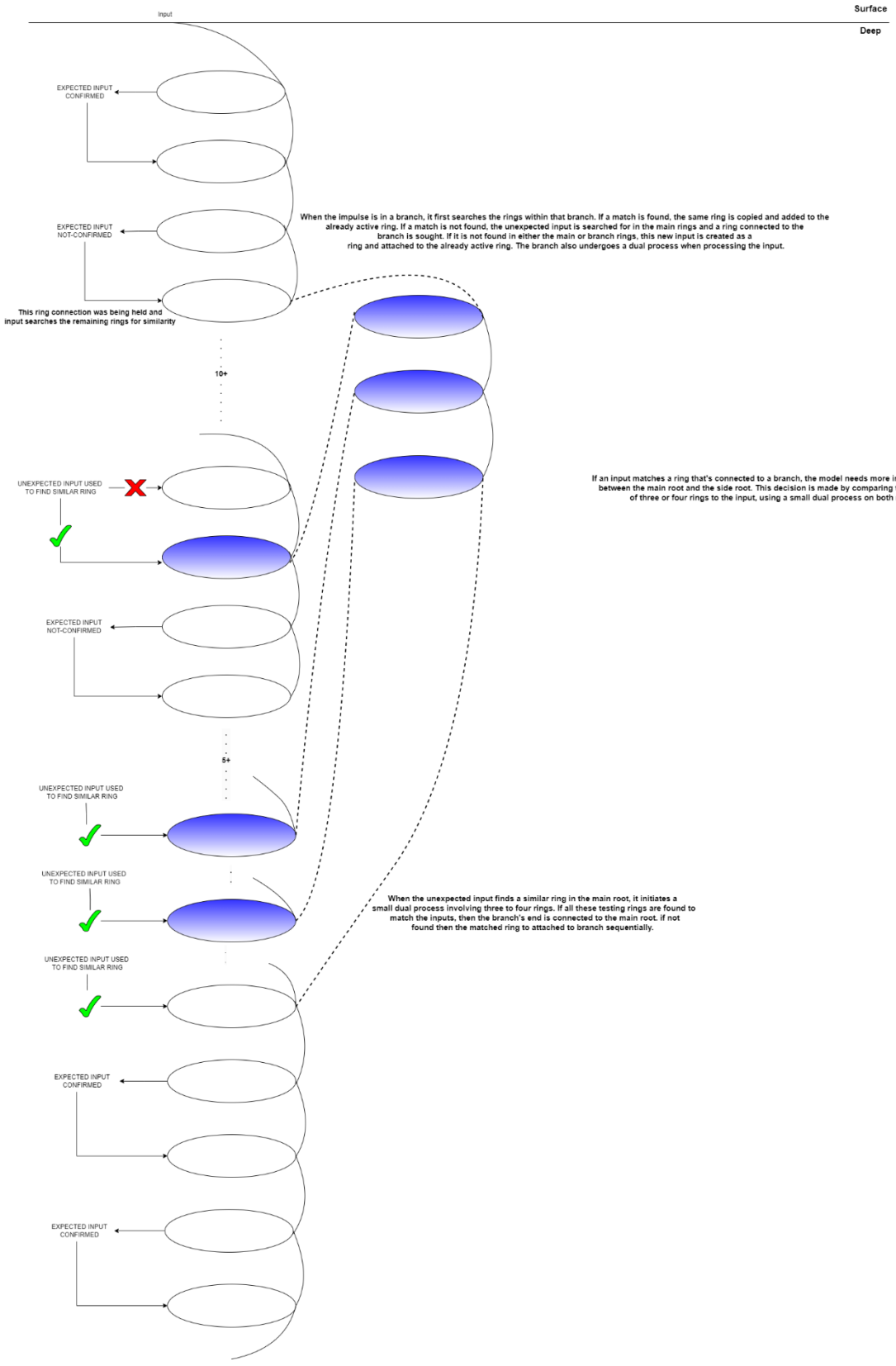



RING TREE 1
RING TREE 2
Connection after re-checking of common information and found similar ring
RING TREE 1
RING TREE 2

The model retains the activated ring after searching through the main structure and the activated branch. This rule applies to both rings activated in the main structure and in the branch. The dual process then searches for common information from the source that may be similar to the ranked rings at the surface. If common information is found that exhibits similarity to a ranked ring, the model continues using that ring tree until it encounters a point where it becomes stuck due to insufficient information, similar to a previously stuck ring tree. This ring is also placed on hold. Now, the two rings held are compared for similarity. If similarity is found, a connection is made, and processing continues. If not, a new ring is added to the existing activated ring. If no common information from the source can activate the ranked ring tree, a new ring is added under the activated ring.

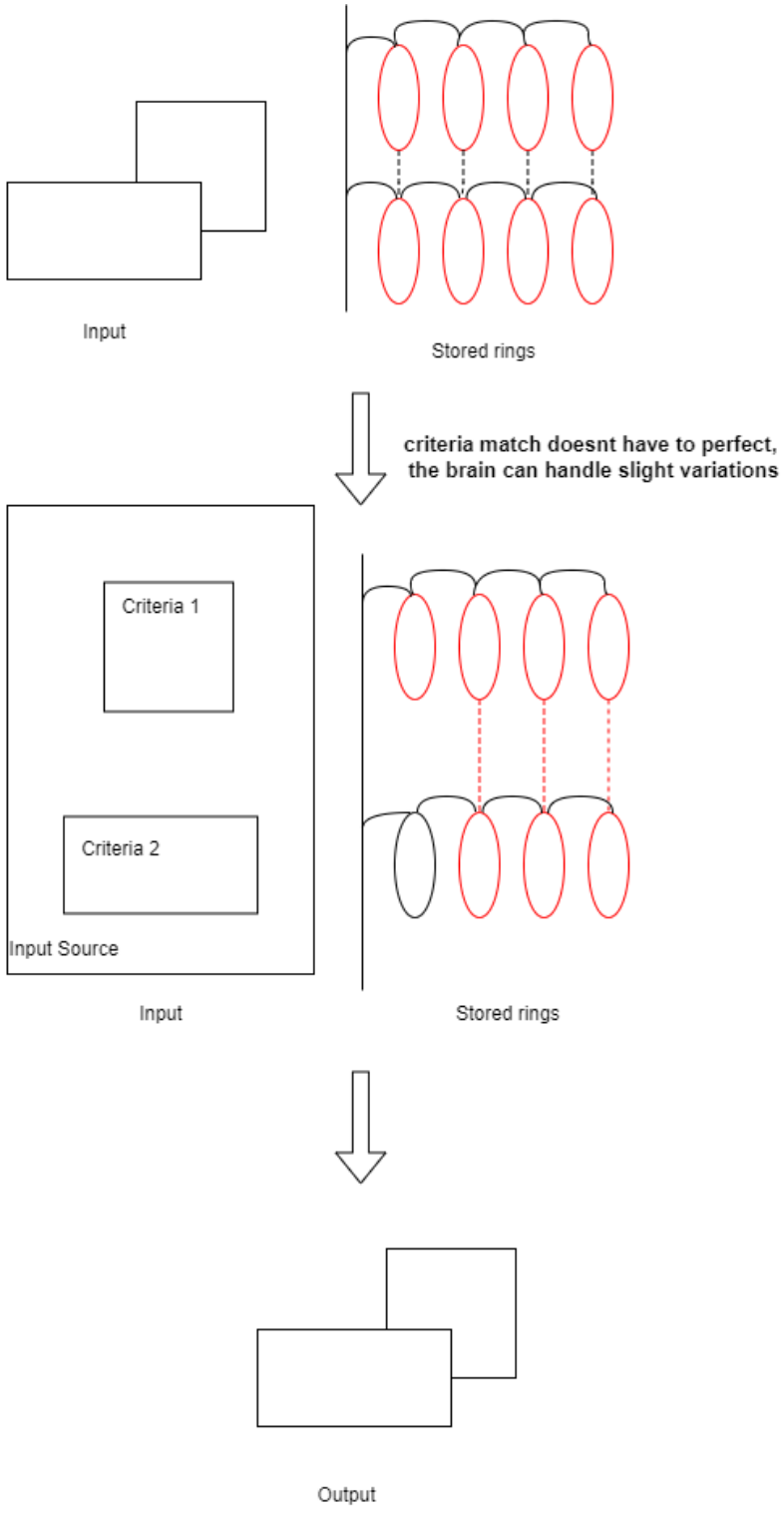


Branching is the process by which a ring tree creates a combined copy of different rings from the same ring tree, as demanded by the inputs, and retrieves them as a new kind of input. It works as follows: information finds a good matching ring tree and descends down the root in a dual process. This process produces an output and receives confirmation to continue. If the confirmation is positive, an impulse travels down the root. If the confirmation is negative, the previously activated ring is held, and the model searches the remaining rings attached to that ring tree. If a match is found, a separate branch is created, with connections from both original connections. If a match isn't found, the information is added to the already activated ring.



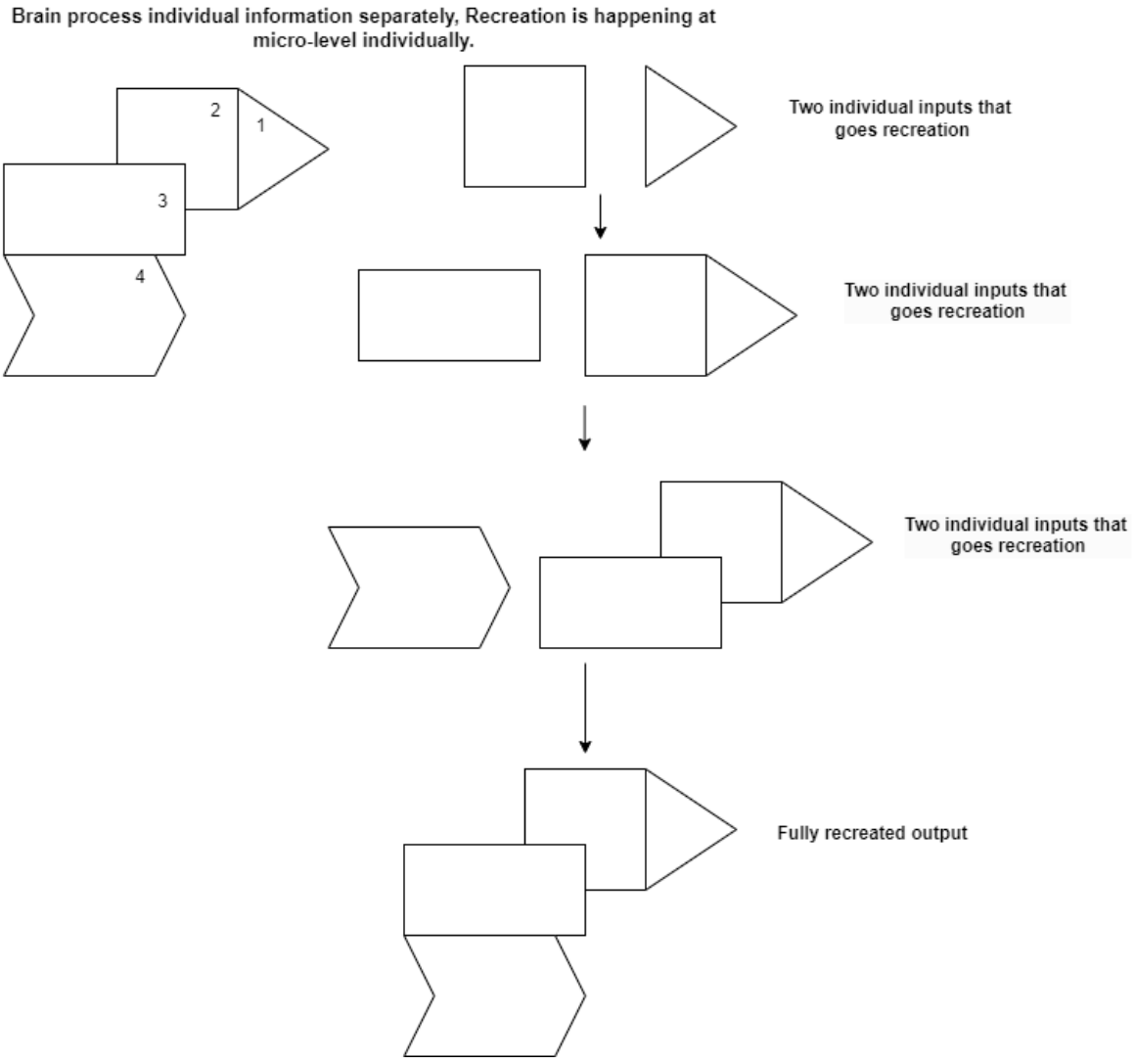
How this model does reasoning?

Initially, all information is stored in ring trees. Subsequently, connections between ring trees are formed based on the relatedness of their rings. Reasoning involves applying the rules of one piece of information to another, which occurs when incoming information satisfies the criteria of already stored information (where these rules are shared).



Is Recreation being enough?

At a micro-level, the recreation of individual sets of the entire input occurs. However, at a macro-level, it may appear that something more than mere recreation is happening. This is because our brain recognizes the individual components (smallest truths) within the input source, even though we are not consciously aware of them. We do not know what constitutes a smallest truth in any given input source; only the brain does. Smallest truths are not fixed; they are changeable, evolving based on the brain's exposure to specific inputs. Smallest truths are essentially variations and contrasts that the brain inevitably processes. Through plasticity, the brain can combine two or more smallest truths into a single pathway, driven by the frequency of exposure.



Up to now, I have discussed how the brain works (Ring Tree) for CRX. In the next section, let us discuss how this brain/model can be used. Or, more simply, we are going to give a way to interact, so that the brain of CRX can interact with reality.

How Ring Tree can be used?

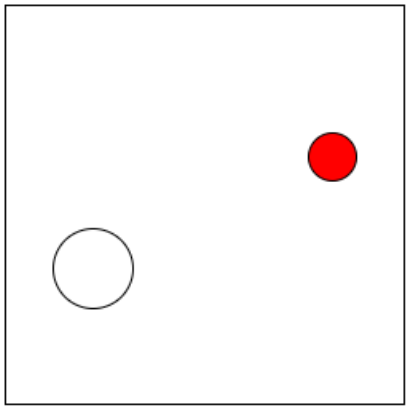
Currently, the Ring tree only provides a sequence of information when the incoming input is similar enough to activate the Rings stored within it. The Focusing Agent Function inputs data to the Ring tree and receives an output in return, but the focusing agent lacks any means to utilize this information, let alone display the output (similar to how the eye functions – refer to brainX). Therefore, to demonstrate the potential of this frequent retrieval mechanism, we need to enable the model to interact with the world, allowing the retrieved information to be used.

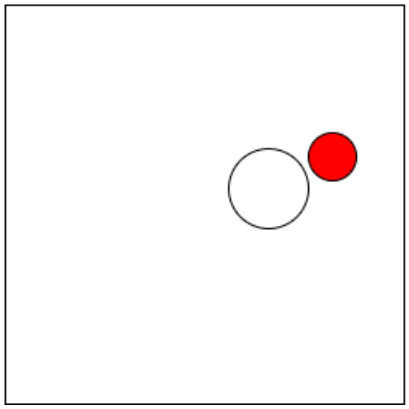
The hand (Simple Initial development – but not yet deployed)

Similar to how our hands are used to mold the environment around us using information provided by our brain, we can provide the Ring tree with a set of messages and elicit actions like "Move to the nearby red object." The "hand" with the assistance of the "eye," then locates the nearest red object relative to the focused object and slowly moves the focused object, confirming the direction and distance. We can also use other methods to give commands and receive information, such as using 0s and 1s, similar to a computer's natural language, or repetitive rhythms in impulse generation, which was once humanity's natural language.

From RingTree - "Move focused object to the nearby red object"

Hand - [..receives the command..] starts moving the focused object to nearby red object with frequent confirmation with the command

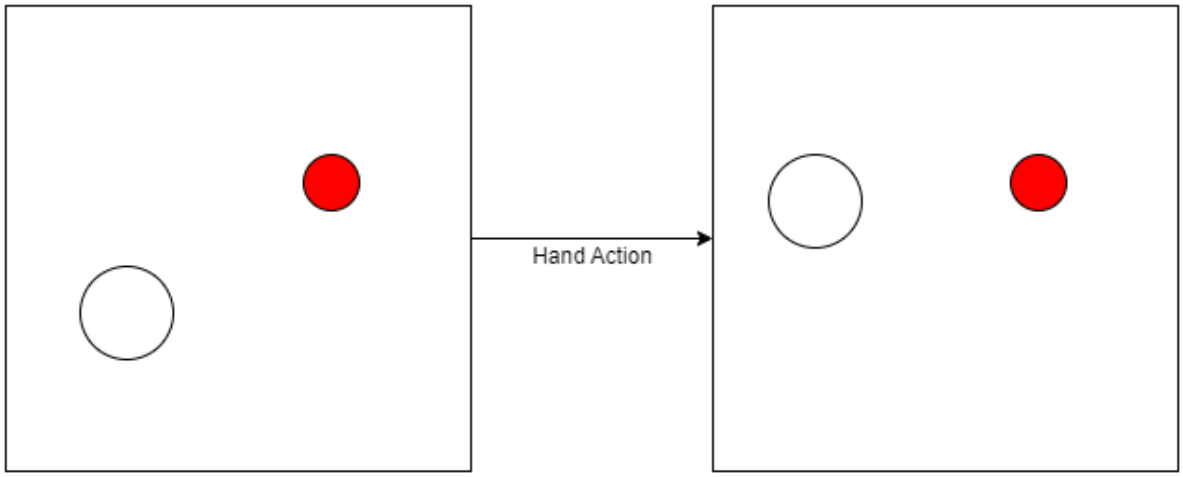




During the manipulation of the input, the focusing agent and the hand work co-actively to send the current stage of the manipulated inputs and receive frequent confirmation for each future manipulation step by obtaining the correct set of information sequences as commands.

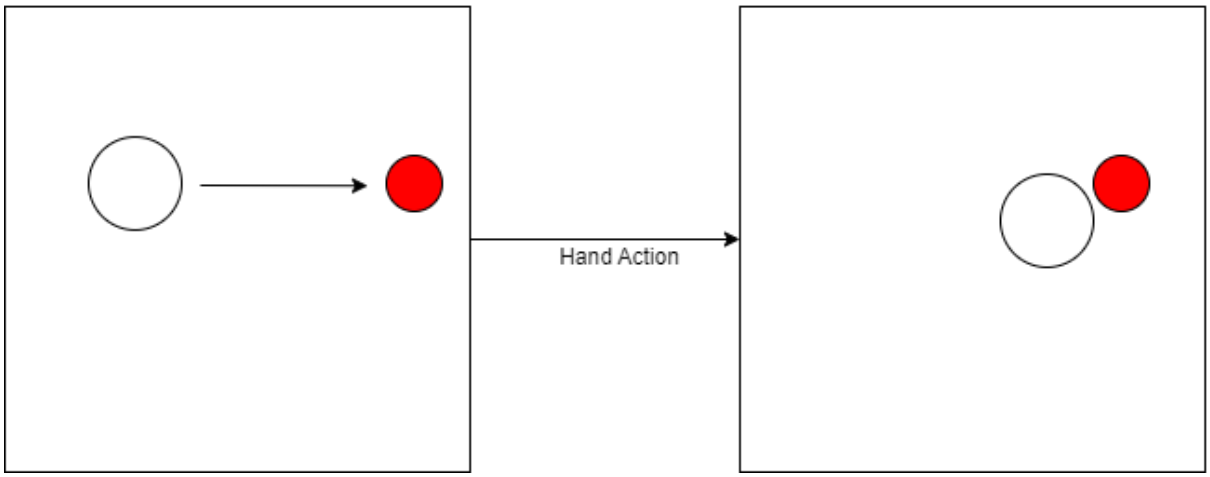
From RingTree - "Move focused object to the nearby red object"

Hand - [..receives the command..] starts moving the focused object to nearby red object with frequent confirmation with the command



Hand + Focusing agent - [..sends the focused object + nearby red object..]

Ring tree - [..receives the Input information from Hand + Focusing agent..] This will retrieve the similar information that gives command like "Move the object left to reach red object" - This is frequent confirmation.



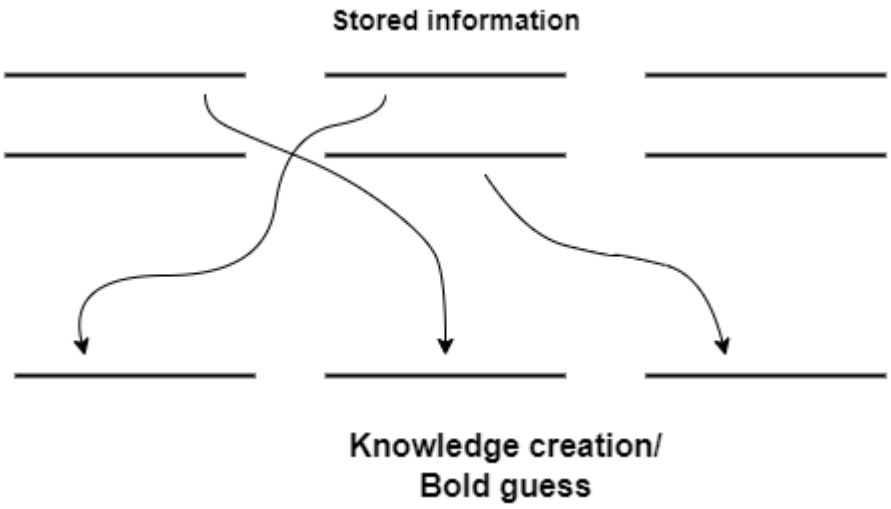
Frequent confirmation is simply the process of sending input after each modification, similar to how our brain constantly receives environmental information and provides meaningful instructions for the organism to act accordingly. In this way, where sending and receiving become frequent, the information sequence from the Ring tree adjusts the course of the hand's actions.

However, to level up the Ring tree so that it can guide the hand, we need to enable it to store a greater number of common rules about the world of inputs, allowing us to obtain the correct sequence of information as instruction or command.

A little about knowledge creation (aka bold guess)

Each time the Ring tree outputs a sequence of information, it is a bold guess.

The human way of knowledge creation is a mix of similar pieces of knowledge that, when sorted, yield meaningful logic. In the same way, when this model outputs a sequence of information, and when that sequence is sorted, it provides step-by-step instructions for the hand on how to manipulate the input.



How does Rings works to understand everything?

Rings are nothing but the information about reality. We all know information is connected based on similarities. So, whenever a ring was activated by the input, due to similarity-by-connection, the other similar rings also activated. This way, the model can develop a step-by-step deconstruction/understanding of the world surrounding it.

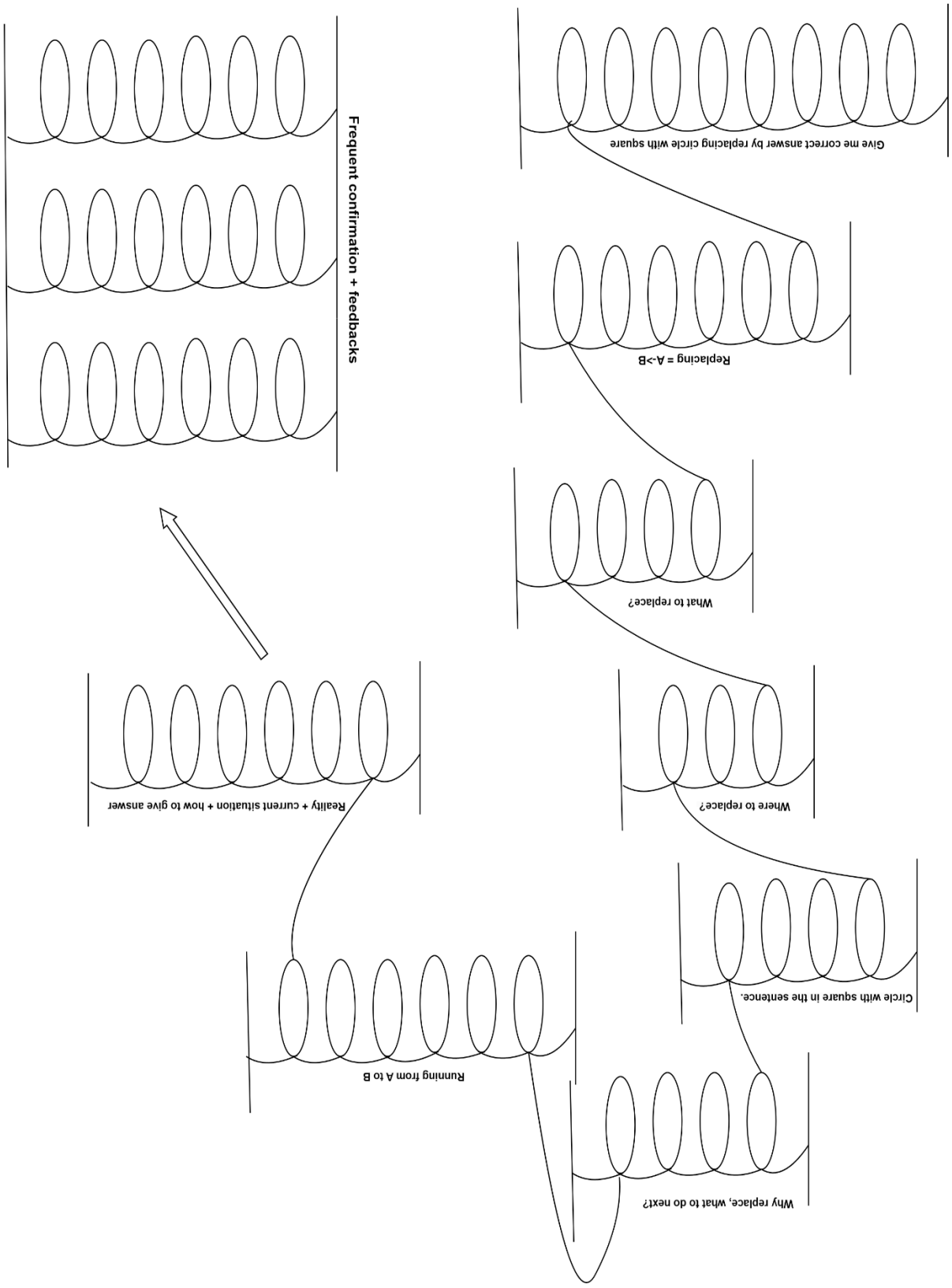
This may seem too simple/not correct if you think in terms of languages. Instead, think in terms of mathematics or logics. Because since we use language regularly, we might have developed shortcuts, and this same thing will happen in the model also (see wiggly connection in BrainX theory). My argument is the brain/this model acquires a few common rules about this world, and then they just acquire more by using the previous knowledge. For understanding, I depicted that it will understand step by step. In the actual model or brain, it will not happen like that; there will be more noise, and very rare similarities are used to activate other rings (unique to each model).

Frequent confirmation + feedbacks are just the same as deconstructing the problem at each time period, as passed by the agent to the model.

The more constraints (complexifying the problem) we give to the model, the more linearity breaks inside the model. And we can witness the intermediate steps more, or we get stuck in the intermediate steps forever, until the model breaks the loop by finding the final result by getting the required similarities. The final result will activate more number of rings, and that gives more outputs to be witnessed; then we can be sure the loop is broken.

Problem used in this diagram –

Q: Give me correct answer by replacing the circle with square from this sentence – “Circle was running from A to B?

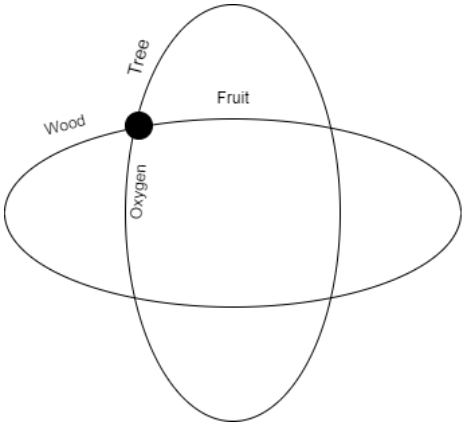


How Does this rings structure's gives self-awareness?

The ring gives information that are similar with that of incoming input, but if any new input comes in the model. It will start activating the closely related rings to that of new input and starts connecting these new input rings to the old stored rings in the form of organizing the rings within the network.

In order to understand any new input, the model should have self-awareness of what is the model is doing. This self-awareness is a emergent property that comes with the result of combining the focusing rings and ever-running loop within the rings space.

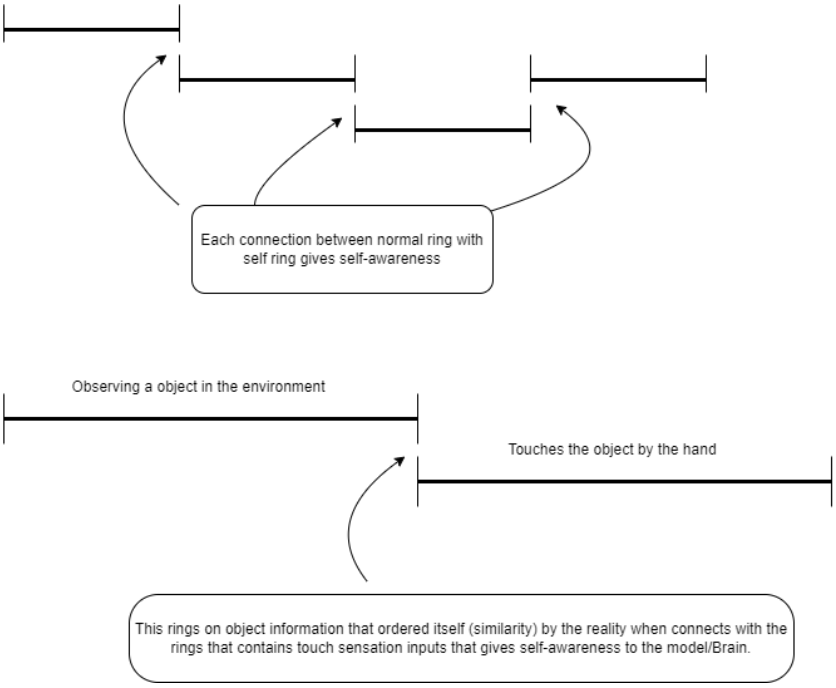
The reality was in ordered and we humans design our environment in a simple ordered fashion that consists of patterns easily gets into the brain. This ordered reality will tiggers a series of related events in the brain so that we can get a meaningfull output from the model/brain all the time. Eventhough the brain/model is just giving a retrieved part of the input that is similar. The order will not be present in dreams/other conditions where reality is not the inputs.



This ordered retrieved part helps in easy connecting to the rings that contains info about the self, because ordered means higher probability of familiarity with the rings that contains info about self.

connector point "•" – that connects several small related infos to give big ordered info.

Tail of one ring should be similar enough to connect with the head of another ring that contains information about self. It can remembered as a tick in the clock, or tap into the head to awaken itself from hallucinating. Self-awareness helps in organizing the rings and to understanding the new information.



How the series of small info's or facts storing/re-organizing/retrieving actually leads to intelligence?

This question is most fundamental to be answered to build confidence in this model –

We need to stop thinking about intelligence as we know generally, where reasoning, questioning, watching and all the qualities that leads to production of good solution. Intelligence is a made-up process by our brain that mimics how x reasons for y. the process that we witness all time in our brain is a made-up thing because we store our experience by asking questions and answering questions.

If we remove this made-up process of reasoning from the intelligence problem then there is no intelligence at all in the brain, atleast the intelligence that we used to believe. But surely the brain follows a different, yet simple mechanism to give intelligence that we don't know but at the end it exactly mimics or gives the quality of intelligence we know.

Lets take the claims from this concept – the brain/model is just a memory retrieval happening at high speed without any control on it. How can intelligence (as we know) can be born from this?

Group of series of small events gives one meaningfull output, collection of these group of series of small events/rings gives a complete meaningfull output. The meaning lies in the context of how well the rings connected, how external information gets converted into a knowledge, and how well it re-organizes based on the frequency of the input incoming + usage.

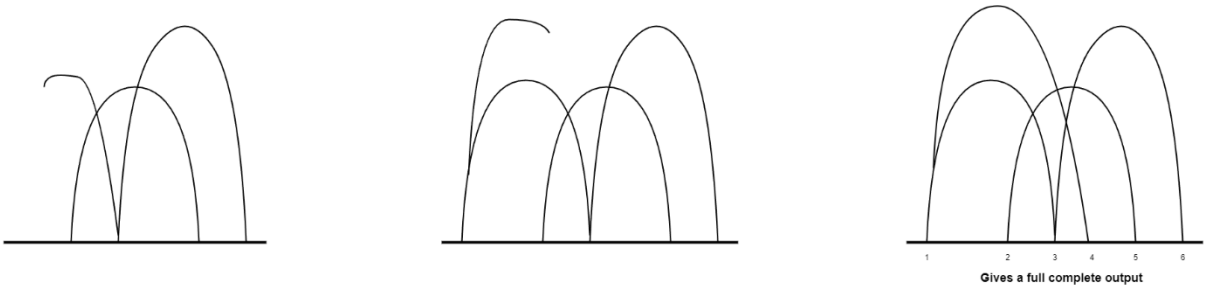
Is this above stated mechanism is responsible for doing math calculation, imaging the future, or analyzing the situation to take decision for survival, and all the qualities of intelligence that makes you think that intelligence is something very special and beyond comprehension? In other words, how it gives the illusion / intelligence that we used to know?

In the brain, the rings continuously gets re-activated in for both continuation of the ring and new ring activation. This process happens at high speed and it gives a complete output. Think about all the qualities that stands for being a intelligence like doing a maths, imagination what these qualities gives is a complete meaningful output.

If the rings frequent and re-activation of both new ring and continuation of ring is happening, then we will get correction of the each output that ultimately leads to a meaningful output.

Rings are like a experience some are relates to external information and some are relates to actual self, through asking and answering questions. Our brain stores these experience so whenever something is wrong our questioning rings activates to ask question that further activates the rings, the question rings are like another input to the brain that finds the answer ring through similarity, connectivity. Questioning ring asks exact problem or situation that gives the correct answer, questioning ring becomes the input to our own brain – in this way the brain talks to itself.

This questioning + answering (kind of gives reasoning illusion), these rings work all together to give qualities of the intelligence we used to know.



A + B + Z + C = Actual output that needs correction

Certain Rings again activates to correct the output. (Certain rings = Questioning ring activates)

Questioning ring activation act as a exact required input to activate a certain ring because of exact similaity of input that gets the exact answer ring to get activated in this way the ring corrects the output

After correction : A + B + C = complete meaningful output

Question rings are automatically gets activated once the self rings activates (because of body sensation or requirement of body movements, initially) after maturation the question ring activation becomes a stored default state. Rings are the actual experience, now anything that gives input can activate whatever it wants with the brain. The brain can respond to almost any source as long as the source has input that is already gets stored.

Now imagine these rings that influence one another that gives imagination, maths, others. Question rings cant be just questions that we ask ourselves, it can be like anything that act as a input to the brain. For understanding I call them questioning rings. The brain generated input can sometimes be output of one event that acting as input and actual question that was self-generated based on the problem properties. These problem properties through experience will make the brain to ask certain questions like “eat the food” – “how to eat the food”. These regular but simple of how, where, why, what that was included in our day-to-day life. These questions Will gets included in the brain thought generation when it encounters a problem.

What are the necessary qualities to achieve intelligence?

The sources like eye and ear to get the important inputs from the external world into the brain and then emotions aka neuro-transmitters to prefer one type of input over another type of input. Neurotransmitters are more like specific to region/neurons in that region, so if that regions of neurons gets activated then neurotransmitters released to further strengthen that input pathway and helps to get further information. As strengthening causes the input’s output to become a input for further processing of information of the external world. In this way few type of inputs becomes re-occurring ring, this re-occurring ring will recruit other few similar ring then they all become a frequent re-occurring ring.

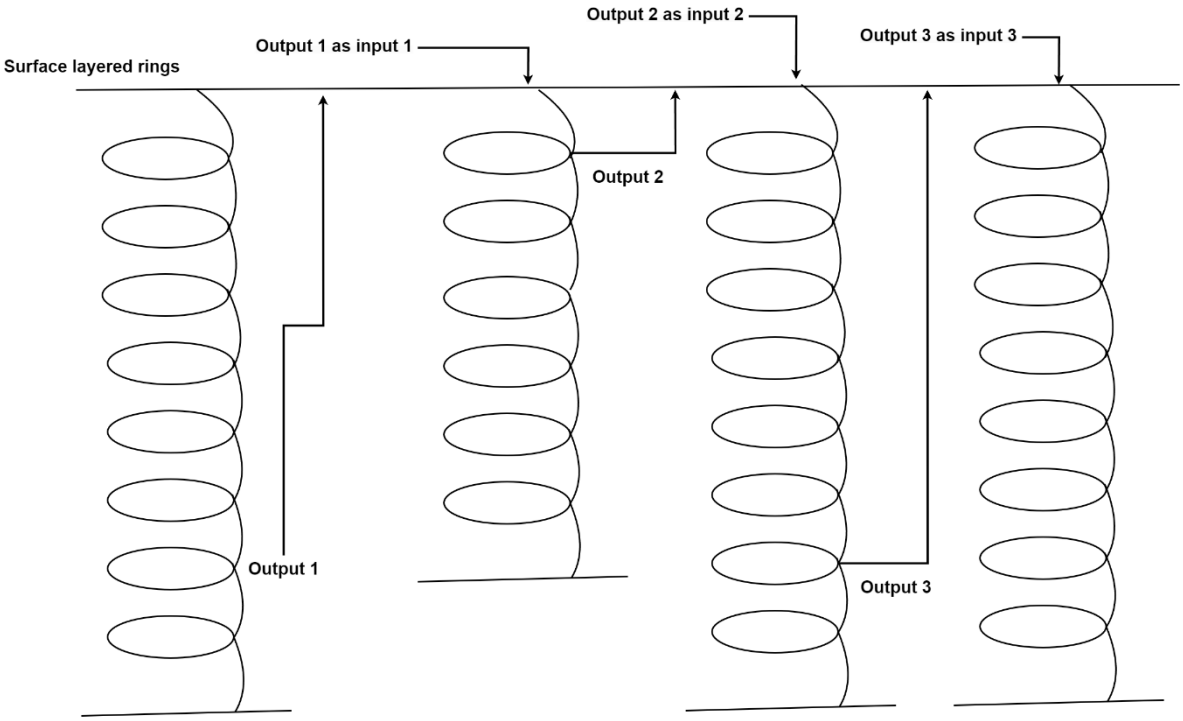
This re-occurring rings gives intention, behaviour?

They will just re-occur in that way they mimic intention. This re-occurring pushes/without the observer realization pushes the attention to the problem/input that was most similar to the re-occurring rings. For example – if you see a food shop "your re-occuring ring without you realizing pushes you to see the food menu, layout, food appearance" this repeated re-occurring rings. Re-occurring ring can be maintained either emotion, frequentness – whatever makes the brain to store it or make it strengthening.

Re-occurring ring what it does exactly?

When it saw a input that is similar, then it becomes active and then further activates all the related ring to the input which makes us to confirm with our surroundings (more like if apple comes to mind, you most likely search for apple – simple example). This further confirmation process is the intention, in this time the brain actively collects and retrieves all the information to solve the problem or lead the host. this process of re-occurring ring gives us intention, behaviour.

Surface layered rings attached rings act as a intention generator by guiding the thought by generating questions, This question generation will activate further rings in the ring tree and gets the solution rings hence guiding the host intention, behaviours, solving the problems



This 1->2->3->4.. resembles the input-output continuity and it will be key in solving the problems by leading the problem solving thought to answer to the generated questions, its more like leads the host to the whatever output being generated to the questions created by the rings attached at the surface layer. This rings attached at the surface layer is called the Re-occurring rings as they will mostly re-occur due to their more usage (mostly these rings are about questions, identities, very familiar locations etc. this re-occurence of certain rings as output will give intention, since they re-occur it gives a pattern to the host behaviours, intentions.

How to include these properties into the CRX?

Let the storage of rings remain the same, connections between ring trees should mimic the property of emotions to give preferences. Preferences give a re-occurring ring that further tries to process the information.

Mimic the emotions (to create re-occurring rings) at which part – let's consider the surface rings to be the re-occurring rings; here, you can create a 2nd surface layer and add the frequently activated rings of the 1st surface layer. Create the necessary surface layers as you want to get an optimal re-occurring ring and make sure the highest surface layer becomes the re-occurring rings. This is to mimic the brain's property of neurons clustering rapidly to frequent rings that leads to activation of a few specific types of rings always that eventually become the re-occurring rings.

Voice and outputs lead the action of the models; how to implement – this one should be like re-occurring rings activate to confirm the external objects (e.g., confirming it is a toy, it is a car and then further proceed with thought generation) by default with the help of words (act as connectors, substitutes).

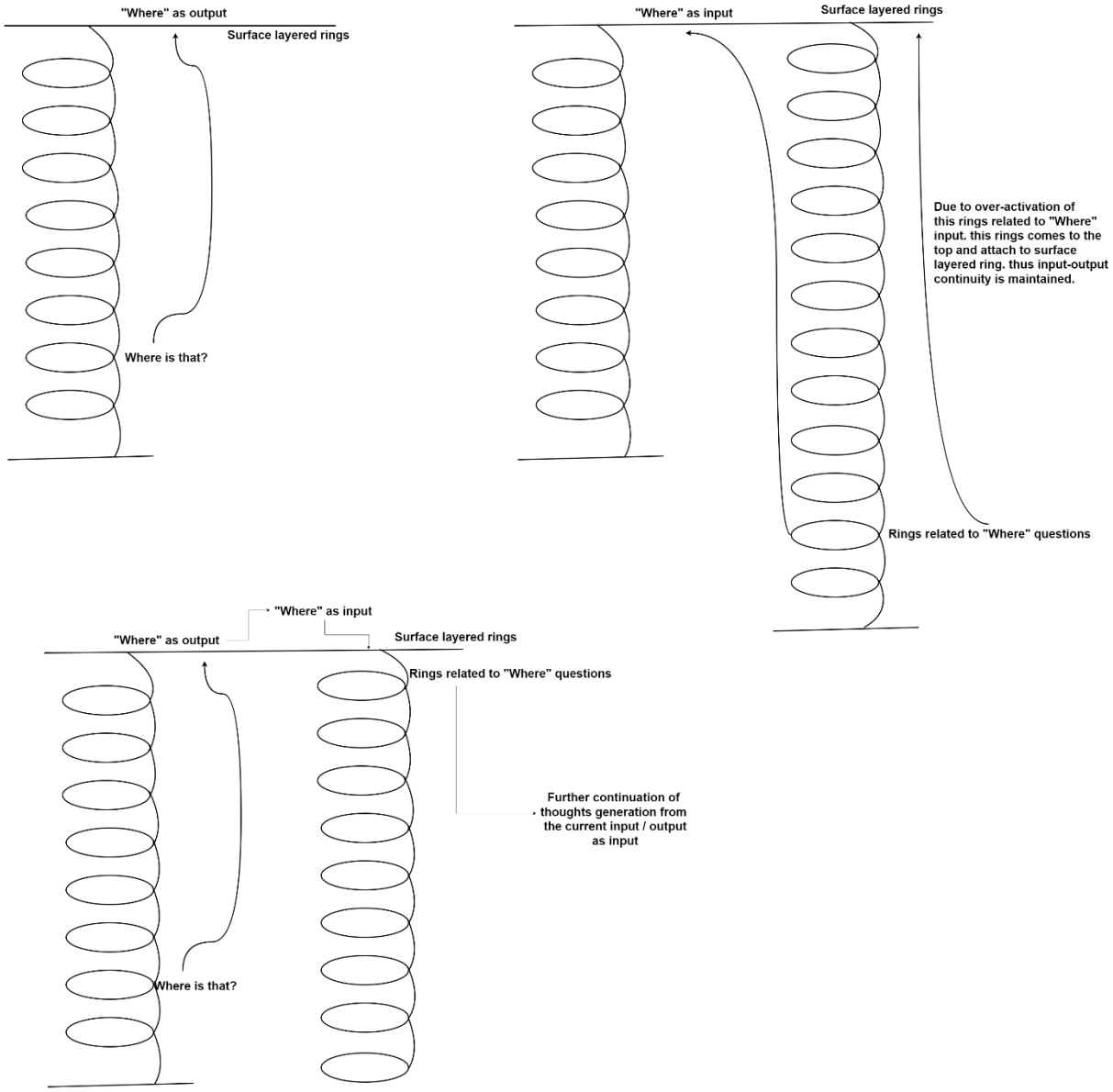
Need to introduce an optimizing function for managing retrieving rings in the re-occurring rings – it should prevent many rings from constantly activating. The brain forms rings by taking multiple source inputs. Like it takes $0 - 0.3 - 0.5 - 0.7 - 1$. But in our model it goes $0 - 1$. And this makes our model more chaotic, but in the brain leftover energies will again activate the pathway of clustered plasticity pathway, which is the most frequently activated rings. For this, we will make the surface rings attractive and whatever the energy is indexed that will come back to the surface rings because of the attractiveness.

The current model works like this: incoming inputs, before going to the activated pathway, first search in the surface layer for similarities. If similar, it then activates the surface rings. When any rings are activated in the pathway and give their output after making confirmations, and then again incoming input searches for the surface-layered rings. If any ring is found similar, then the model activates that ring. Meanwhile, the previously activated ring in the pathway should re-organize itself and attach to the surface layers. This is to mimic that in the next incoming input, the rings should continue from where it ended. And also, similar rings are easily activatable in the brain; in order to replicate this, we are making the model to re-organize itself easily to present with the similar rings at the surface to get easily activated.

So if this is the case, how will the surface layer contain mostly activated rings if it re-organizes frequently? Remember, we have changed the surface layer into a hierarchical layer where the first layer will contain the mostly activated rings and the re-organization is going to happen at the last layer of the surface layer. This will make the first layer to have mostly activated rings and the last layer will have similar rings for easy activation. Hence, both problems can be solved by making a surface layer a multi-layer.

This activated pathway gives outputs, and this output becomes input and searches for similarities in the surface. This continuity in output meaning is maintained only if the output

can find the similar rings at the surface-attached rings to continue the thought generation from that output. This is achieved as the output becomes dominant over time. For example, we used to ask a "where" question more than all the answers to the whole "where" question thoughts combined (as they are all different and used few times only, but "where" remains the same and is used multiple times). This dominance will bring the dominated output as the output from the activated pathway. Since this dominated output is going to be frequently at the surface, this frequent output will become the frequent input. So the thoughts related to this frequent input will become frequently activated, and then these rings will come and attach to the surface layer. This dominance of some rings sets the organization in the rings at the surface, which will give smooth thought generation.



We need to create a function to optimize the energy that is introduction of indexes to the activated rings to reduce chaos and give meaningful outputs.

If there is a model that frequently asks what is that, why is that, where is that, how is that repeatedly then we can assume it become intelligent.

How do we feed the model with languages, currently images can be fed but how about languages?

Languages are meant to be connections between the images. The purpose of languages is a quick or shortcut or substitution for a series of images that is required to get the output. If we rely on images alone, we need a sensual experience in order to further help in the image processing and using them as tools. So languages need to be used as a tool as it will be easiest and most efficient.

If we treat languages the same as images and store parts of the language like spots of the image? Is that good?

Yes, it's the same like images – languages are separable, meaning resides in the parts (not in the whole). Spots of the image are the same like parts of the language – both define the small uniqueness that is present all over reality. And the brain learns language by parts, not by the whole, same like images.

Tag the audio ID and send it to the mouth function while retrieving, not to the eye function. Both image and audio IDs will connect based on their simultaneous exposure to the model. Both audio and image spots should be retrieved like normal.

This intricate network of facts only gives meaningful output when the correct re-occurring rings manage to re-organize themselves. Or else, the output would be chaotic or meaningless.

Sets of inputs like spots, parts of images, and sound are meaningless when seen separately and meaningful when seen in a continuous fashion.

If we give languages, at least we may have a chance to create thinking. Because languages act like tails to the event like visuals. End tails are languages of the other visuals, and they help in connecting to the next tail of the visuals.

Inner images of any event you store along with the observing event and associate them with other inputs that are related to that event like sound or environment. These unique inner images determine the behavior of your thought process or creativity. The brain is good at selecting random images from the event and associating them with the dominant stimulus at that time, like sound.

These inner images of random selection from an event can be visuals, sounds, or cues. In this way, our languages' grammatical speech is also stored. How?

Grammatical speech is complex and requires many cues of inputs confirmation, and the brain's way of processing this problem is random selection pairing with a dominant stimulus (a requirement for most of the time, as our modern environment is mostly designed with questions and answers), which then leads to the required acquisition of an inner image (required acquisition is forced by the dominant stimulus, mostly a question or requirement). The same goes for all other complex processing, like maths.

This random, but somehow related to the required information, may lead to chaos or creativity in the thought process.

Complex things emerge from simple things working at a large scale. In that case, how will instant memory retrieval of visuals and audios lead to thinking?

Including retrieval, there is also re-organization of memories happening. Is this enough?

Instant retrieval gives parts of the stored information; re-organization influences what next parts to be retrieved. Is this thinking?

Thinking is retrieval of relevant stored information, and this relevant stored information influences the next parts to be retrieved + questioning.

Re-occurring rings will develop the storylike connections within the rings. In the brain, the output of one part becomes the input to the other parts and activates the necessary parts of the information, and this forms the connection with those parts. Not all parts will connect to other parts; first, a group of parts that gives meaningful output will be activated. This group of meaningful output will become the group of inputs, and by similarity check, these groups will be used to find the other correct necessary group of parts of information, and then this will be activated. In this way, a story can be created, and connections between subsequent meaningful parts will be stored.

Meaningful is required to find the similarities; hence, the story can be achieved by having a connection between the meaningful groups of parts.

How to make this model to connect with the important part of the group of meaningful information?

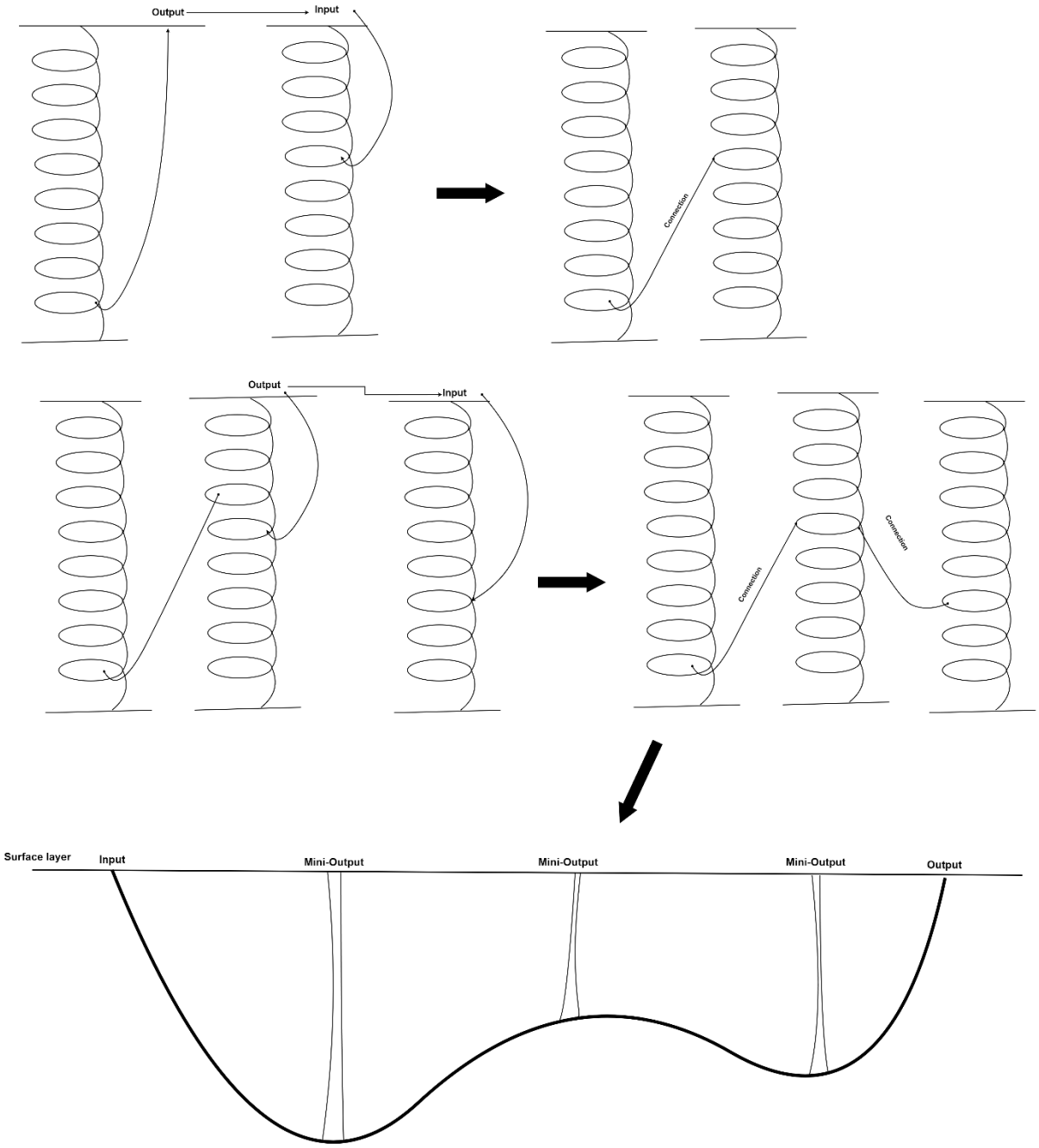
In the brain, as with the dynamic system mechanism, by frequency and plasticity the sequence is stored in the flow of impulse force and neuron connectome. For example, "a place" – part 1 and "where is that place?" – part 2. How does part 1 connect with part 2?

The story that we create by the re-occurring rings places this connection. Find how the storylike information can be created or emerged. Storyline is created from the understanding. Understanding is nothing but combining a sequence of information in a rightful way.

Rightful way is the series of matching of output turning to input, and then this input activating a suitable part of rings. This output-to-input and input similarities matching with stored ring parts creates a storylike sequence, and hence the group of parts is connected with an important part in that group of parts.

A group of parts can be so much used it will become a wiggle connection in the brain, but in the CRX it can be a direct output. Since connections are being formed, the mini-output can be avoided once the connection is formed. If there are two or more connections in one ring part, then how to decide? Make it run the one connection and then make it numb for the next few iterations. This will allow for the next connections. Because we are making the

model to iterate over multiple storylines, and by again processing with questions, we can get the answer.



For example – house + previous state = previous state will activate information like old state of the current, then it leads to "of what state." This question will force us to look for the next input, house, and then we say that again, like recalling the same information: "old state of house." It does not ring any bell or further confirm the statement. So, it is dropped. There might be another definition to previous state, but it all leads to one common ring: "old." We might have said it differently, but we store them uniquely. If an output comes to your senses, that is the end of the group of rings, then it can continue by using the next input from the environment or from the re-occurring rings. Think about doing mathematics – $1 +$ the

question that arises is what next number; we will look for the next number to add, 2. First, we understand the former thing that will give rise to questions which pushes us to see the latter thing, and both are made sense by recalling it again.

How will previous state influence the future state? Every time the current event demands previous state, it is accessed by re-occurring rings, and then they are processed in a storyline. Languages act as a storyline, and it connects events.

So, intelligence is all about the thought process being influenced by a series of events guided by languages (with some exceptions, like some events itself guide the series of events, in that case languages will manifest as communication output). Event that we see get stored into our brain, with our brain's familiar language (like familiar events, familiar speech sentences that are stored in the ring series).

Branching in the ring tree

The branching should not be seen as a separate form of ring trees; instead, it should be seen as another ring tree. The input similarity can be checked in main nodes. If similarity is found, then we extend the nodes, or if found in branches, then we extend the branches. If it is initially found in nodes then to the branches, a connection should be formed between the nodes and branches. If initially found in the branches then to the nodes, then a connection can be formed. Branches are also capable of getting attached to the surface layers.

The ring tree contains a diverse amount of groups of small information. So, no ring tree (main node + side node) will hold the same information all the way to the end. So, we need to let it make connections; thus, the connections will connect similar information, and thus a meaningful output can be achieved.

If we treat branches as the same as a node, then searching through all nodes (main node + side node) for similarity is a big problem that we have to solve. Our routine will make the rings to attach to the surface layer, and windows (frequently accessed rings in each ring tree) are included to reduce search complexity.

How will questions influence or navigate through the ring trees and give the meaningful output? For example, how will the model answer if it is asked, "what were you doing at 1pm?" Here, this function will not have any connections to the work that the model was doing at 1pm. Then, how can this work rings be activated? There is a series of background questions that we don't know but are happening to answer these kinds of questions. Find what questions are required and how will it activate the 1pm work ring trees. Here, the 1pm might have a connection to what the model was working on. In every question (questions are a guessed question-type information that is stored as long as it has the capability to receive the correct answer; these question-type information are specific and they are unique to each brain), there might be some words that are directly connected to the correct answers. Our brain will ask many questions until it activates that correct output. For example, "what were you doing previously?" Based on the situation, it can be rephrased inside the brain as "what work were you doing in the morning?" Morning = 9:00am and the model might have done routine morning work of answering mails, and one mail was

received at 9:00am. In this way, the rings are activated based on their similarity with question-related words to the answer and give that as the answer.

The Imagine Agent

The image generation from the sound input should also act as confirmation to proceed with the thought flow that is guided by the sound inputs. If sound input activates a ring of visuals, these sound-activated visuals should help the model to get confirmation when traversing through the branch or node for confirmation to proceed further. For that, we need to create an agent to get the output from the model and make these outputs to be in an imagined state of an image rather than in a physical image.

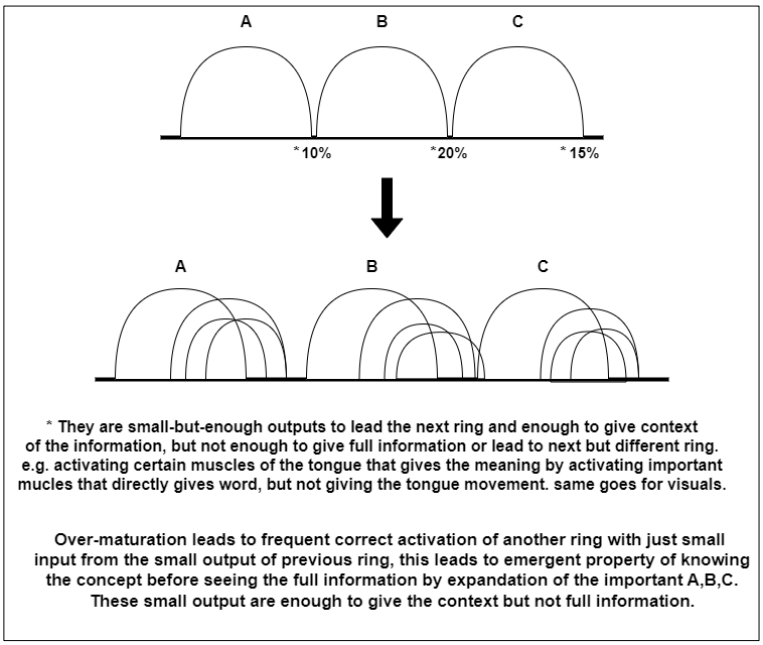
In the retrieval state, first get confirmation from the imaged state of the images. If not there (no image or no confirmation), just go to the Focusing Agent physical images. The Imagine Agent is unique in that it will keep the images for a short time. These imagined images will guide the thought process of the model. Only the visual outputs should get into the Imagine Agent. The Imagine Agent should hold the last processed 3 visual outputs. After one-time usage, it should be deleted.

Tongue movement according to the inner speech acts as imagination for sound information, and the purpose is the same like imagination for visual images in the eye. So, we need to let the Imagine Agent to act as imagination for both sound and visual nodes.

A good output will ensure a meaningful stream of the thought process. A good output is the output that, when it becomes the input, will activate another meaningful group of rings necessary for the current problem. As this model gives all output (including the mini-output), this will cause the same thought to be re-activated again without meaningful diversion in the thought process. The output is re-checked for similarity throughout the ring tree. So, as no ring tree will contain the same information, the mini-output will help to lead to the activation of a similar group of rings in the ring tree. The end of the similar set will be re-checked as usual, and another meaningful similar group is activated. In this way, a good output is re-checked to lead the meaningful stream of the thought process.

But one group's similar rings will have similarity with another group's rings. A set of rings should be checked for similarity, not just one ring.

The Emergent property



There is an emergent property where we can clearly see the concept before it was audio or visual. How? Find that. It happens after the maturation or at the time of more meaningful output per output.

Over-maturation leads to few but enough outputs to lead to the next ring, but also enough to activate few neurons at the visual or sound (tongue movement), which gives the context of the full information. Like activating enough-but-required neurons at the tongue to get the context but not enough to move the tongue. The same goes for visuals: it gives the context but not enough to give visualization. This is achieved by the de-stabilizing mechanism (in CRX Lite, removing the unnecessary connections) within the brain.

The de-stabilization mechanism removes unused or connections that are useful but not important to give context of the information. This will ensure only the important but necessary to give context connections are spared while unwanted connections are removed.

Secondary connection + branch role in creating order over time.

There is no need for extra data to create a secondary connection, as that extra data will, in the next time, be the main data and will help to create the new second connection from the newly created second connection (now becomes the main connection).

Sometimes, the node match may not be consecutive, but over time, as branches accumulate important nodes in the correct order, it will help to create a cross-connection. Even if not connected now, after some time, the branch will create order which helps cross-connection created later.

Ring tree nodes are like raw materials or mixed information. Branches take those meaningful nodes and arrange them in order. If nodes increase in the ring tree, it will help the branch to get bigger and meaningful.

The brain's or CRX's intent to consume one information in multiple ways is the attempt to store it to chance any one way of information that will get stored with the help of adjacent inputs. In CRX, it is an attempt to store it in any one of branches, nodes, or cross-connections.

Sound inputs vary between each node, but visuals do not vary that much within each node. That is, sound inputs are easy to retrieve and also only by more training are they retrievable, unlike visuals which are retrieved very instantly.

System 2 / The body

It can be considered as the body of the model, where it receives the inputs from the world. And where the outputs from the brain are expressed by body movements. The sensors like eye, ear, body movements, and speech are connected to System 2. From here, the inputs are transferred to System 1 - The brain.

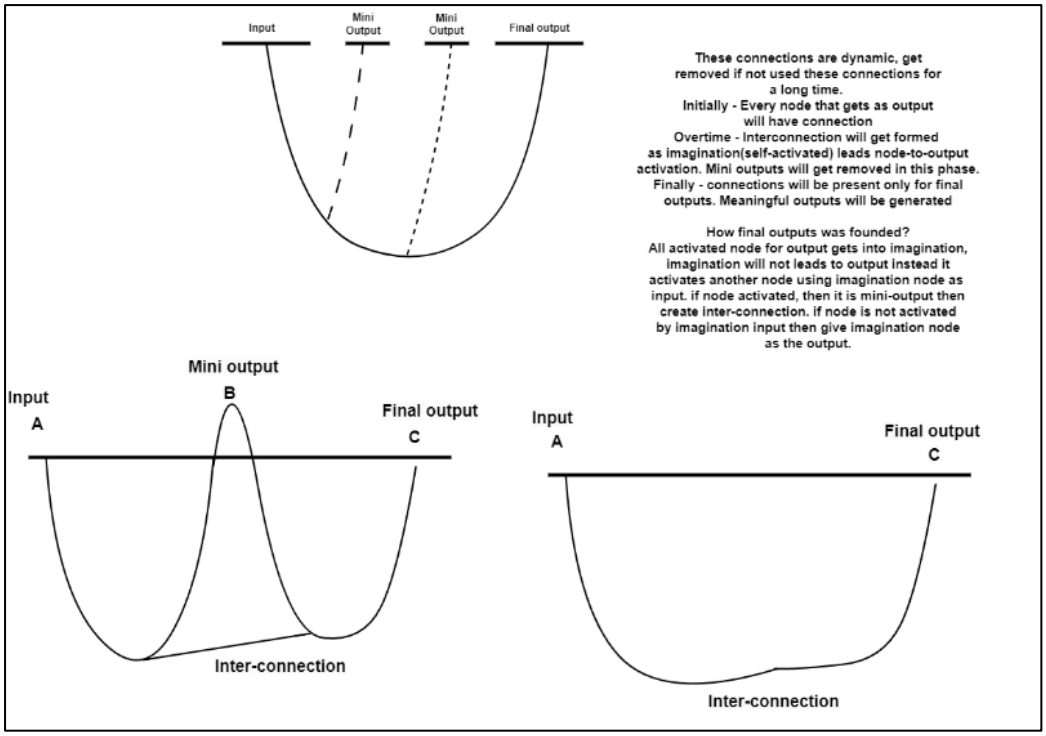
Hearing agent

Should only work a function to get audio from external environment. as audio-to-speak out was done by the virtual person's speech sensor. Hearing should be able to get attention(stopping the running loop, activate the rings based on the incoming inputs), just like external visual of focusing agent.

Imagination

We need to create connections for nodes that are activated in testing and are ready to go out as output. Remove the connection if not used very often. Interconnection will help to finalize the final output by assisting in the removal of mini-output connections. This will lead to increased logical output and reduced noise. Since almost any node on the imagination will act as an input to activate nodes present in the ring tree, how can connections be finalized? First, not every node that gets into imagination will activate a node inside the model, and secondly, nodes that have formed a connection, if they get activated by other nodes, the connection count increases as well. Both not all nodes are the same and node activation will increase their connection count, which will lead to the finalization of connection counts that produce the final output. As output connection gets stored in imagination, over time only final outputs (high usage) remain in the imagination. In this way, mini-output gets reduced or noise is reduced.

We need to store the rings for speech inside the ring tree, so that they can be used like muscle movement. And they will become the final outputs within the imagination. The final outputs will be muscle movement, speech, and some important questions (that we sometimes ask ourselves) because of their high external usage. The nodes coming into the imagination before going out as output—the imagination only stores the nodes that are frequently used and got into imagination. This is the way to finalize the final outputs (frequently used), while minimizing the mini-output (not frequently used).



Simulation should be inside the ring tree or inside the model/System 1, so that organization is possible. This decision is influenced by the brain's mechanism of neuron impulse force and uncontrollability + neuron movement within the brain – they all are influenced by the dynamic system's force inside the brain. Then how do we mimic this dynamic system?

Is blind training enough? I think I am missing something here. The model can store and organize these inputs, but does it understand it? Does it make sense of it? I don't know that.

Without experience, it would just be blind training. What is experience in this context? By experience, I mean the memories of similar but unrelated connecting nodes.

(An information that we don't use every day is not understood information, e.g., some concepts in quantum mechanics – some concepts in quantum mechanics will find similarity by changing the concept we use them in everyday. And information that we use every day is the information we understand.)

Emotions as intelligence fuel

During our childhood, emotions force intelligence into our brain. That is, children are more emotionally sensitive.

Somehow, emotions are like a liquid that gives flow to the thought process, working all the time (but we aren't aware of that). Emotions start a thought, and linearity of thoughts ends those thoughts.

Emotions will turn the raw storage information into an organized thought process. The neurotransmitters are responsible for creating a dynamic system in the brain which will start the thought process, but it is further assisted by linearity of thoughts and ended by the same linearity of thoughts.

Emotions create a subsequence, which, if connected by the input, will give a simulation-like effect.

Different regions in the brain with their neurotransmitters kind of help the intelligence to be formed in a logical way (not in an illogical way like feeling sad for winning an award), like an input-to-output bound within these regions. One region finds it important, another region releases more chemicals that increase the focus in response to the first region. This gets more information about the situation. Now, the brain has a first information that is tagged as important and then a surplus of stored information about that event – this directs to logical feedback to find if it was important and take more information if yes. Like this, brain regions' natural way of functioning relates to the logical way of thinking which creates intelligence. These brain regions only suppress or excite those brain regions in response to the I/O bound.

This suppression and excitation is the reason for the logical way of storing the information (emotions start this process), which can be retrieved in the logical way (ended by linearity of thoughts). A normal information in the environment is made logical by these regions and stored that logical information into the brain. Brain region workflow of excitation and suppression will influence the workflow of the thought process. One region's output will change the workflow of the brain regions.

A brain region with a distinct function will try to process a different set of parts of the same information, so they will take different importance from the same information. For example – from eating a food, the cortex will take the procedure or texture of the food, emotion centers will take the pleasure the food gives. Emotions like identity and pride are also stored. So, these functions will take these regions' destined = different sets of the same information.

So, normal information is converted into a logical information if each region's distinct function takes their important part of the whole information. A surge in neurotransmitter amount in the amygdala will influence the neurotransmitter quantity in the cortex, helping to strongly store their important information. So, natural information (like hunting, movement) contains parts that are special to each region of the brain. It sets the foundation for artificial information (like games, modern food).

If we take the basic and common parts of the natural information or information that children like – it has foods that give pleasure, body movements that fire up the neurons in the brain, attention-inducing information – all these kinds of information's nature is to increase the neuron firing by helping it release more neurochemicals. So higher firing is related to the important part of that whole information.

So is it okay to design brain regions that like to fire up on making body movements, eating food, and attention? Does this create logical thinking?

One region's activation for that specific information will give activation energy for another region. For example – if movement regions get fired, it will give energy for the emotion region to get activated. This activation energy from all regions will give logical thinking.

Activation energy is the energy required to form a dynamic system within the bigger region, like the cortex.

It is time to understand how the dynamic system within the cortex is responsible for converting normal information into logical information.

First of all, logical information is nothing but the evolved form of a story or more amount of story, and if we consume them in a logical manner, it will become a logical one. So, the question will be: how does the cortex convert a normal information into a story? And the story is like which comes first and which comes second – a relatedness, an order (food comes first, pleasure comes second). Rings within the brain, due to their uneven activation (as reality is unevenly distributed inputs), will have chemical imbalance. This neurochemical imbalance will act as a signal to coordinate the dynamic rings formation, and this formation will assist in the susception of nearby rings' activation, so these nearby rings will help in the survival of that organism. For example – a dopamine surge after seeing food; this ring can pass the dopamine into the dynamic rings, and this dopamine will circulate the dynamic rings. If any ring is susceptible to dopamine presence, then it will get activated; in this instance, a ring for focus can be activated. The neurochemicals are event-specific and activate rings necessary for that event which will help the survival of that organism. Thus, neurochemicals are involved in story creation, assisting in rings cooperation, and coordinating dynamic systems formation. The terms like creation, cooperation, and coordination do not mean exactly what their definition implies; it is a placeholder to relate a mechanism where that mechanism is not organized or supervised. So, think of these terms' definitions if these mechanisms are not perfectly organized or supervised. Cooperation is one ring's activation while another ring is not getting activated. Story creation is the result of input uneven distribution which leads to uneven ring activation. Coordination is the result of chemical imbalance which, by their own imbalance, will make them like a signal.

We can say, half dynamic system formation is just a network, as there will be no interconnected components to change the entire system over time. A network just assists in cooperation, not coordination. As for coordination, the inputs have to come from all directions; many rings need to be activated. As for dynamic systems, each ring should have to send its neurochemicals to coordinate the formation of dynamic systems.

We get to know everything in a storylike way by this concept (same applies to CRX).

At least two or three rings will get activation because of external input. Only one ring activation is not possible, as we are always constantly "on" and more than one sensor receives input – eye, ear. This confirms two or three rings' activation will have multiple sources of input, either from external visuals, external audio, or internal body movements (observed through touch sensors). There should be one ring like the hippocampus to store this sequence of these sources' effects. This sequence storage helps the organism to rewind what happened, which is the basis of understanding any information. So, any information that can be received from the sensors can be stored into that storage region. Why? Because internal inputs are not getting into the brain space.

(I believe, as sensor regions like the eye and ear get more excitable inputs from the environment, which frequently and instantly change the neurons' position and their connections, the brain regions that are far from these sensor regions are used to store the

memories, as memories need a stable environment and little noise. And for all other functions like empathy and social bonding is because of some problems or position of certain regions within the brain that forced some regions to have specific functions like encoding memory or social bonding.)

So, the storage region stores the sensor input in their neurons, and by activating them back, we get the output in a storylike format.

How to achieve the same thing in CRX?

Currently, System 2 (the body) sends the inputs to System 1 (storage region), and it is stored there by the Focusing Agent (the eye) and Hearing Agent (the ear). And the non-storage regions will give inputs which are stored in System 2 and which could be retrieved as well in the same order of storage (audio "walk 5 steps" $\to$ counted 5 $\to$ body arm and leg movements $\to$ body tired). Is this enough to conclude it will reach intelligence? Am I missing anything here that is required to make this model to store things in a story?

If the subsequence is logical, will it ever become intelligent? By this concept, all we have to do is just store the output effects of the brain in addition to storing the inputs. This way will not give complete logic, as some percentage of information will be logical (only the percentage means where only some part of the whole information will have logical subsequence and they will be connected in the most logical way).

Few of the information will be illogical, as they will not be part of the routine, so organization of that information is not possible; hence, they will be forgotten over time.

So, within the CRX, would it be enough if we just store the output? I guess not. There should be like a simulation to loop over rings activation or to coordinate the formation of dynamic systems. Why is that? When storing the information, the storage cannot bring all orderness into the information just by storing them in order (it is inefficient, as each time – we will have information in disorder in the external environment), but our body, by the help of human behavior, psychology, and psyche, somehow gets them in order. So, the loop of coordination kind of helps the information to be retrieved in order, even if they are stored out of order. The flow of loop will bring them out in order. For example – not every time we will get walk 4 steps; sometimes we get run 2 minutes. These different input information will be processed with the help of the flow of the loop, and the output will be in order. So, this flow will be the result of body sensor activation at the same time and different times.

The flow of the brain communication will increase and suppress some systems of the brain. Like after seeing food, it will increase the activity of the visual system to get more focus, while decreasing the activity of other not important systems. This whole increase and decrease (systems will always be at neutral; they are only getting activated), only activating by releasing chemicals, will kind of make the interconnectedness to be organized and gets a dynamic flow.

This chemical or signal-induced communication creates a story-like concept within the brain. Does this signal flow need to be stored as well or not? I believe there is a structured position

of each region that kind of correctly dictates each dynamic communication, even if the incoming information is not in order.

Each brain region gives a different output, even if they all receive the same input. That is because the same input within the dynamic ring will become different because of the neurons' connection of the dynamic systems. So, the dynamic system is like the connector of each brain region, where each brain region is connected with each other on their own because of their simultaneous activation by reality's ordered input. This connection acts like a little mapping of inputs or the smallest truth in terms of informational concept. This smallest truth will act as building blocks of the thought process that frequently error corrects the thought process from deviation into illogical thoughts. If these building blocks are activated by their region's activation at the same time, these building blocks will join and create a meaningful thought process.

Brain regions are like mini ring trees that process the sensors' input and extract their features and send those features into the dynamic system. This will create a unique connection (as connection between region and dynamic system will happen only if both are activated). During the run of the dynamic system, one region's output will run into another region as input, and this will activate this region to give output which will again run into the dynamic system to activate another region. This inter-connection communication will give instant (opposed to V1.0 which takes more time) self-directed thought activation which leads to a story-like thought process.

How does this brain region implementation actually give story-like thought flow? Each brain region has its own neural network to store its own sensor-related information. So, if they are activated, they would say how they received that input. For example – the auditory region says about the location (immediately sending inputs to muscle movement regions to get how the body was moved/positioned when the ear got that input), and the body movements say about the body movements-navigation of how it received the inputs. So, when all these regions say how it received the inputs, the brain takes all pieces and tries to map them back into the world, and if found – we understand that information.

How to implement the V2.0 architecture?

We need to make sure that each region tells back the way it received that impulse. For example – the eye looks north side and gets "A" and sends that feature to Simulation. So, if features of "A" go back to the eye by simulation, then it should again look north side. When trying to find something or understand something, each region will help by saying their role played in storing that information. That region's role information will be helpful in understanding that input information.

(The stick figure should freely walk around the space. Like when it receives a command like "go to eyes section," the stick figure should walk to the eye section (make it like a cartoon hole in the display) which will give an image (it is a backend process), and commands like "go to ears section," the stick figure should walk to the ear section (make it like a hole) and it will give an audio file (backend process). And make the virtual environment to look like an RPG

game style.) – The concept of RPG environment should be used when upgrading the model to make it understand more information or to form complex thought formations.

This kind of creates brain regions to have their roles, and this role information will help to create a story-like thought process.

For this model to understand things, it needs to have real-time input, exactly like a virtual world. Just feeding the model is not going to help. You can store the information into the hippocampus all the time; the neurons will organize to store everything. Without a real-time virtual world, where inputs are accessed anytime, the model will not understand stuff – understanding is getting specific information from storage and acting on the stuff. Think about it in this way: the sensors get input all the time. If it can take specific stored information from the storage, then it can be said it understands. Each brain region will take input and ask the storage for an answer. The storage, with the help of other sensors, will solve the problem of the region. For example – pain by a wound will cause the eye to see the wound and the hand to touch the wound to make it ease the pain. These brain regions work together to ensure the animal survives the problem. This mechanism (the same mechanism inside the internal body for regulating the balance within the body) was evolved to save the species, which was also foundational in intelligence, but through evolution this process got speeded up due to an over-surge in neurochemicals and higher capacity in all regions to store the information. This speed-up gave rise to imagination and self-thinking (without assistance of any input).

Crx v1.0 was built on the assumption of self-thinking to achieve any work. For that to work, it requires fully matured regions to direct the dynamic ring. To mature the regions and also be in sync with all other regions, we need to feed the inputs via a virtual world. Initially, we need virtual-world-type inputs for organizing and getting everything in sync. Once matured, we can simply allow it to self-think to achieve any work.

For v2.0, we need to create a virtual world where the model can freely move and get demanding input for the model from the virtual world. The model should have sensors like human sensors. There should be a ring tree inside each brain region to store the necessary information about the world from that sensor. Getting information sufficient to create a virtual world is another major problem.

We can have a set of boxes, like visual, audio, smell, body movements, etc. Once the model gets to one of these by commands from the model itself, we can give demanding input to the model. This is like a simulation, which is easier to create than a virtual world. But intelligence demands more experience with a diverse set of inputs; a simulation cannot able to give that.

Our only hope is replacing the work of those brain regions with supervision. Then it will just look like a man searching for information inside the ring tree, and the model will behave according to the supervision commands. This may look like it is not the objective of this idea. The model should be dynamic, self-organized, and adaptive, not a model that was supervised for every step.

We can show the model's working mechanism with other methods, like a limited, modified virtual world that is suitable for this limited, simple model. The important point to prove is how brain regions' communication can get meaningful and required information from the ring tree. An RPG style, where the model can access the brain regions at different locations. This accessing at different locations by walk by the model gives a storyline to the information that the model receives. This storyline is then retrieved with the brain regions talking with each other. The storyline is a way for the system to store information in order. This order/storyline can be used to retrieve the information in order.

How does this simulate the brain by exactly copying the inter-talk of brain regions? All we have to prove is that inter-talk between brain regions correctly and meaningfully gets the info out of the ring tree. Inter-talk gives dynamic system formation, or their sync in talk gives self-directed output generation from the ring tree.

The model acts as an impulse that travels between the brain regions. The brain regions are situated as sources in the RPG environment to provide demanding inputs.

Guiding sensors, like muscle movement sensors, send instructions that help non-guiding sensors to get actual inputs. Guiding sensors, like muscle movements, move the muscles to get inputs from the eye/ear. So, regions are instructions and non-instructions—how to implement this in Crx?

Non-instruction-based regions give an output to an input only if there is a connection between the output and input that formed during the training period between the brain region and the dynamic system (e.g., audio of an object as features to the visual region gives partial features of the image of that object). Instruction-based regions have the capacity to move the body, which will influence other sensors, like the eye, ear, and touch sensors, to receive inputs. And muscles are not moving to every movement command? Initially, the movement commands are associated with actual muscle movements, but over time these muscle commands are linked with the events in our memories. So, the actual muscle movements are linked with motion-related sensors, which are again linked to the final output from the brain after a careful review of the inputs. If someone says "run," after careful thinking, the brain gives an output which either activates motor neurons or does not activate anything. The muscle movements are linked with the output command from the brain, not with the command input words.

The instruction-giving regions are only important if inputs need to be searched in the environment, where they will lead the non-instruction-giving regions to get inputs. In a modified environment where inputs are easily accessible (like using a smartphone), there is no need for instruction-giving regions.

What outputs will those regions give if the input was from storage? The output will be the actual input that the regions received, while the other regions actual input is the reference input to that region to get the actual sensed information from the environment. (The only thing we needed in v1.0 is that eyes, ears, and speech send something in return as a response to input from the storage. That way, a directed retrieval of information is possible.)

For now, only the storage is going to run complex systems like 1 -> 2 -> 3 -> 4 -> 5, while the regions are going to run simple systems like 1 -> 2. And we use the output of the complex-run storage as the input to those brain regions. Brain regions are the direction setters of the information retrieval sequence process.

The storage function has an inbuilt method to confirm the retrieved information via a focusing agent (dual process) and a hearing function (get next sound function). These are all just to continue the system run with the same information. But this confirmation with the brain region will divert the system run with another input. Inbuilt is for continuation, and out-build is for diversion.

Languages help in getting logic into the brain very fast; they speed up the process. The brain stores information in order (brain regions assist in the ordering); languages just help the brain to store and connect things much faster.

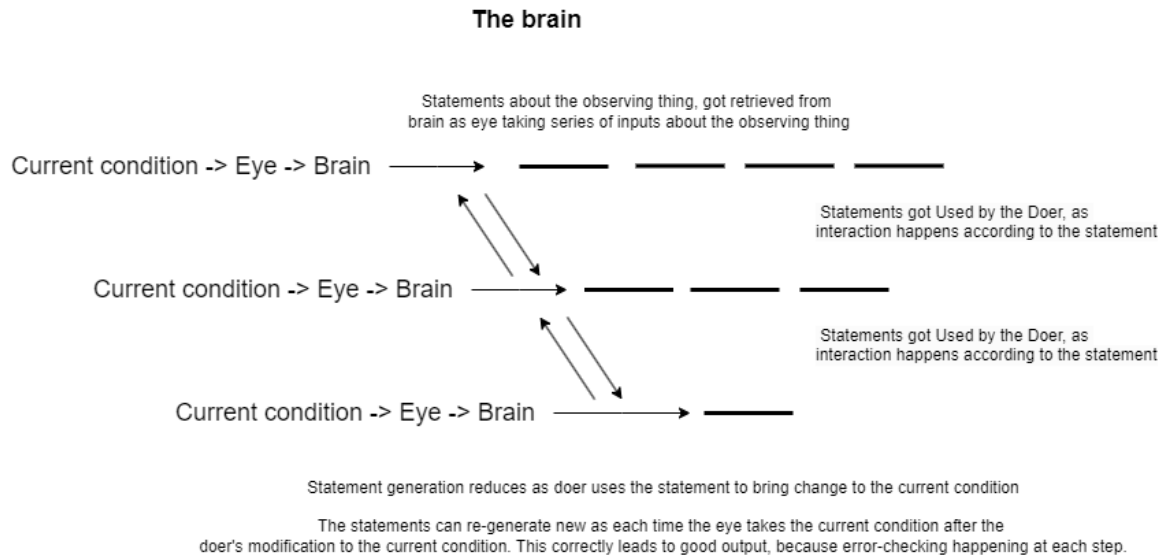
Other Points -

Ring Tree

Ring tree is the storage pot that stores the information in the form of rings, and it can be retrieved easily by the similarity between the scenes that were stored along with the information as rings and the scenes that are coming from the focused eye.

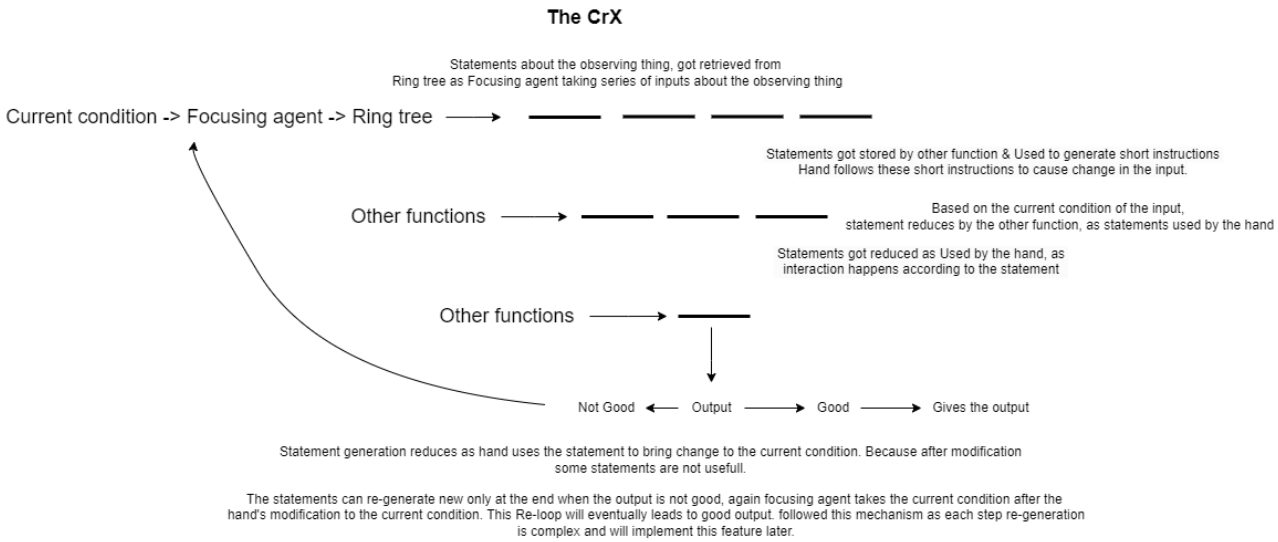
A Hand – To be implemented

I have designed the brain and body (only the hand has been implemented so far) of CrX to exactly replicate the mechanism in the human brain and body.



After the focusing agent (eye) sends a series of images to the Ring tree for storage, this stored information is retrieved when the same focusing agent sees the same image again. I have included a function that generates words based on the series of images, and these words are stored along with the images. Upon retrieval of these images, the words associated with them are also retrieved.

These words are considered statements about the series of images, and these words/statements are being used by the hand to interact with the world. While we could use the images for interaction, the logic of programming languages is not well-suited for creating that type of interaction. Therefore, I used words, which are easily understandable by the language, as programming languages require specificity, which can only be achieved with words, not images.



The hand's function was to modify the incoming input using the statements or rules retrieved from the Ring tree after the focusing agent analyzed the input image. For better testability, I used ARC-AGI puzzles to be solved by the hand function, utilizing the rules about that puzzle that were stored within the Ring tree with the help of the focusing agent. ARC-AGI puzzles are a combination of small rules, and by combining these small rules in the correct order, we can obtain a straightforward solution to solve the puzzles. If those small rules are not stored in the model, then no amount of training will help the model solve the puzzle.

This retrieval of those small rules upon testing is known as the creation of knowledge. The creation of knowledge equals a bold guess. These small rules can be changeable as more input is given to the model to increase similarity, which will lead to a more accurate retrieval of small rules.

Instruction

Statements from the Ring tree are used by another function to create short instructions, and these instructions are used by the simulator function to manipulate the input accordingly. Instructions serve as a way to communicate to the simulator what to do with the object. Instructions are also the means to give commands to the hand to manipulate objects. Since the model is not conscious and therefore doesn't know what it is doing, it will not identify important regions or even try to do so. As this is a small model, we need to provide some in-built methods to identify important regions or information about the inputs. Therefore, to help CrX know what to do, we are creating an in-built guide to identify important regions.

Sphere* - Not needed, but may be required in the future upgrades

The *Sphere Act** serves as a guide for the model to identify important and meaningful rules/logics within the input and provides those same meaningful rules/logic in the correct order, which helps in solving the problem.

The *Sphere Question** directs the model to store important points about the source by asking meaningful questions in the correct order.

The *Sphere Answer** retrieves those important points and presents them in the correct order to guide the manipulation in a correct way.

In-built functions - Not needed, but may be required in the future upgrades

In-built functions act as an extra brain. Some functions performed by the human brain can only be replicated if the model is conscious (to obtain real-time information) and mature (understands most of the incoming information). Therefore, to assist CrX with the required knowledge, we have created functions that, upon activation, provide instructions that a mature CrX would have given. Since these instructions are man-made, it does not matter whether CrX stores them or not; if it receives the instruction and produces the output, that is sufficient.

As these are separate functions, we can use Reinforcement Learning to train these in-built functions to provide the correct output, if necessary. However, that is not the intended way to build a good model, and I have not started or intend to end this model using that approach.