Memory and Learning

by Archer Crosley

Table of Contents

Welcome

I began this dialogue because I had hit a plateau with my learning of Spanish. Why couldn't I take my Spanish to the next level? Was it me, or was it the ineffective way Spanish is taught. Why can a baby learn under immersion learning, but I can not?

Memory

What is Memory?

Memory is a ribbon of CHONPS (Carbon-Hydrogen-Oxygen-Nitrogen-Phosphorus-Sulfur), pronounced as CHOMPS, imprinted on a master neuron that is laid down as a film strip of "proteins" that is on a ribbon, or a set of concentric spheres, or a clam shell that continuously grows. Obviously, there can be other elements involved in the CHONPS ribbon.

Because memory is a "protein" for lack of a better word, it can break and become rearranged. Thus memory can bleed forward and backward in time, or side to side in real time.

Memory is replicated for redundancy in cloned cells. I haven't decided yet how this is done, but it would seem a piece of cake for the body to do it.

How are Memories Stored and Sequenced?

The deeper memories must be stored deeper into the neuron with the strings being added on in some sequential pattern. Biologically it seems easiest to believe that a spiral conch shell would be the logical way as nature has chosen this in other species for other purposes. Plus, there may be a natural logarithmic Fibonacci sequence that can be used to rapidly access a memory.

So what is long term memory? It is a conch shell of layered proteins that exist for the various senses. These independent conch shells are replicated for redundancy and they are cross-linked to other conch shells for the other senses.

What or Who Accesses These Memories?

Are we just a logical, deterministic flow of activities? No. The metaphysical YOU finds these memories. It is a force that can not be defined by the sum of its parts. It has free will to do what it wants. In the emerging baby, its movements are at first chaotic and without seeming purpose. The YOU can go wherever it wants over the landscape of the brain. It can live in memories, or it can engage in motor activity. Or it can think.

Long Term and Short Term Memory

Do we mean long term vs shot term or permanent vs ephemeral?

Permanent vs ephemeral is where you hear something so many times the pattern is ingrained and is less likely to go away. All proteins degrade. The permanent memory is an ingrained CHONPS in the brain that is associated with certain images that are ingrained. It is the ingrainedness that makes them permanent.

Long term vs short term is located in the conch shell ribbon of hearing or visual memory. They are located in two different areas of the shell in a scalar or dimensional sense.

How Do Memories Become Stronger?

Memories become stronger when the memory pathway or thread becomes thicker or more robust. By becoming thicker and more robust the molecule is less likely to be degraded. For example, you have heard or self-reinforced your name so many times, that the molecule for that thread becomes near inviolable.

What Memory is Not

Memory is not a series of electrons stored in binary mode on the molecules in your brain. If it were, electroshock therapy would likely cause a total wipeout of the memory. If that had ever happen with any consistency, the entire procedure would have been eliminated from the get go.

Plus, I really don't like computer people, nor do I like anyone from Harvard or MIT. It is my general impression that they would try to foist a computer model upon memory. I hope they do.

Parenthetically I never liked Marvin Minsky and other pretentious people who run around and allow others to refer to them as *the fathers of artificial intelligence*. Was he guilty of all those things he was accused of doing with regard to Epstein? I don't know, but I do know that MIT and Harvard confer an arrogance among its students and teachers that makes it more likely that they would engage in risky conduct.

Now, it may very well be that there is a physical component to memory that yields the equivalent of a binary code of sorts. I can easily see that happening.

Since all sensory information begins in a pressure sensor whether that be light, touch, olfactory, taste, sound, I can see where a triggered electric signal could induce a neuron corresponding to that sensory cell to lay down a memory molecule somewhere that would be

the equivalent of a “1”. What that molecule would look like, I don’t know. Whatever it is though, replaying it must reproduce the image, sound, or tactile stimuli. It must feed back into the “present time” awareness apparatus.

How Does Memory Bleed

In the model I list below, Life In The Neuron, memory can bleed from one frame to the next when the neurons, the memory writers are under stress from catecholamines and jacked up neuromediators like epinephrine, norepinephrine, dopamine and serotonin.

How does it work? One way it could work is to force the memory protein pumps to work faster than the memories can be congealed. Thus too many pies are coming off the assembly line for them to be packaged effectively. They jumble up.

How Does Innocent Non-Organic Confabulation Occur

One way that it could work is to have two memories or two stories that are placed in the ready list. Then through intermingling, the end of one story can be attached to the beginning of another. Apparently then concepts and complex memories can be mixed.

Language Acquisition

Why Can Babies Learn Languages Better

Babies do not have any formed patterns to cycle through. Plus when we as adults try to learn a language we try to force the new language through the mold of the old language. Kids don't do this. The rhythms and grammar are part of the vocabulary. As adults we take shortcuts. We are less willing to immerse ourselves because of time constraints. A child has all the time in the world to learn a new language. Plus they want to fit in. As adults we care less about fitting in.

Evolution of Hearing

The important thing to remember about the cochlea and the organ of Corti is that these structures are an outgrowth of the brain and not the other way around.

In rudimentary form the brain has one cell. This one cell receives pressure differences from different sides of the cell. This causes protein accumulation on one side of the cell or the other. Ontologically this is how hearing develops. Hearing is pressure differences. Human hearing is a sophisticated form of detecting pressure differentials.

What hearing represents is a three dimensional protein CHONPS accumulation inside the master neuron.

These pressure differentials coming from sound produce proteins within the master neuron. That is what language is.

As the same sounds are replicated those channels are reinforced and made stronger.

In time sequences of sound rhythms are associated with events.

How are different speeds, pitches, textures represented?

Vowels and consonants obviously are given their unique signature on this 3-D wave. Pacing and texture is easy. Pitch may have something to do with the thickness of the wave itself.

In this manner a sound is made into a hard memory.

It is stored as a continuous string.

Language Acquisition

Language acquisition is an assimilation of patterns.

Sensory data goes to the ribbon neurons where the rhythms are imprinted. It's a long continuous rhythm strip. The rhythm strip can be cross referenced with other sensory data strips with regard to time.

The YOU can run over these patterns heard and sense similarities in patterns. These are associations between sounds and sights. Connections are made and encoded in the understanding part of the brain.

The ENLIGHTENMENT part of the brain are the master neurons responsible for encoding connections. This is the "enlightenment" part of the brain. Connections are written down that can be run over by the YOU to recreate thoughts.

In this way, a baby can connect mama with a visual image of mom. These connections are reinforced with praise, smiling which releases neurotransmitters which cement the protein structure.

This is more difficult to do when the baby is unsighted. But there are touch rhythm strips also.

It is essential to have a continuous strip of all auditory data so that two points in time can be connected. The connections can be reinforced by the YOU at will.

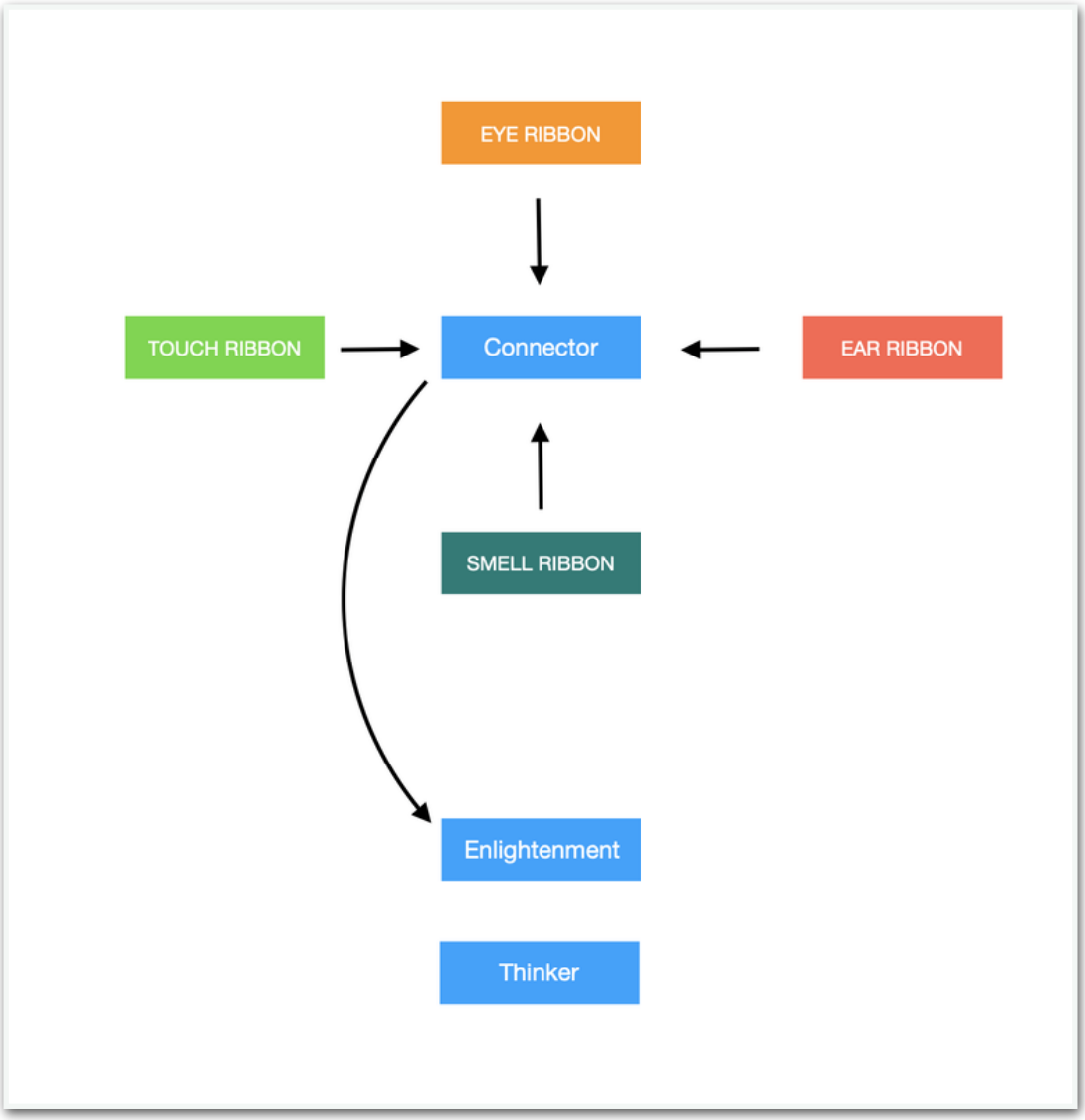
A language then is stored in the master neuron responsible for that assimilated and self-defined meaningful sequence.

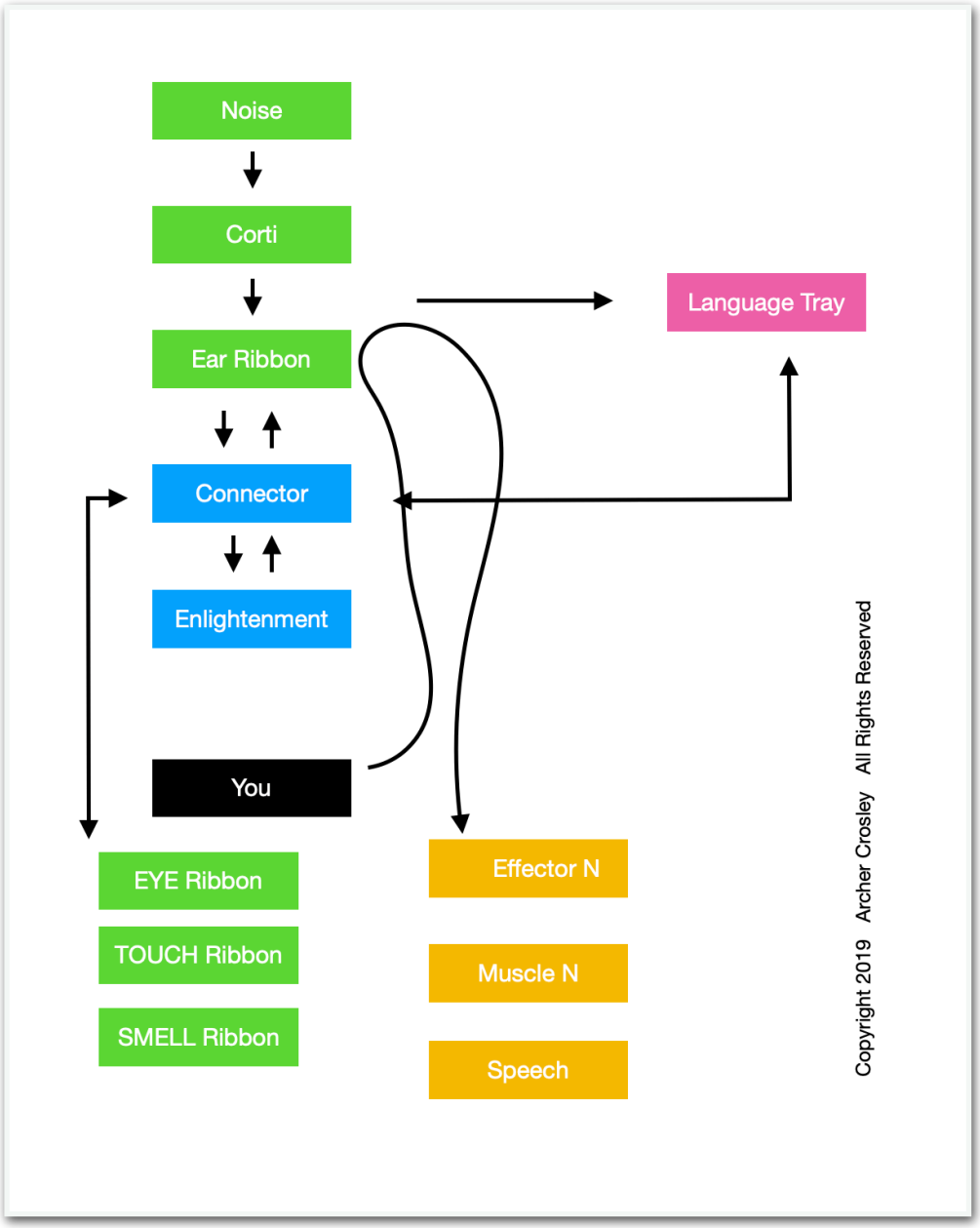
The sequence is in analog form. The baby does not know words. The baby only knows strips and associations.

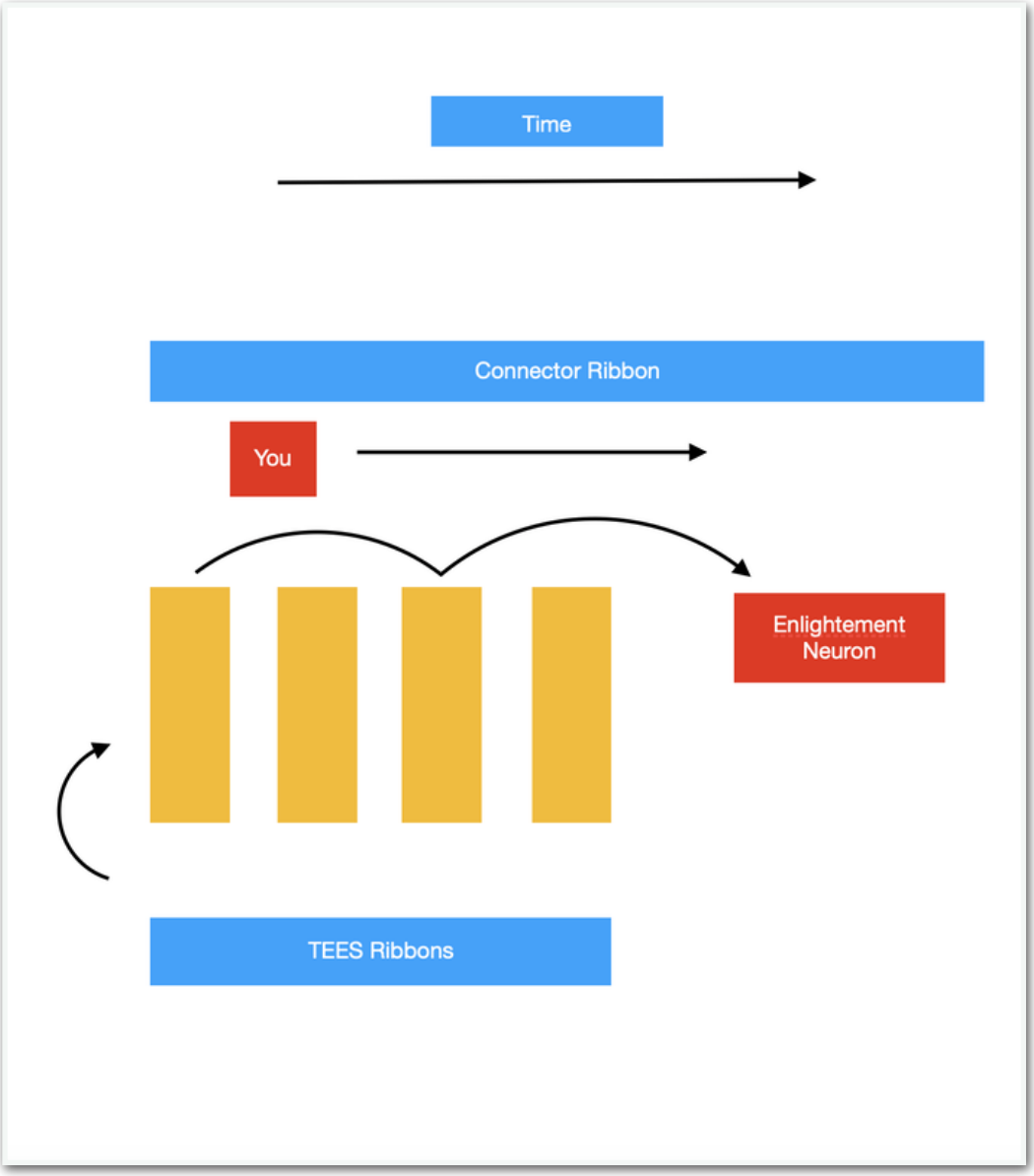
Babies understand meaning before words.

Babies understand before they can speak.

Speaking is a motor skill like throwing a baseball.


EYE RIBBON
TOUCH RIBBON
Connector
EAR RIBBON
SMELL RIBBON
Enlightenment
Thinker

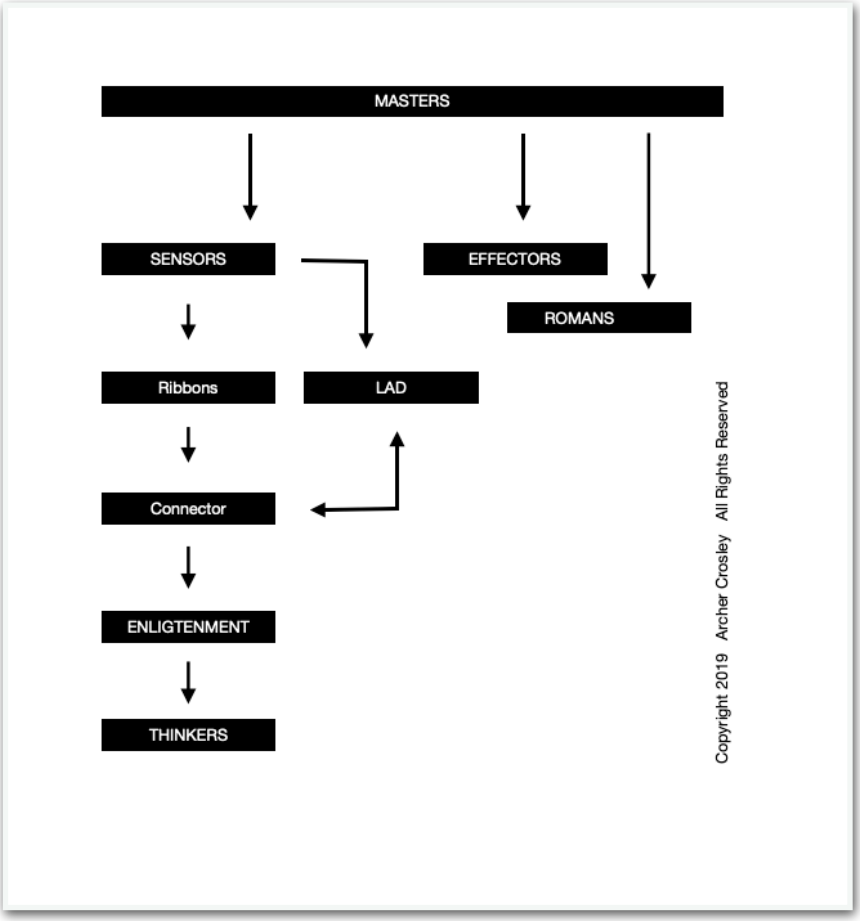

Noise
Corti
Ear Ribbon
Connector
Enlightenment
You
Language Tray
EYE Ribbon
TOUCH Ribbon
SMELL Ribbon
Effector N
Muscle N
Speech
Copyright 2019 Archer Crosley All Rights Reserved


Time
Connector Ribbon
You
Enlightement
Neuron
TEES Ribbons

Embryology of the Neurons

There has to be a logic to how the neurons evolved. They can't all be the same. The brain is portrayed as a jumble of neurons that go from one portion of the brain to the other. There doesn't seem to be any consistent and rational explanation for how these neurons got to where they're going or why.

We have located the areas of the brain that serve specific functions or that contribute to specific moods or judgment, but that’s about it. Progress has been slow.



Master Neurons

These are the master blasters from which all neurons come.

Where are the master neurons located? I cannot tell you that; they could be located together in the motor cortex, or they could be located somewhere else in the brain. The important thing is that they're connected with each other. Topologically, everything in the brain is connected, so it makes little difference.

Sensor Neurons

These are neurons we all know and love. These are basic transmitter neurons that go from the sensory apparatus (Eyes, Ears) to the Ribbon neurons. The SENSORS are responsible for storing the information as it comes in. The CHONPS strips are kept there. It's possible that this is shipped off site at some point.

Ribbon Neurons

This is where the memory is stored in a continuous CHONPS ribbon. It goes from birth to death continuously laying down proteins. It never stops or rests. There are ribbon neurons for each of the senses. It's like an Edison record player, three-dimensional grooves.

Language Neuron, Effector Neuron

This language neuron is where speech is learned and refined. Speech is a motor function, so we could also generalize and say there are motor neurons for learning how to skate, walk, etc.

Connecter Neurons

The connector neurons are where relationships are stored. They are CHONPS strips which can connect two hearing patterns, or a sight and a hearing pattern.

So, Billy, come here is connected to Come here, Billy.

They are closely allied with the ENLIGHTENMENT and THINKER neurons which can connect the two with a thought: These are similar. These are the same.

When a connection is made, pleasure molecules are released.

CONNECTOR and ENLIGHTENMENT neurons are vital for learning. It's the only way language makes sense. Language has to be associated with some event in the environment that the person can see or feel or touch (deaf people).

Enlightenment Neurons

These are neurons that store the awareness of a connection. Aha, I see! ENLIGHTENMENT neurons are vital for learning. It's the only way language
makes sense. Language has to be associated with some event in the environment that the person can see or feel or touch (deaf people).

Thinker Neurons

There are most likely two types of THINKER neurons. One neuron to store a continuous stream of thoughts, the other to store thought routines. Thought routines are why we can say the same things over and over. Of course, we can branch from them.

Theoretically, we should be able to recall any thoughts or judgment we have thought in the past. This includes thoughts about thoughts.

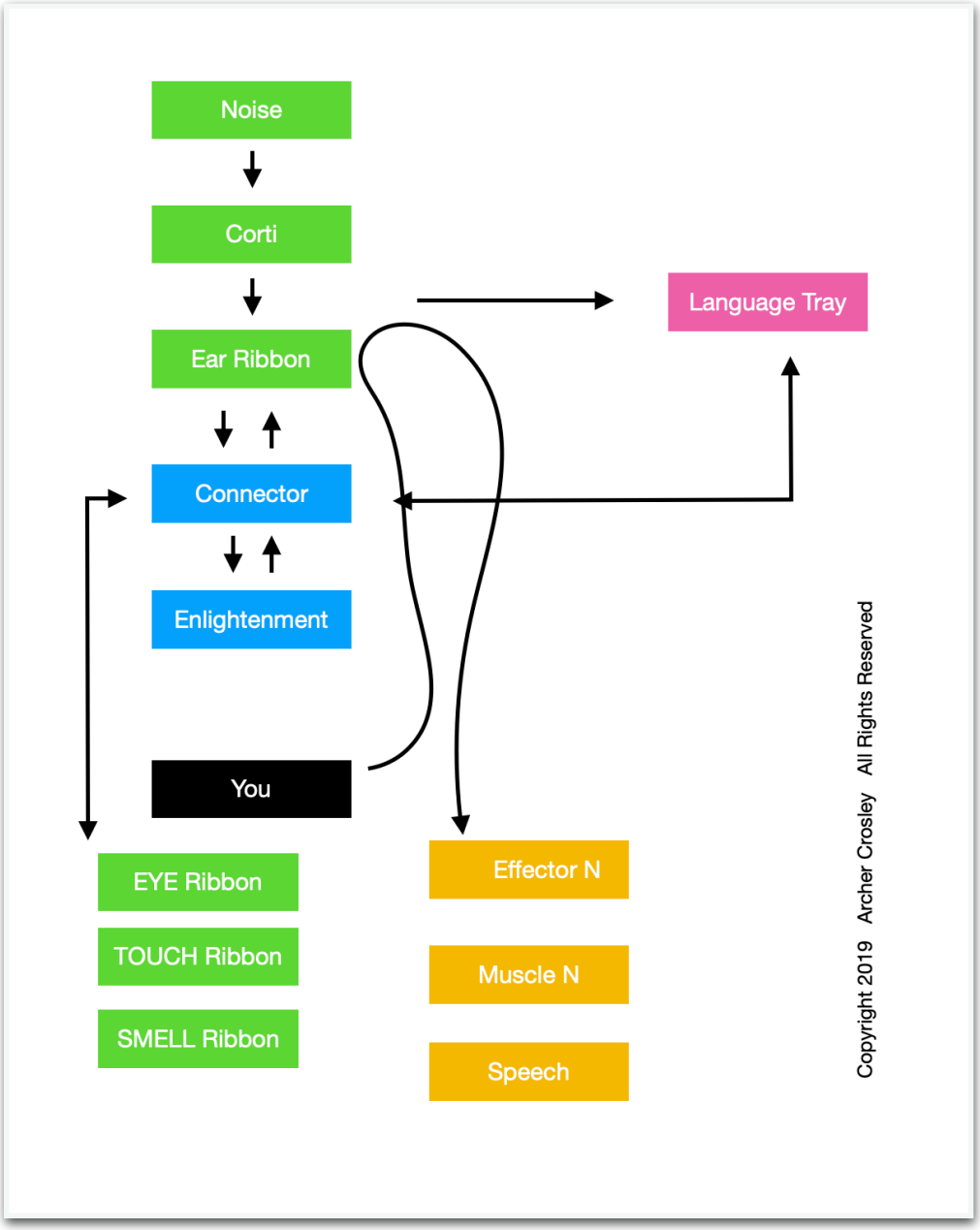
Effector Neurons

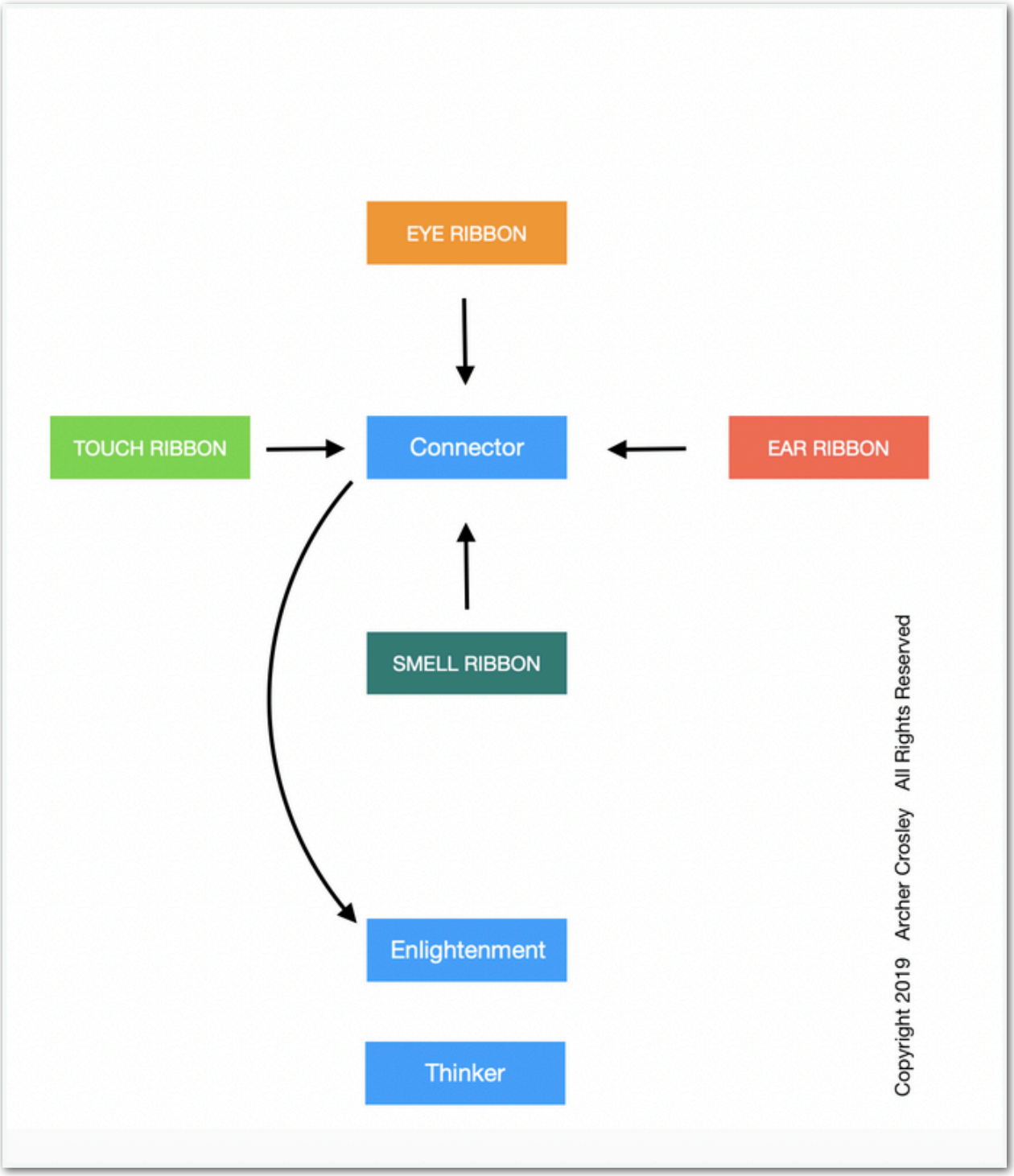
These are where motor routines are stored. Speech is a motor routine. Hitting a baseball is a motor routine. These neurons are not the same as LAD and MAD neurons. In the Effector Neuron, CHONPS strips. are laid down and refined depending upon experience. As we practice a motor routine and obtain success, the CHONPS molecule become strengthened. There are molecules for each motor routine.

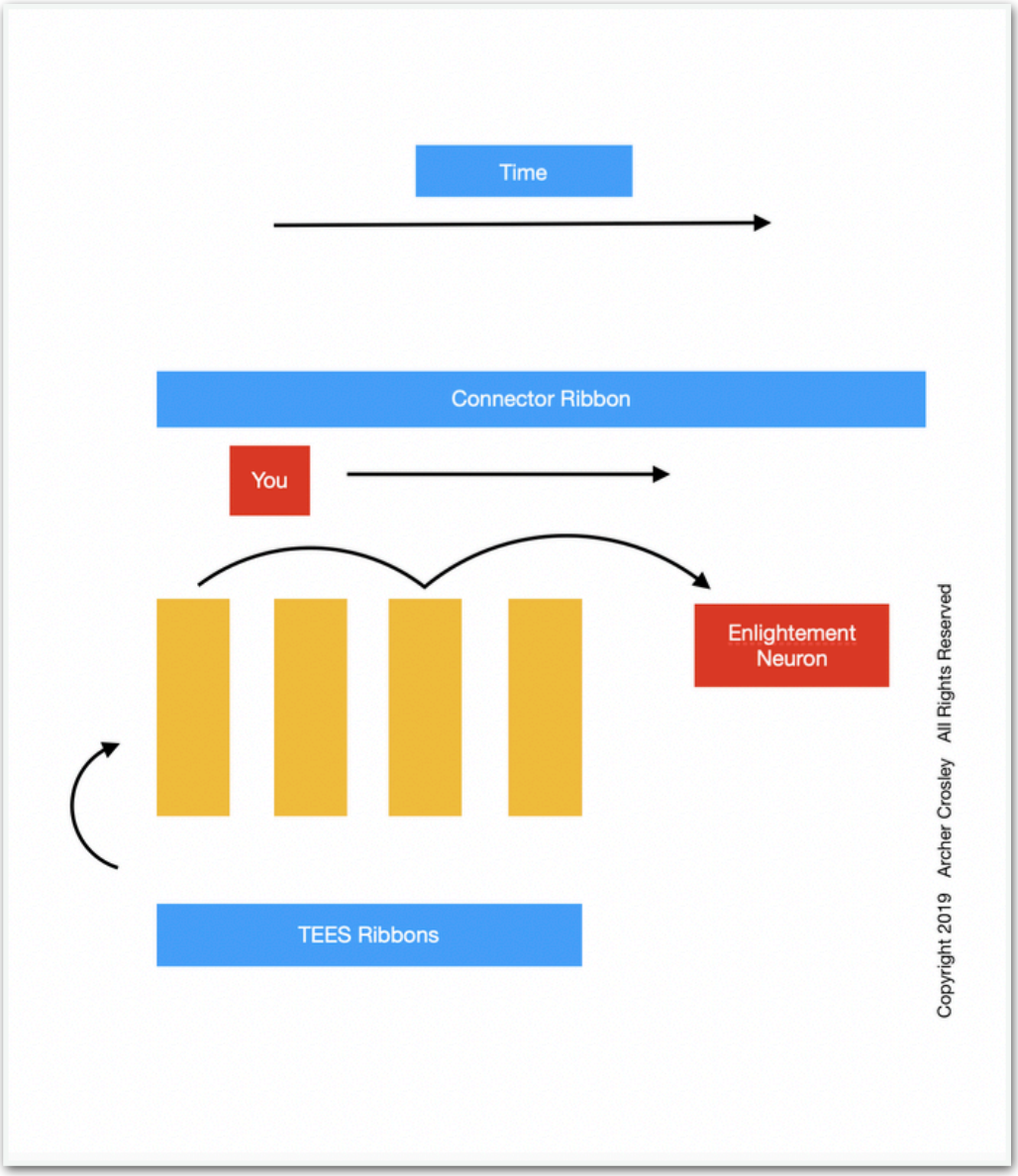
Roman Neurons

These neurons deal with coordinating various muscle groups. I will assume they are stored in the cerebellum; it seems logical. I call them Romans because they remind me of Roman soldiers whipping slaves in line as the slaves row the boat. They probably are also responsible for coordinating sensory information.

Putting It All Together



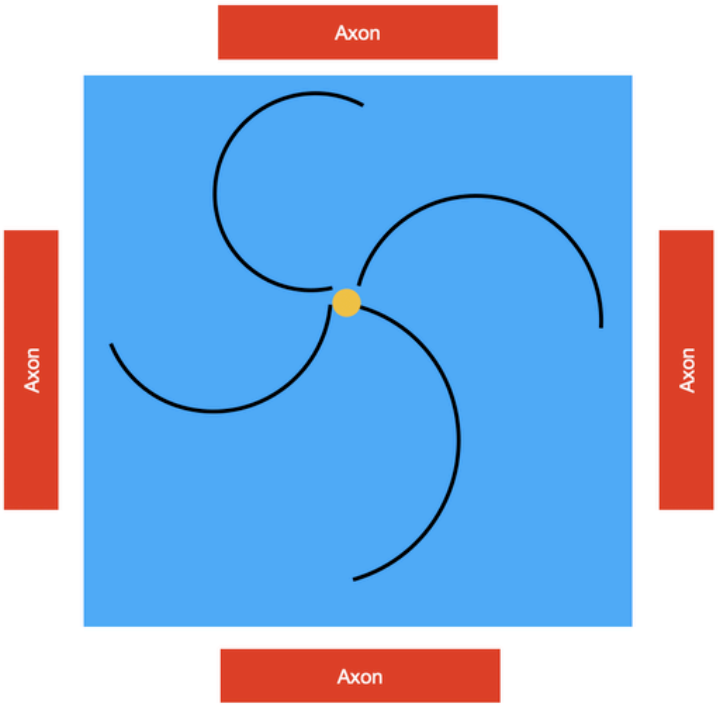

EYE RIBBON
TOUCH RIBBON
Connector
EAR RIBBON
SMELL RIBBON
Enlightenment
Thinker
Copyright 2019 Archer Crosley All Rights Reserved


Time
Connector Ribbon
You
Enlightement Neuron
TEES Ribbons
Copyright 2019 Archer Crosley All Rights Reserved

Life inside the Neuron

3D Writing

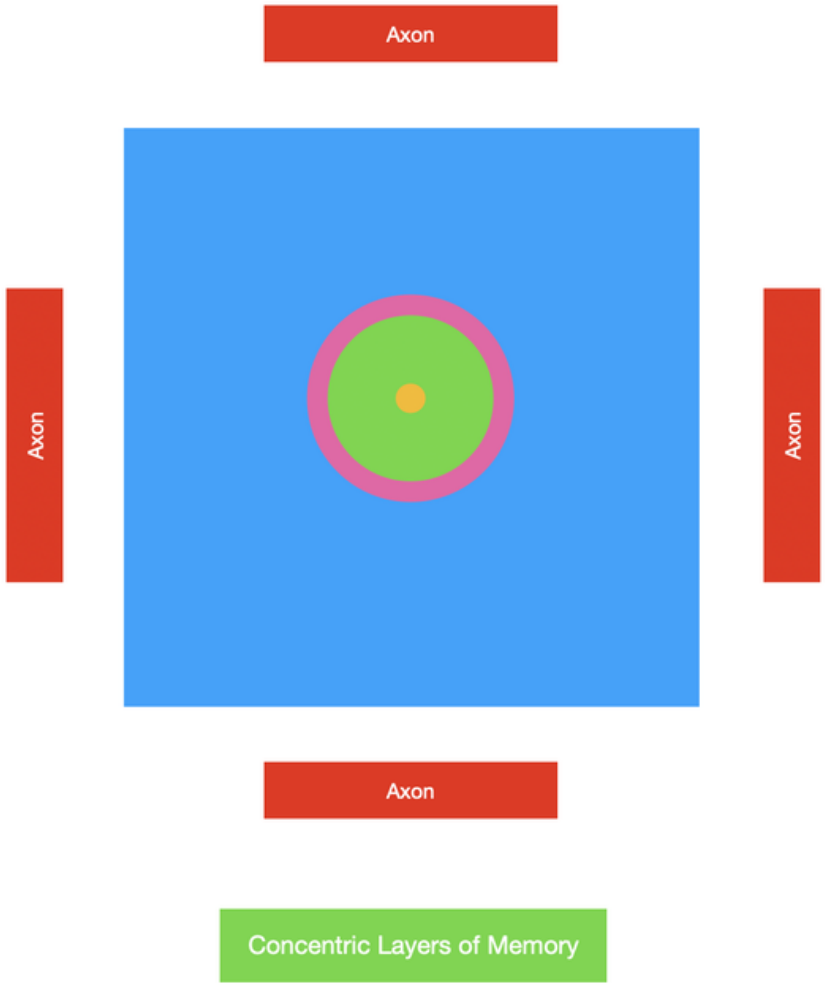
In this diagram I am TRYING to demonstrate various axons tentacles writing a 3D memory molecule in a cell. It is a continuous ribbon that goes from birth to death. The yellow dot in the center is the protein being written. I'm not sure I like this model in the sense of a concentric shell as a plate or circle. I think a vertical cylinder is better.



These memory fibrils are always connected. They are never broken. Concentric layers of memory are added as time goes by. The YOU can walk down the fibrils of memory. The concentric circles provide a logarithmic way of keeping time on memory. It may be possible that these memories are indexed.

Concentric Layers of Memory

Concentric layers of memory are laid down just like a clam grows a shell.



Conical Storage

Of course, I'm constructing this blind based upon what I know - which may change. It seems logical to me that there has to be a way for the YOU to access old memories very quickly. There also has to be a way to connect neurons together. The various neurons that connect rods and cones in the eye or the receptors in the organ of Corti have to be physically connected in some way.

A conical shape to the neuron might be a way to accomplish this. In this manner neurons can grow and add on new layers of memory (get thicker) while still maintaining connectivity with other neurons.

What this suggests is that there has to be a connectivity of the memory strip and the cell wall, so that what is stored in one neuron (representing one cone) can be be connected in place and time with the others. So if we had a group of these conical neurons connected at their apex, there could be a structural means whereby layers could be connected, and each layer would represent a point in time.

Some people do have the ability, apparently, to remember every day in their life in sequence. Well, there has to be a structural basis to that.

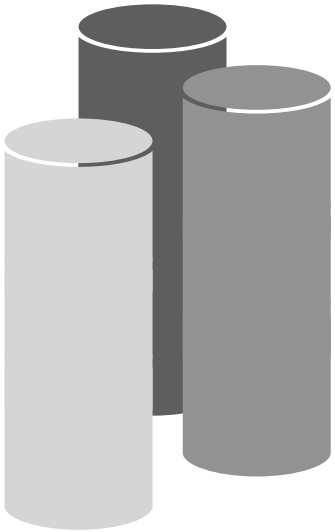
Now, it's not just a matter of linking together the sight neurons themselves, and the sound neurons themselves, but a matter of linking sight and sound together - temporally.

I wish I could draw, but I can't. WYSIWYG.

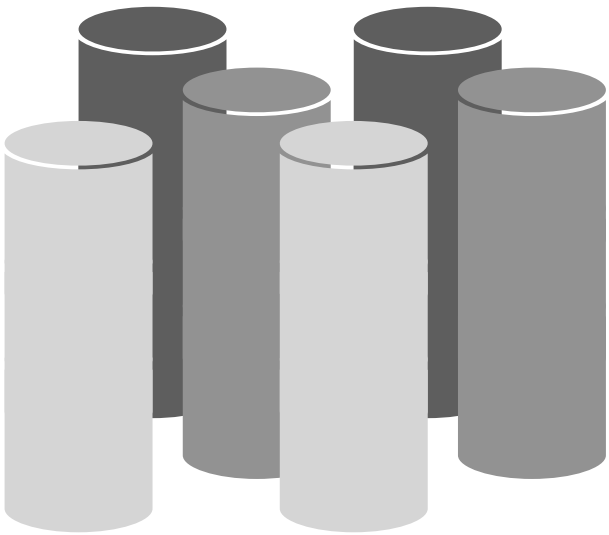
What I am going to do is a combo of anatomy and embryology.

This a primordial memory neuron. Let's say it is the first:

It will split into the neurons allocated to the various senses. I'll draw just three senses.

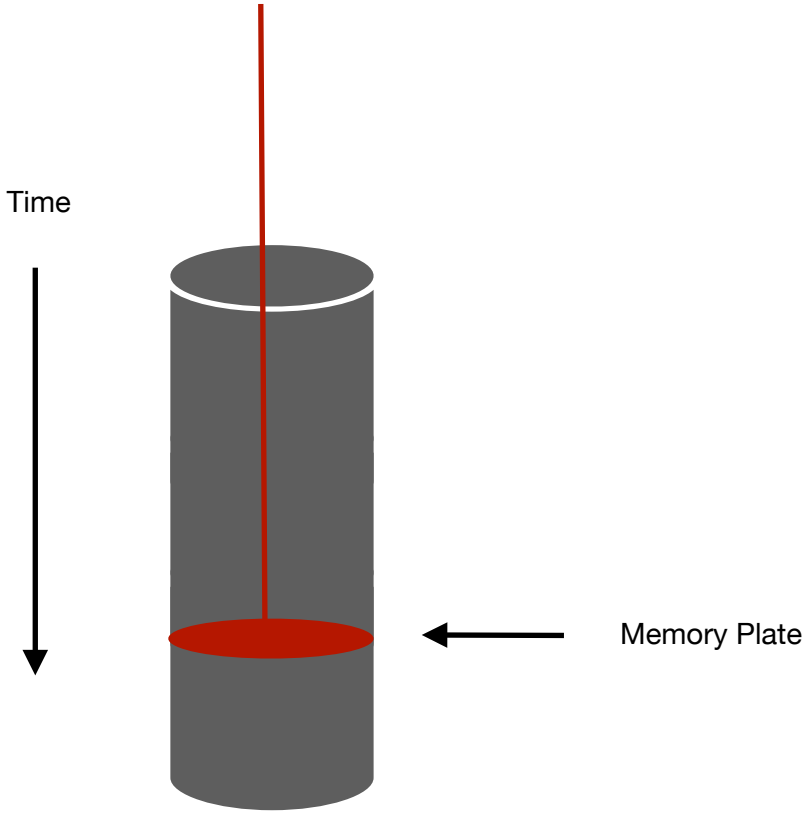


These then will in turn split into the millions, maybe billions of sensory cylinders needed for eyes, ears, olfactory, ands so forth. So the eye will look like this:



And each cylinder will correspond to a cone or a rod. I have staggered them and given different colors just to show that they are separate. But they are cross-linked evenly by molecules that form as the memories are formed. They are the memories.

The memory is formed by a plunger effect. As the light hits the retinal cones and rods, signals are sent to the memory cylinders and new proteins are deposited like this:



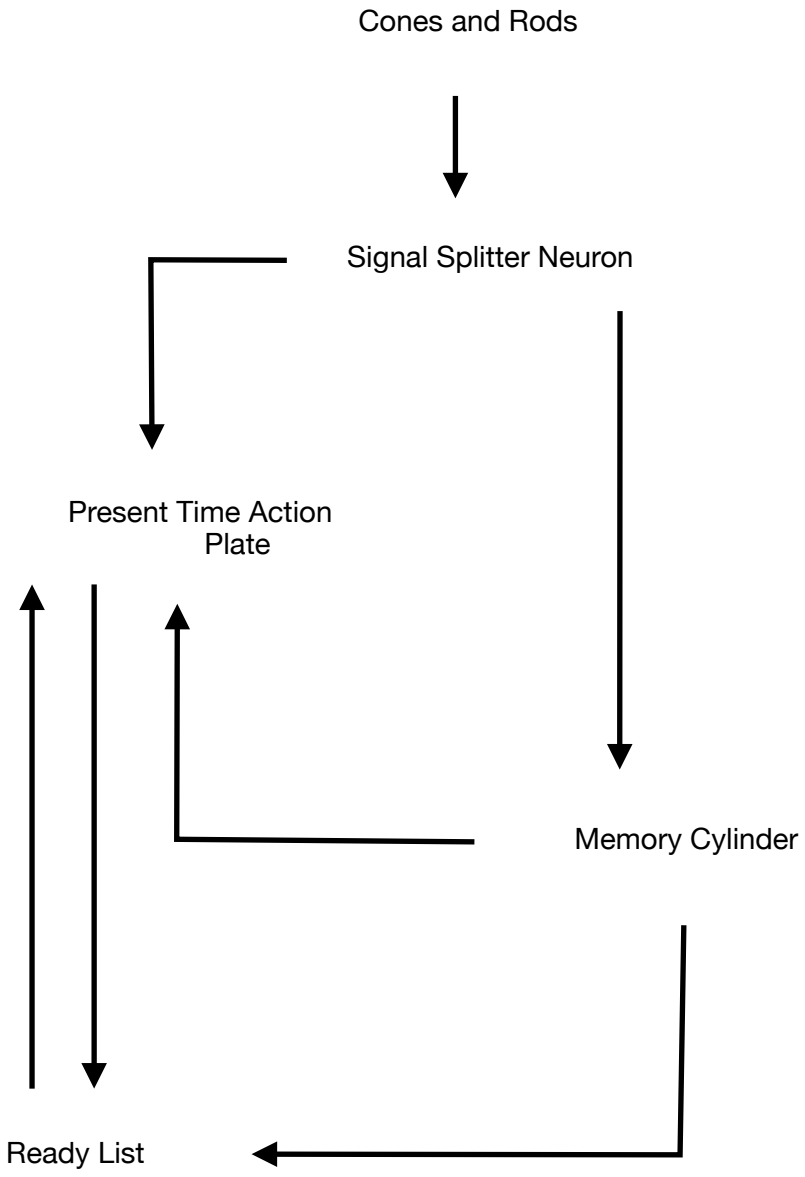
Think of it as a succession of gelatin plate molds being stacked on top off each other. Each neuron in the group is cross connected. Of course these connections can be broken and shifted.

What you can get is a temporal memory cylinder of what you have seen. This can apply to the other senses such as hearing, proprioception, smell, and touch.

All of these cylinders are in turn cross connected. They are cross connected because embryologically they were connected to the original primordial cell.

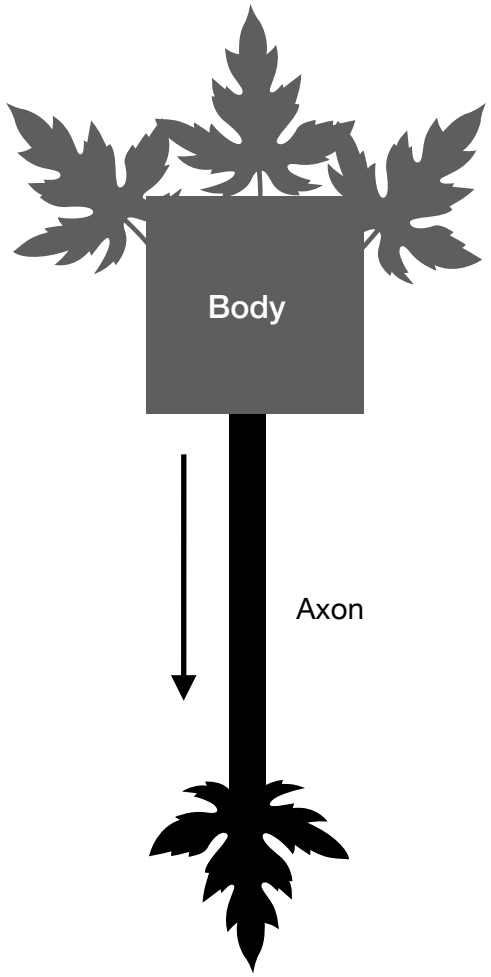
Now, not everything is a memory cylinder. You also have a present time action plate which is used to function in the present. It does not retain memory imprints. It is automatically washed clean every millisecond.

I'm going to have to draw a diagram of how this all fits together. I'll use the eye.



This is just a working model, nothing more. You can add, subtract and modify.

Now, in this latest model, I have used on axon per memory neuron, but it may be better to have multiple axons per memory neuron.



Time Distortion and Tachypsychia

How can time be perceived as speeding up and slowing down at the same time?

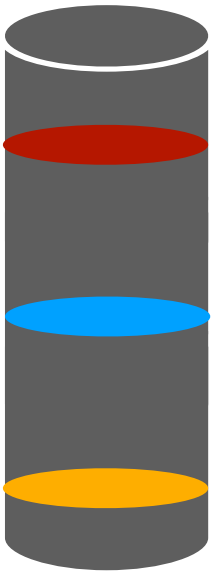
What is going on here?

Since this usually happens in a time of stress, it can be logically concluded that somehow the catecholamines that are increased in a time of stress are in some part responsible for this phenomenon. What is physically going on here?

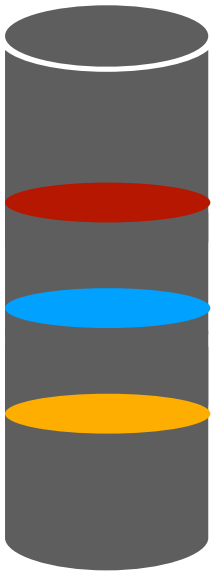
Let's assume that memory is for the most part consistently laid down in metronomic manner throughout the day. We have all all experienced the phenomenon where a day seems to be either moving fast or slow. What is the cause of that? It seems logical to me that our sensation of how fast the day is moving is based upon the mood we are in, our level of fatigue, our level of anticipation for that day. There could be other factors as well. Somehow these moods must influence the basal level of catecholamine production which influences the rate at which memory CHONPS molecules are laid down.

In a time stress, these molecules would be laid down faster. Here I will illustrate a diagram.

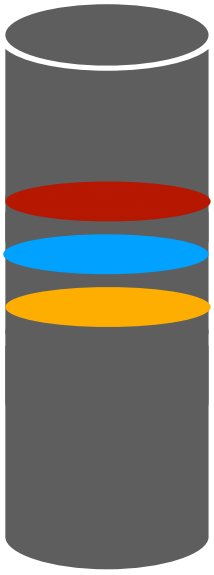
Let us say that this is how memory is slayed down. This is a normal day.



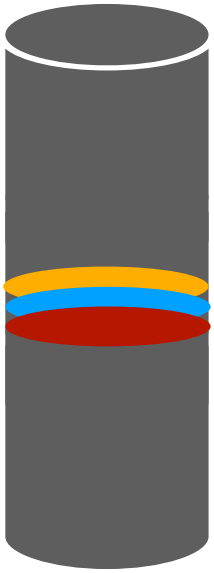
Now let us say that this is a fast day, one that moves quickly:



Here is a moment under stress:



Here is a moment of sheer terror, tachypsychia:



As you can see, I have not only compressed time, I have inverted the sequence of the memories. As the catecholamine level rises, not only does the speed at which memories are laid down increase, but successive memories can catch up and surpass the memory plate proceeding it. This surpassing of the memory gives the sensation that time is slowing down because you have a latent imprint off what transpired still in your mind, yet you know somehow that time is moving forward. In other words, you are acutely aware of what happened one or two seconds ago, even though you know time is moving forward at a faster clip. I hope that makes sense.

When people are in the present, they consciously or subconsciously block out the past and the future. They maintain a latent imprint in their conscious plate what is happening right now. They are, as we say, *in the zone*.

When we are *in the zone*, we acquire this sense of time slowing down.

Sense of Time

I'm not sure this relates to the topic or not, but there must be an internal clock that can yield to the human a correct sense of time.

My mother had it, and I have it. I can't tell you how many times I have woken up out of a dead sleep and guessed the correct time accurately to within minutes.

I have never not had this ability.

How is this possible?

There must be an internal clock.

Motor Routines

What are Motor Routines

They are blueprints much like a player piano.

There has to be a master plan imprinting sheet, a blueprint, upon which the movement or concerto begins. So there is a place in the brain where these blueprints are stored. Obviously you are not born with the blueprints; you must learn them.

Now, with that said, I suppose it is possible for certain motor routines to be encoded within the genes so that vital functions can be transmitted from parent to child.

These blueprints are 3-D protein layers that the neurons follow to give the right sequence of signals to the right neurons in the right intensity.

The variables are the neurons, the intensity, the pausing, the length of time.

They are skill patterns that are stored.

Walking, talking are muscle movement skill patterns. Speech is a motor routine.

Speech is a Motor Routine

The child begins speech by moving his lips, tongue and oropharyngeal muscles in a haphazard way. Eventually he works his way up to "mama" probably by accident. But since the word is reinforced by the mom (smiling), pleasure molecules reinforce the "mama" CHONPS strip in the EFFECTOR neuron. By nine to ten months, the baby says his first meaningful word - mama or dada. A connection is sent to an ENLIGHTENMENT neuron. The baby gradually moves on to other sounds. The mom holds up a bottle (an important part of the baby's life) and may say "teta" in Spanish. The baby hears that in the LANGUAGE SENSOR neuron, begins to connect that with milk in the ENLIGHTENMENT neuron and understands a connection. Then the YOU moves over that and can hear the word in his mind. He chooses to "flex his muscles" and try out the vocal apparatus like he did for "mama". He will try it, hear it and his mind will match the two up. If he succeeds, pleasure molecules will be released to reinforce the pattern. If not, displeasure molecules (pain molecules) will be produced. He will try it again and again until he is successful.

This same process is conducted for any different motor routine.

Tiger Woods Brain

What exactly is happening in Tiger Woods brain? He is learning analog rhythms. He is learning naturally. There is something superior about learning by absorbing than by human, digital instruction. Digital instruction misses things.

Kids have greater plasticity. Do they have more neurons, finer control of those neurons or better protoplasm?

Where does this plasticity exist? Why does it exist?

Why Can Kids Learn Languages Better?

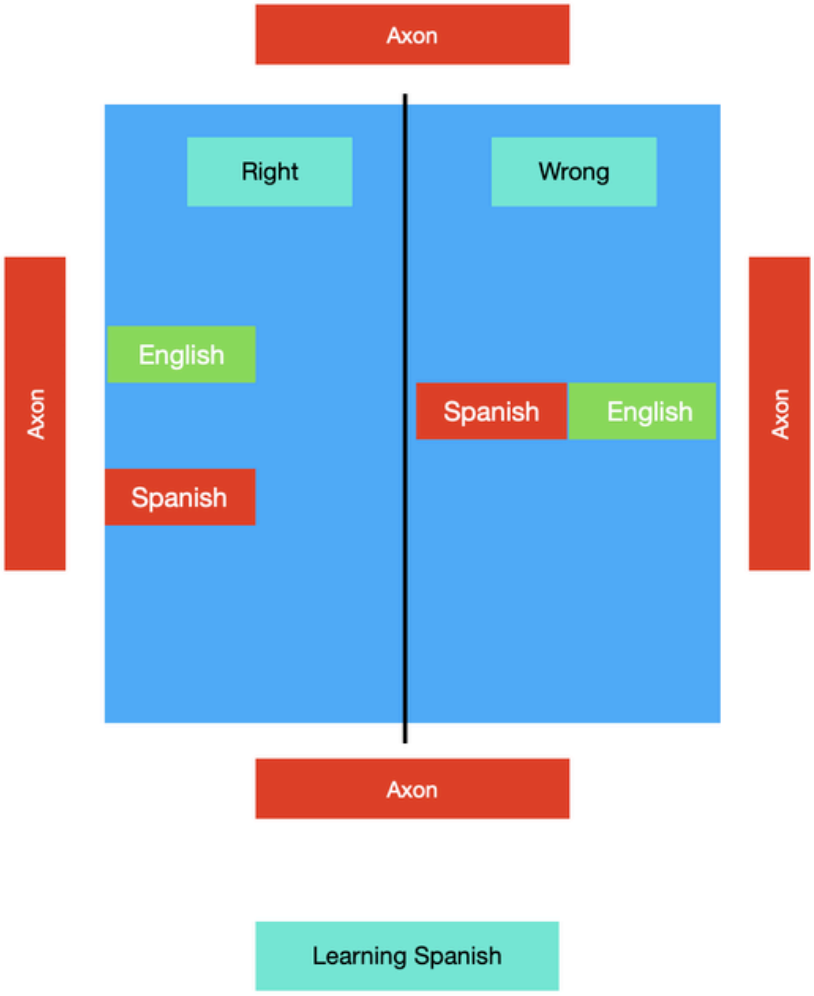
Why can't adults wrap around a languages as easily? Is it because a functionality or plasticity is lost. Perhaps so, but there are plenty of cases where adults have learned foreign languages fluently. So why do adults have so many problems?

Prior patterns have been established. This interferes. These patterns seem to be function specific. The prior pattern once established imposes itself on the patterns to be learned and makes life more difficult. It's like pressing a formed pattern on a new pattern. It changes it. The child doesn't have those patterns.

The kid who deciphered the Mayan hieroglyphs did not have any preformed patterns. He was absorbing all that in analog form even though he did not realize it. There is something about the conscious mind that ruins the learning of a new language.

Compounding this is the desire of adults to learn language by shortcut. Instead of learning the language de novo, they glom Spanish onto English patterns.

Here is a diagram.



Why Can Kids Learn Multiple Languages Fluently

They don’t see them as different languages like adults do.

They see them as all part of universal language.

Why do I Speak Spanish Like an Anglo?

Because I have not practiced enough and because I leaned it as an adult. So I have set patterns of English grammar in my brain. This prior pattern of grammar gets in the way. We don't mind learning new words, but new ways of grammar bother us. So rather than accept the reality that new grammar is an essential part of a new language, we rebel and try to fit the new words into the old grammar. In short, we take shortcuts out of laziness.

So as adults we fit fit Spanish words into the English language. As such we are not truly creating a new analog language in our brain; we are merely adding Spanish words to our existing paradigm. We fit Spanish words into English grammar and English declension patterns. Or we do worse: We take English words and put them into Spanish declension patterns. Examples: Yo no speako Spanish.

Message: Language is the grammar; grammar is the language. You can’t separate them.

To learn a new language the right way, we must listen without trying to understand, The analog patterns must first be imprinted.

How is Speech Done

How do we miraculously put speech together? How can we put this together on the fly? We link strings.

The YOU migrates over the surface of a ball and activate strings. YOU is free will. It can fire off what it wants. The YOU can then can recreate the sound by running over it.

Trays

The Language Tray

The language tray is a collection of words and phrases that are meaningful to the individual. They only exist by choice. The free will of the YOU must select it.

This tray consists of various strains of CHONPS molecules that can be rearranged, addended. They can be of various lengths.

The YOU can move over this language tray and change the configuration of the molecules. Sometimes you hear something wrong.

The YOU can move over this language tray to create memory ribbons of thought. Or the YOU can create speech. As it creates speech it creates a memory ribbon from that.

That memory ribbon itself can be transposed over to the language tray to modify it.

The Motor Trays

The motor trays can be developed in the same manner as the Language Tray.

The motor trays improve just as there language tray improves.

This is how people get better in time with practice.

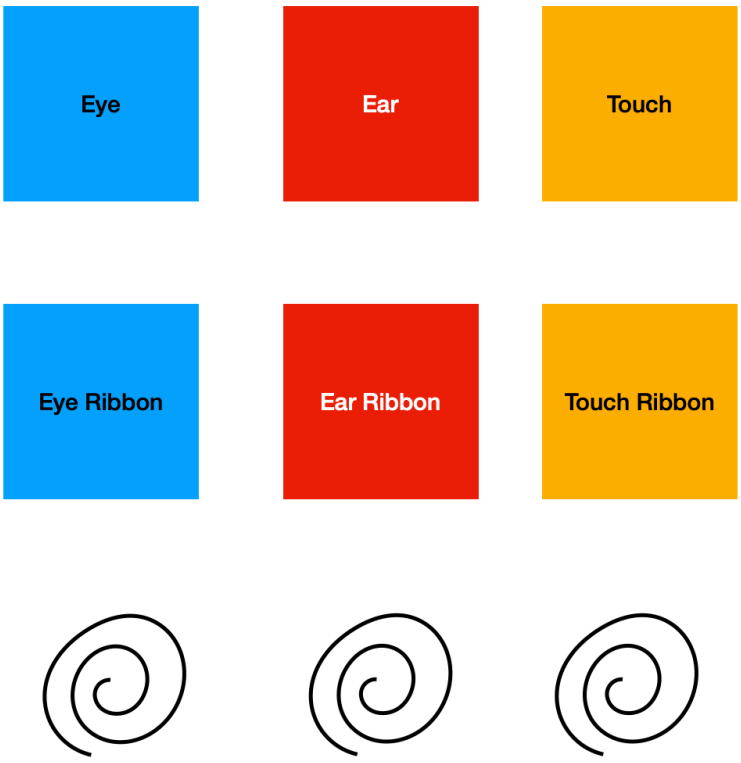
Thinking

What is Thinking?

Thinking is running over existing memory patterns and making judgments. Judgments are laid down as new protein patterns in their own conch shell that can be cross-referenced with other sensory conch shells.

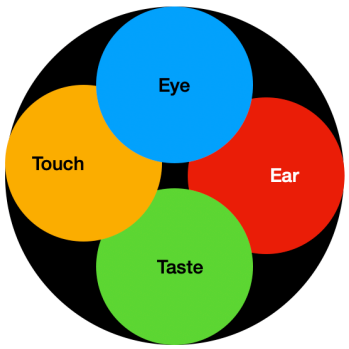
You can then even think about your thinking. Whether this is laid down in another conch shell can be debated.

Memory Ribbons



How do you connect loci between the various ribbons? Are all the ribbons connected into the same neuron with different parts of a master protein specific for different senses. This would make better sense: a master track.

The signal could be split for redundancy or proof checking.



A CONNECTOR ribbon can connect all the senses. How do we make an enlightenment connection for epiphany purposes.

You have to be able to connect two points in time for reinforcement to take place. It seems as if there can be no real wire that connects the two. Let's start off with mama and mom, a sound and a sight.

We could postulate that the YOU can move back-and-forth along these connections and then if a similarity is recognized, the YOU can trigger off endorphins or pleasure molecules which can copy or reinforce those items that are duplicate or are very similar.

This model is the FREE WILL method of explaining things. It's convenient and a little lazy, but it works.

Free Will

If we connect Mom with mama, a connection must be made as a free will choice. It's a moment of realization however primitive. The baby must choose to make that connection. Otherwise if it were automatic, everyone might have the same intelligence, or at least similar intelligence. Something has to trigger that association. Is it just repetitiveness that triggers the association? That association then must be stored somewhere. Where would this association be stored? There must be an enlightenment neuron that stores these conclusions. If we didn't store them, we wouldn't be able to remember or learn.

It pleases me to include free will in my model because I know it bothers so many misguided, arrogant people who graduated from Harvard University.

Why are people from Harvard bothered by free will? In a nutshell, because they can't control it. It can't be defined. It is the Tao that can not be defined.

This is why Harvard will always lose.

And they deserve to lose when they walk around like they own the place. Of course, they do own the place, but that doesn't mean that they should walk around like they do.

Not doing so is a part of noblesse oblige.

Learning

For us to make associations there has to be a unique signal between the picture of mom and the word mama.

This unique signal has to be stored somewhere. The learned associations are stored in the Language and Motor Trays.

The replication of this signal must be associated with pleasure so that we remember it. It must be significant to us.

Distinguish between the name billy, hillbilly, bilirubin.

Billy, if it is our name, will mean something special to us.

If we view hearing as a form that occurs when these pressure waves hit our cochlea and then our hearing sheet, then this form must be stored somewhere.

It is moved to the language tray and the permanent tray.

The YOU

Even at an early age I knew that I was not my brain. I knew that there was a force inside of me that was different from my molecular structure.

There is a YOU inside you that can run over our continuous memory sheets and select out repetitive patterns or similar patterns and place those in a language tray or sheet.

The YOU can move at the speed of light.

What is this YOU force. It is a force that goes beyond our comprehension at this point in time. It is a force that is as infinitely small as the heavens above us are vast.

Someday we will be able to explore the YOU force and see that it is comprised of entities that have correlates with the world around us. Think of the YOU as tiny civilizations that make decisions.

What is it that is doing there learning? The brain or the YOU?

The YOU.

The YOU is a plasma wave of sorts, Like a movable cart or dolly that moves along the memory ribbons. The YOU can move forward and backward at the speed of light. It can retrieve and examine whatever it wants. It can move forward 10 years, backward five years and a millisecond.

It moves over a specific part of a memory ribbon and examines it. It It takes an impression which is malleable in a sense. The YOU can move down the memory ribbons until it finds another memory which is similar. If it finds a correlation, the YOU can send a duplicating impulse to a language tray to cement in place that sound.

What controls the body via the brain is the metaphysical YOU. The metaphysical YOU is bigger than the sum of its parts. There is no formal structure to the metaphysical YOU. The YOU has free will. The YOU arises because the parts of the body are working in synergy.

The Emerging Human

The baby's consciousness is emerging. Initially, the emerging consciousness does not make choices. The baby moves its legs and arms about in relation to sensory input - more or less as a spinal reflex.

The baby then begins to mimic. These impulses gradually lay down and modify proteins in the master neuron. Repetition reinforces these developing rhythms. This is what learning is.

Positive reinforcement by smiling and sweets make the rhythms stronger more robust, less likely to fade away. The proteins become reinforced so that they are more rigid. Negative feedback weaken the protein structure of the 3-D rhythms.

All animals go through this training. Cats must learn to walk, run and jump. They must practice.

Overall Memory Mechanism

Corti

Hearing Sheet

Continuous memory sheet

Language sheet Word Tray