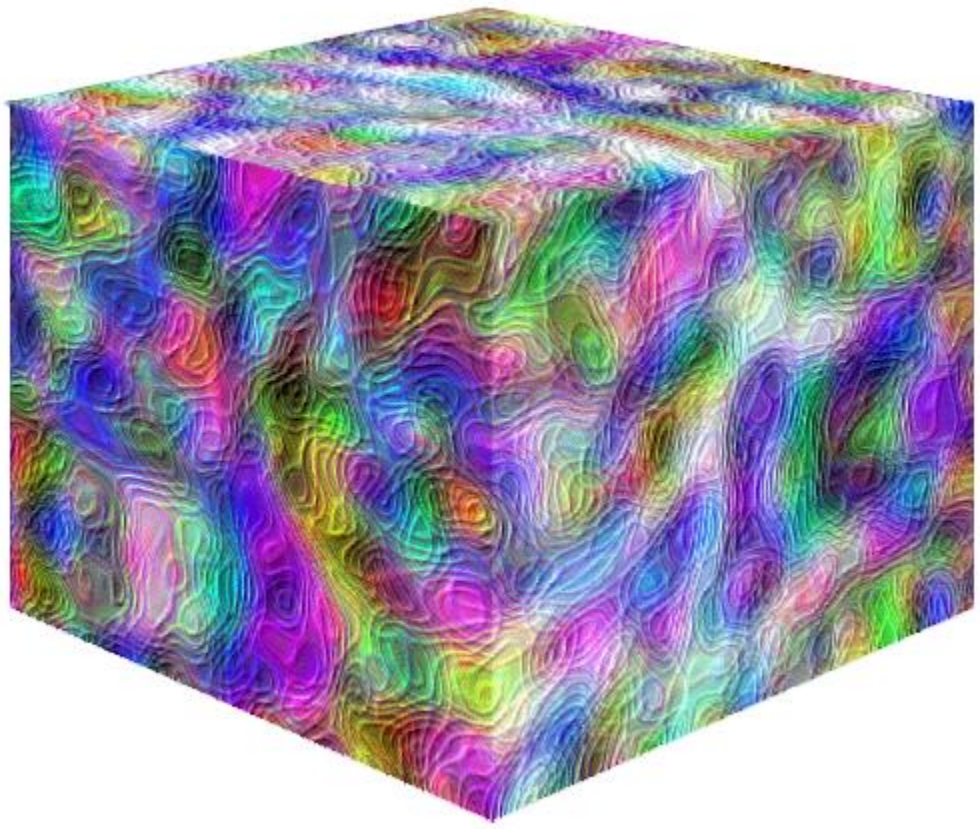
How the Mind Works

I have always been a believer that the human mind is an artifact of the universe and participates in all its designs, not the other way around. The classical mind thinks that way too and so does much of biological science and certainly physics when there are no hidden religious phantoms.

To put it briefly, the universe consists of matter which is configured in accordance with the momentum driven by thermal reality. Every bit of the universe relates to every other bit in an immediate way. The strength of the relationship in the momentum-drome depends on distances and local energy, local dromes. Every bit of the universe is related to every other bit of the universe in time. That means that every bit of the universe is defined by its relation to other bits in its material aggregate and beyond. There is nothing very anthropomorphic about any of it. The mode of relationship we call gravity.

If we could cut out a cube of the universe and place it before us on the table as a microcosm, we might see something like this:



Within the relationality, there are separate islands of relationship, which, among themselves, are related. Within these subrelations are further subrelations, endlessly interacting. The definition of relationship is spatial and temporal. Being temporal, we mean that relationships shift in time, like broccoli passing through the gut, where enzymes and bacteria are at work, even as the body walks, and as the earth spins, the planets orbit, as the solar system gyrates, as the galaxy spins, as galaxies do-se-do and cross hands in boundless space.

We count six dimensions: length, width, depth and past, present and future. All are relative as we accept the idea that time can be calibrated. But time is not calibrated. It is merely progressive and marked by the relativity of everything moving in its bath. Likewise, space is also progressive as everything stumbles, slouches, and marches in special relativity. If spatial relationships do not change, there is no time; if there is no sequence there is no time; if there is no matter there is no time; if there is no time there is no movement. As Heraclitus said, the start and end are generalized in the circle. All of this is the universal mind. If something has happened, it leaves a future; if something happens it does so because it had a past and a present, none of which can be located with any exactitude beyond our ability to measure and compute. It is the opposite of the ambigram.

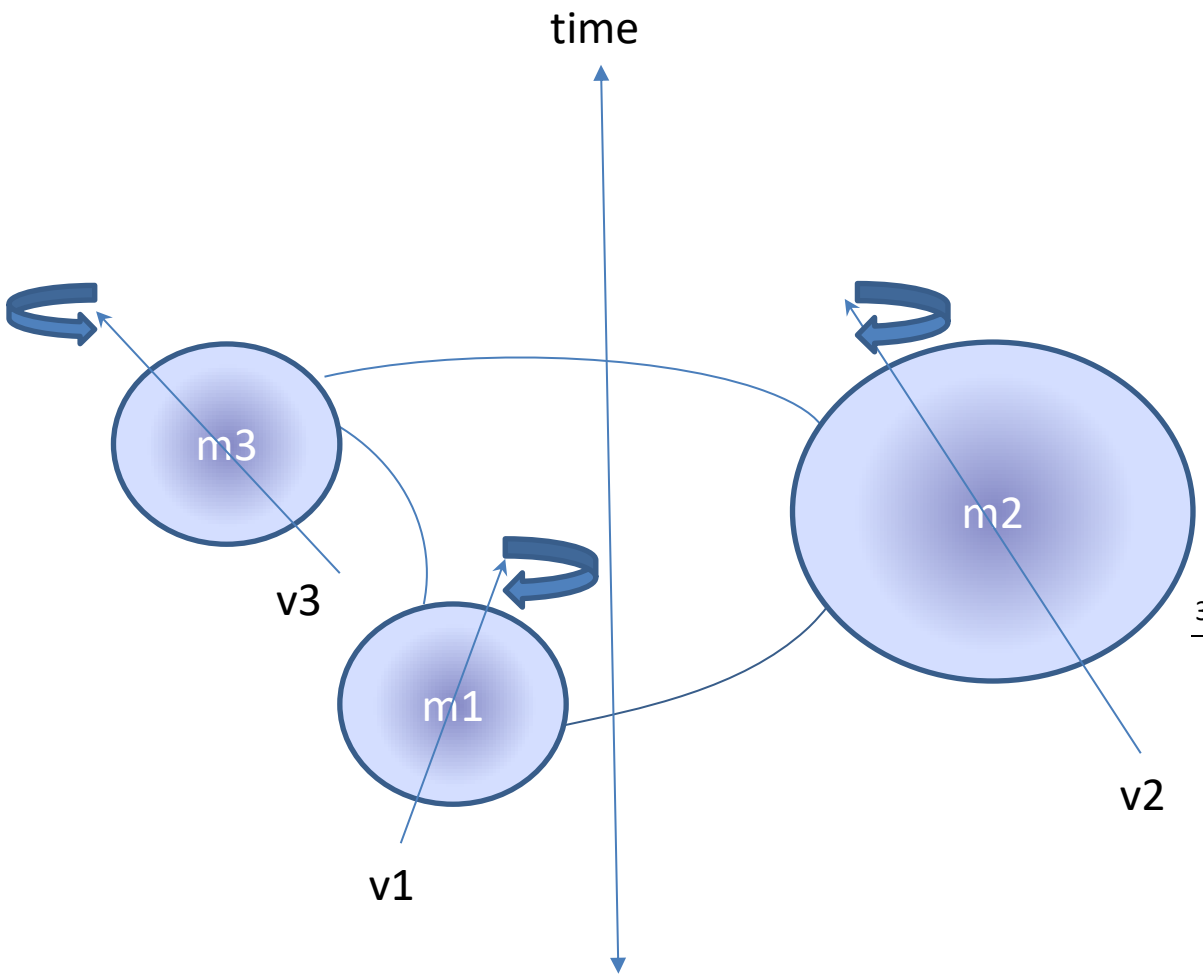
If one knew everything that happened in boundless space, as described, one could perhaps compute or imagine the future for any incident or trend. But this is not possible, and we call what we cannot compute chaos or irrational. There is no need in the universe to know either the past or the future, as these are psychological values that come with organic life and death developed by whatever chemical mechanisms the organism needs for its survival. Looked at from the opposite direction, there is no reason for the universe to think. It is. Looked at computationally, it was, is and will be never the same, yet each view is necessary because it has precedent and ambience.

A vulgar way to illustrate the universe can be had with a piece of hard salami. Take a sharp knife and begin slicing off rounds, as thin as you please. Lay out the rounds in a linear and sequential fashion. Looking at one round, observe the layout of fat, pork and spices. Now look at the next round. Observe if the same fat continues or if new fat starts, and so forth. This would be the universal view. If you are the salami you “know” where the fat is but you have no need to predict where it is going or how it got there. If you are the observer, you guess but you cannot predict. Some pieces of fat are longer than others. You don’t know why. If you were meticulous in your study, you could almost rebuild the whole salami. You might come close but then you can’t really explain why the whole episode was in the least necessary. From there you realize that your experiment was ludicrous, as the universe has no outer membrane, so the similitude self-destructs and space enters the picture. No space, no growth, no change.

Kinetic history with exact data will tell you where things are going and where they come from, but , in general, the kinetic history required to enable complete understanding is missing along with computational power. There is no way to predict the text of Moby Dick. Any statement about reality is both diachronic and synchronic because it exists in language and language is diachronic and synchronic

to begin with, and so the statement is always analogical. This is because everything is in movement even when not apparent.

Mapping movement forward and backward would be possible with all the exact data, for example:



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As statement about m1, m2, and m3 will be different at time t_2 than at t_1. Such statements are possible, but very complicated especially when real-world data are involved. At most there is a slice, like the salami, showing exact things while exact things have no interest. If the data of every event could be collected then the universe could be broken down into logic, Logos, as the Greeks called it. But it has to be that comprehensive, and it has to be that comprehensive at all times. All relationships may and do change over time if they are part of the physical world.

Reason selects data and calculates trajectories based on recognized (learned) patterns. Thus reason is an interpolation between learned patterns and current input. The patterns are stored in memory. The interpolation occurs based on analogy and is evaluated based on feedback. The feedback is guaranteed

either by external language or internal dialog (subvocal). If there is no communication there is no reason. Anything that cannot be communicated is a null event.

Eventually we will understand the intimate structure of mind where pathology is concerned. But in the meantime there is really nothing too difficult to understand about how mind works. Mind relates to the real world through interactions between memory and the senses. The interpolation occurs via cognition which can pull patterns and apply them to incoming data based on the powers of memory and logical pathway. It pulls patterns via a complex set of senses that constantly evaluate the importance of input and validate the contents of perception. As perception is active, it stores itself in sequence, to which we often add an involucrum of historic time, such as the Olympiad or date and minutes, seconds, etc.

The goal provider is survival. All goals come from the need to survive, even as the meaning of survival may change. All functions support survival.

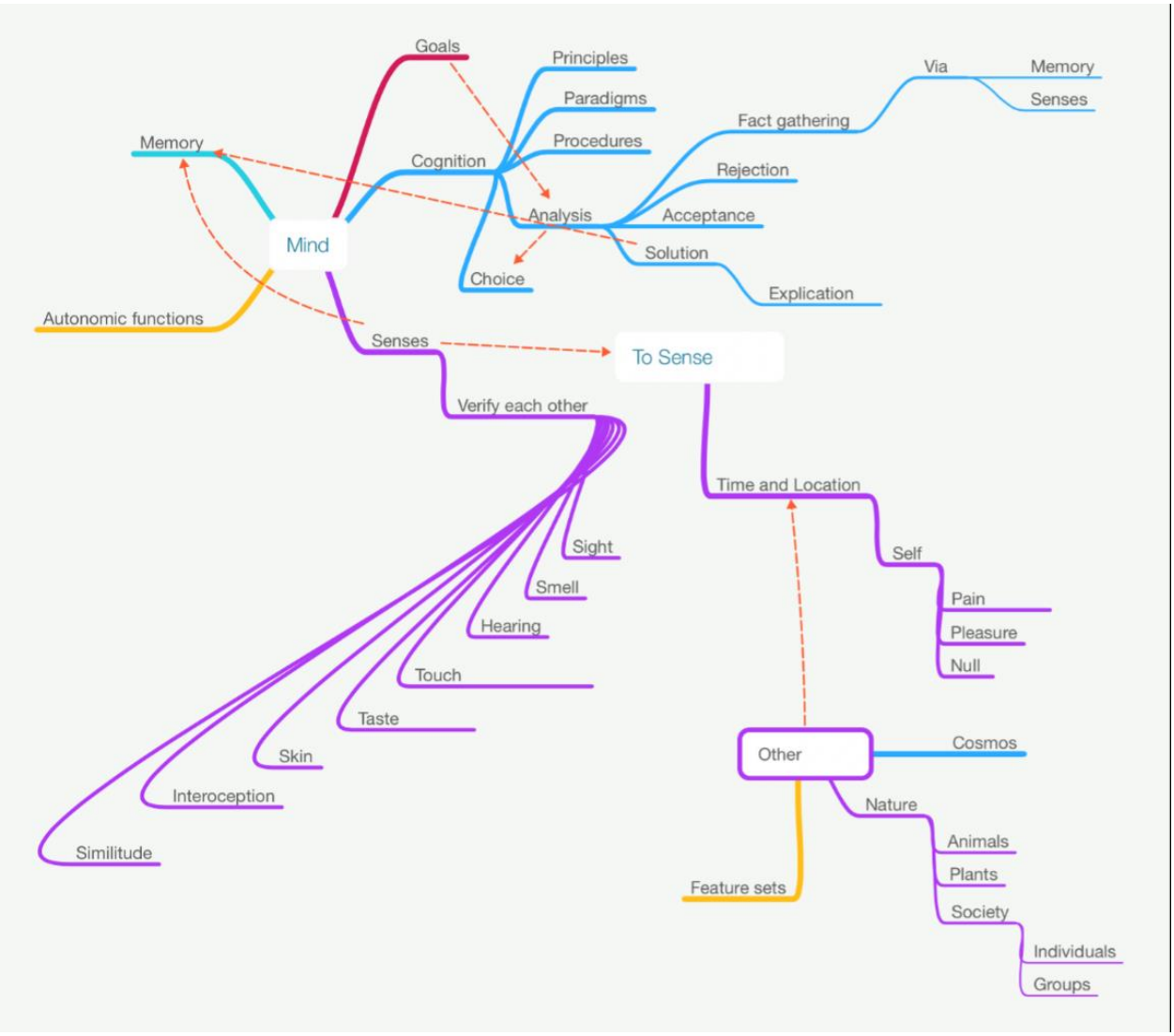
I have positioned similitude as a sense. It is the ability to compare two or more things. In the computer world, the device for this is called a comparator. One kind of "comparator" evaluates sameness [same|not-same]; another evaluates magnitude [lareger|smaller|same] and a last kind of comparator is fuzzy: one or more things are the "same" in some sense, comparable in some sense or greater/lesser in some sense. No computing is possible without the comparator, so it is probable that the organic version of the comparator is a proto-device for survival. It must belong to the brain and can be thought of as a sensor resident in the brain.

All other senses are well understood, at least in language. Interoception may not be familiar to some people but I think it should be included because it is quite fundamental. It is the ability of the brain to sense what is going on in the body, such things as relative positions of limbs and the condition of the gastric system, pain, and pleasure.

The world is sensed by the senses and its data are stored either consciously or unconsciously via attention, which filters data. Sense data are also often validated via the intervention of several senses, such as smell and touch, or more.

It is the memory which contains all data about the world that have somehow been stored in the mind. Reason could be simply defined as a series of pathways that branch in conventional ways which become ever more subtle as learning is expanded. They are fundamentally logical, but not necessarily conscious. Logic may be applied to find memory and other pathways.

This graphic represents all the main components of the way the mind works and places it in a world scenario.



Now we move to the social aspect of mind. Who teaches mind? Instincts drive it towards survival, but society creates its pathways and its memory stores, which are not transmitted organically, like those of a jellyfish. It is no surprise that we learn from our parents *as we grow*. They teach us *as we are more able to learn.* What we learn is a function of what they know and what they are prepared to teach. Much of what they teach has been handed down to them though former generations. Former generations have taught them what to teach and when it is appropriate to teach it. That can change. For example, the earliest writing in Greece before the 8th century was taught to adolescents; it was in the 5th century that Greeks began to teach children to read (in the wealthy classes). They all learned to read out loud. Reading silently was thought to have developed only in the 18th century. Change can happen very slowly.

Basically there is a hierarchy of mind: universal, social, individual. We tend to think of this in the opposite direction because that is the order in which we are taught. The biological necessity of things being arranged this way causes us to think that the individual is the most important actor in what we know. He is taught, yes, but he is ever the discoverer. The most sublime discoverer is he who explores

the universe and brings back new truths about it. But in fact the truths are only lines among the stars to mark out pathways to the discovery of things that extend beyond our limited view and enhance our frustration with ignorance. What we learn before those momentous discoveries is largely discounted as common.

However, early Greek “philosophy”, Heraclitus, did not refer to the universe as a universe, in our sense. He referred to it as “koinos”, what is common. The “koinos” was not yet a universe in our sense, but was divided into two categories: chaos and cosmos. The two existed side-by-side. Cosmos was ordered. The stars passed according to a certain pattern, like the moon and the sun (both stars). In barbarian mythology chaos was primordial; in Greece, Chaos gave birth to Cronos and then so forth to the rest of the gods genealogically. But outside the line of “descent”, there was no such thing as a beginning and, with immortality, there was no end to come.

If we take the position of a wanderer in the desert and look up we can affect nothing and we can determine nothing unless we can understand our direction and our time. These are the grid we use for understanding the world of physical reality. But if we come down into the town, during the day, we can wrangle with others. That is the world of opinion. To the classical mind, again, everyone had to admit that the universal ground of all discussion was opinion. This was true even for Aristotle. To Aristotle, whether or not something was “true” was a matter of opinion.[1] There were only three sources of likely verification: an expert, a believable body of people, and the universe of society. The last would always be the ultimate judge of all things. The stained-glass dome of religion had not been built over reality yet.

The conclusion is that mind, in the broadest sense, is the full totality of universal interaction in time and space. The mind we have is mostly lodged in the social body, and somewhat copied into the individual. The individual is assuaged by, flattered by, elevated by, and flattened by the mind of others, and the mind of others does not matter to the universe.

πάντα ῥεῖ (*panta rhei*) "everything flows.”

[1] Plato is another matter, but not for this essay.