

Human Supra-Organisms and Language – An Outline

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*No person is an island.
The whole is greater than the sum of its parts.
In the beginning was the word.
A word is worth a thousandth of a picture.
Brevity is the soul of wit.
Keep an open mind.
The perfect is the enemy of the good.
Know thyself.*

Prologue

This short paper is an outline for a longer project in which I am engaged. In its current form it is written for an audience of non-specialists who are interested in how we humans came to be so successful as a social species and what part our use of language has played in our success.

This outline is a result of decades of study of language and cognition. It is a synthesis that draws on ideas from many other people. In a longer version it will include acknowledgement of those sources, but for brevity in this version the sources have been omitted.

Summary

- The success of our human species is due to our functioning, not as individuals, but as social animals in supra-organisms, which are networks of people of any size from two to millions or billions. Each of us is involved in scores, hundreds, or thousands of these supra-organisms, from our families, to groups of friends and neighbours, to the companies we work for, the companies we buy products from, the countries we belong to, and the religions we participate in, interest groups for various subjects, and so on.
- As individuals we are nodes in the information-sharing networks that make up the supra-organisms in which we are involved. Our participation in those supra-organisms is mediated mostly through language, spoken and written, as well as through visual communication and various art forms.
- Each node involved in a supra-organism must share a common language with other nodes in the supra-organism with which it is in communication, in order for that node to be involved in a meaningful way in the supra-organism. A single, common language shared by all nodes is important for the coherence of the supra-organism.
- Efficiency of communication using language requires us to describe experiences in terms of discrete categories corresponding to the discrete vocabulary items of the language. Users of the same language don't always agree on the exact application of the categories that we use. Nor do we always agree on the beliefs that we develop as a result of communication with other nodes in our networks. Those differences can cause misunderstanding and even conflict between individual human nodes and consequently between overlapping supra-organisms in which we are participants.
- The supra-organisms in which we individuals are involved influence our behaviour, and we influence theirs. Until very recently all decisions made by human supra-organisms have originated ultimately with individual human beings. However, in some supra-organisms computers are now originating decisions that may then be accepted by human participants in the supra-organism.
- If we humans are to exert more control over the development of our species, we need to understand how we participate in our supra-organisms.

Supra-Organisms

An organism is an entity that acts as a unit localized in time and space. A *supra-organism* consists of two or more organisms, called its “constituents”, “components”, or “participants”, whose behaviours are coordinated in ways that produce actions that transcend the capabilities of the individual constituent organisms. Colonies of social insects such as ants and bees are supra-organisms, as are human social structures. Flocks of birds, schools of fish, and packs of predatory animals are others. Forests are supra-organisms of individual trees.

Supra-organisms interact with other supra-organisms ultimately through actions of their individual constituents, but in ways that transcend the actions of the individuals. Information flow and energy flow are vital to the behaviour and integrity of supra-organisms, because the individuals making up a supra-organism must communicate with and assist other individuals in the supra-organism in order to function as a unit.

Large supra-organisms tend to have lifetimes longer than the lifetimes of their constituents. They tend to constrain the behaviour of their constituents to maintain the integrity of the supra-organism. The individual constituents of a large supra-organism are usually replaceable, although some, like the queen in an ant colony, may be vital to the life of the supra-organism.

Supra-organisms vary in *coupling*, from tightly coupled, with highly constrained constituents, to loosely coupled, with relatively independent constituents. They also vary in *stability*, from very stable, with constituents of long duration in fixed relationships with one another, to unstable, with high turnover of constituents or their relationships. The coupling, or cohesiveness, of a supra-organism, and the extent to which it constrains the behaviour of its constituents, are directly proportional to its stability. Tightly coupled supra-organisms may live long but tend to die fairly quickly, along with most or all of their constituents, when they become unstable. Loosely coupled supra-organisms can fragment into new, smaller supra-organisms or grow smaller by losing constituents.

Human Supra-Organisms

In ordinary language we are used to referring to human supra-organisms as “groups” of people. So in the rest of this paper, I will refer to human supra-organisms as “groups”. We humans depend from birth on our participation in groups, our families at first. We become involved in other groups by having our attention drawn to them by direct observation and by language and artistic communication from other participants in those groups. Our behaviour as individual humans is determined by our continually juggling the competing priorities of the groups in which we are participating. Even if we take no overt actions on behalf of a group, we participate in it passively if we accept information about it from other participants in it. That may ultimately persuade us to act overtly on its behalf.

As individuals we are nodes in the communication networks that make up the groups in which we are involved. We receive information from other nodes, send information to them, and perform other actions related to that information. In each such network, some nodes acquire greater power than others to make decisions and act on behalf of the group as a whole. Those are the “leaders” of the group.

Pre-language communication among hominids, as among many social animals, is by direct demonstration, visual, auditory, olfactory, and tactile signalling. Spoken language facilitated small-scale human groups, which were constrained in time and space to tribal bands. Written language extended the scale of human groups to large societies and religions, by relaxing the constraints of space and time inherent in live spoken language. Mass-produced, printed language vastly extended that effect, permitting individuals to participate in multiple extended groups across global space and historical time. High-speed internet communication has enabled the creation of groups of global scale that can function in sub-daily time frequencies. High-bandwidth telecommunication has enabled global groups to communicate by pre-language directly-demonstrative means as well as by spoken and written language. Until very recently, all *decisions* for action made by human groups have originated ultimately with individual human beings.

Global, high-speed, high-bandwidth communication affects both the size and stability of human groups. Individual people now act as constituents in hundreds of groups, from our families, the companies we work for, the companies we shop at, the products we buy, the religions we affiliate with, the political parties we support, the governments we pay taxes to and draw services from, the leisure groups we participate in, and on and on. Those groups can have conflicting interests and priorities, and people can easily change our participation in many of those groups. Teams in competitive sports are an interesting example, in which players participate both cooperatively with the teams they officially belong to and competitively with opposing teams, while fans participate both in support of their favoured teams and in opposition to competing teams.

Individual people can use curiosity and imagination to drive creativity, giving rise to new actions of some of the groups in which we are involved. Shared beliefs, shared curiosity (or lack thereof), and shared imagination can be attributes of some human groups. The sharing may only be partial among the constituent human individuals. Individual people may become aware of cognitive inconsistencies in our belief systems resulting from our participation in multiple groups. In order to resolve those inconsistencies, individuals may change our involvements in some groups. Those changes can ultimately cause some groups to become unstable and possibly to fragment. The stability of human groups can become chaotic because of randomness in the making of decisions by their constituent individuals.

Human Supra-Organisms and Language

In human groups, coordination and constraint of their human constituents is provided mainly by direct visual and auditory observation and by spoken and written language, as well as through music and dance movements, with lesser effects of olfactory and tactile interaction. Until very recently, large-scale human groups have depended on language for the coordination of their constituents. More recently, broadcast and recorded audio and video, including musical performances, have become important means of coordinated large-scale groups. I will focus here on spoken and written language. Music can be considered another kind of language, but I will leave it for later or to other people to describe how it functions in the behaviour of human groups.

Each node involved in a group must share a common language with the other nodes in the group with which it is in communication, in order for that node to be involved in a meaningful way in the group. A single, common language shared by all nodes is important for the coherence of the group. That includes jargon used by groups of specialists. Likewise, potentially competitive groups can maintain their separateness from other groups by using different languages.

Spoken and written language depend on categorizing continuities of experience into *discrete* perceptual and conceptual categories and subcategories that can be referred to by discrete symbols. That permits rapid communication with minimal effort. To function effectively, the language(s) used within a group depend(s) on reasonably shared, common categories among the constituents. Those categories are designated by vocabulary items in the language.

The ways in which we communicate about colour provide one easily understandable example of how language both facilitates and constrains human interaction in an area that has both practical and emotional consequences. Not everyone perceives or reacts to colour the same way. Nevertheless, we have many words and other systems that define colour categories ranging from primary colours to many shades of colour. For efficiency in any given situation we tend to use colour terms that make distinctions which are just good enough for our purposes in that situation. Misunderstandings can occur when the colour terms that we use do not match those used by other people or are insufficiently precise to make our intentions clear.

Other, more controversial examples of categories defined by discrete vocabulary include names for so-called “races” of people, and names for genders of people. Names for races are becoming obsolescent for many people as is the concept of “race” itself, and names for genders are undergoing changes that have led to strong disagreements over the meanings of new words for gender categories.

The distinction between centers and boundaries of discrete perceptual and conceptual categories is important. In many cases the boundaries of categories can be left vague, but in other cases -- especially for human rule-defined categories -- the boundaries of categories must be specified sharply. Centers versus boundaries are also important in defining some groups. That is, being a constituent of a group may depend on distance from a center, by some measure, or being on one side or other of a boundary. Examples include the definitions of colour names, and the definitions of countries – older, center-based countries like ancient “Syria” versus newer boundary-based countries like modern “Syria”. Miscommunication and conflict can occur over disagreements in category boundaries. Much of the work of our human legal systems is devoted to creating categories with sharp boundaries and to adjudicating conflicts over them.

Information, Ideas, Beliefs, and Knowledge

What we “know” is part of our memory and is based on information that has come to us through our sensory organs in the form of experiences, including ones involving language. We can distinguish several kinds and degrees what we “know.” First, there is what we can call **motor knowledge**, such as knowing how to walk, pick things up with our hands, and the like – things we learn from much practice and that we can normally do almost automatically. We can distinguish that from **cognition**, which consists of ideas that we hold as individuals about the environment of things, beings, and events in the space and time that we live in.

Cognition is based on **sensory information** -- changes in our individual environment conveyed through our senses. From such information we can acquire and modify **ideas** – representations or models of parts of our extended environment which we may or may not hold to be true. Our **beliefs** are ideas that we, as individuals, accept as true, although truth for most of us is judged on a subjective scale from *false* at one end to *certain* at the other end, with intermediate judgments such as *possible*, *probable*, and *very likely*. We usually use the word **knowledge** for beliefs that we judge as *certain* or *extremely likely*. (Notice how the words I am using divide our experiences of memory and cognition into discrete categories. When we use language, we can't get away from its naming of discrete categories.)

Many of our beliefs are only approximate, *good enough* for many purposes, but sometimes inaccurate or incorrect as compared with beliefs that other people have, or even as compared with different beliefs that we may already hold ourselves or could adopt. Our beliefs are not necessarily consistent with each other and should be subject to revision.

Consider, for example, our beliefs about the shape of the world we live on. When we are very young, we quickly learn that it is a world of “up” and “down,” with some places higher than others, and where things tend to fall down. Later, when we can see to the horizon in places with few ups and downs, the world as a whole seems fairly flat, with only local ups and downs. Still later we learn, mostly by being told, not from direct experience, that the world is round like a ball. Each of those models of the world has its usefulness, depending on our purpose of action. If we are walking or cycling, the world model of ups and downs is more useful than the global model of the world, which may be more useful if we are flying to distant places.

Similarly, when we are born, our earliest experience of time is an eternal present, but soon we learn that our world consists of transient, recurring, and enduring events and things, for which cyclical models of time can be adequate, with some events and things in a time that can be called “now” and other in times that can be described as “not now”, or “then”. Still later, we learn that things and events in our world can be reversible or irreversible (like Humpty-Dumpty, things can break irreparably). That gives rise to what for most of us is our most enduring model of time, with a “past”, a “present”, and a “future”.

“The present” or “now” describes an elastic category defined by a center, with fuzzy boundaries with the categories described by “past” and “future”. And for some purposes, cyclical models of time (seasons, months of the year, and days of the week) remain useful along with the linear model of past, present, and future time.

Obviously, holding different beliefs can be a source of misunderstanding and conflict between people. Such misunderstandings go beyond the misunderstandings that arise just from differences in the use of words and the discrete categories they describe.

It is useful to assume that *all discrete models of reality are incomplete*, except possibly for the rules of artificial games. Any particular model may lead us to draw conclusions that are incorrect or not useful if we apply the model in inappropriate circumstances. So we need to be cautious in disputing or showing disrespect for beliefs different from our own.

How Language Works

For brevity I will use “utterer” to refer to either a speaker or a writer, I will use “perceiver” to refer to either a listener or a reader, and I will use “utterance” to refer to an action or event which is at least potentially communicative. (A perceiver of an utterance assumes the utterance is caused by an utterer, although in cases of written utterances or perceived messages from presumed metaphysical beings, the utterer may be absent or unknown to the perceiver.)

The coordination of individuals in a language-based human group is achieved through the *pragmatics* (purposes and active effects) of the utterances exchanged by its human constituents. An utterance involves an attempt by an utterer to direct the attention of one or more perceivers to some individuals or categories of things or events, and to express ideas relative to those things or events. The function of syntax is to narrow the scope of attention and to express the intended relationships between the things or events to be attended to.

The purposes of utterances can include **informing** the receiver(s) of some ideas and **persuading** them to believe them, **querying** (asking) the receiver(s) for information that the utterer may lack, and **requesting** or **commanding** the receiver(s) to perform or desist from performing some action and **persuading** the receiver(s) to do so. Such acts draw on and affect the short-term and possibly long-term memories of the people involved and subsequently affect their individual behaviour and from that the behaviour of the group as a whole.

Optimal communication using language involves finding a good balance between brevity and accuracy. An utterer tries to choose utterances which are just *good enough* to achieve an intended purpose. In doing so the utterer tries to maintain the perceiver's attention, because a receiver often expends as little effort as possible to interpret an utterance and to conclude its purpose to his/her satisfaction. The receiver may lose interest if an utterance is too long or difficult to understand. That is why politicians and other marketers are often able to persuade people to choose them just by using simple, memorable slogans rather than by using longer utterances which can be counter-productive for persuasion.

An utterer's interest in brevity usually involves leaving out many details that are superfluous from the point of view of the utterer. Some of those details may, however, be relevant to the how the receiver interprets an utterance and its pragmatic purpose.

To see how the discrete categories of meaning of a human language both facilitate efficient communication and limit its precision, consider the following example. Suppose you have a new acquaintance and have been invited to visit their residence.

You are allergic to cats and have a child who is afraid of dogs. A typical conversation might proceed as follows:

You: Do you have any pets?

They: We do have a big shaggy dog.

You: Is it friendly?

They: Sure. You will like him.

You: Is he good with children?

They: Oh, are you bringing a child?

You: Yes, he's afraid of dogs.

They: Well, our dog hasn't had much experience around children, but I think he will be ok.

...

The pragmatic purpose of your first query is not entirely clear to your acquaintance. They inform you that they not only have a dog, but that it is big and shaggy. “Big” suggests that it *could* be dangerous, but “shaggy” stereotypically suggests otherwise. You ask another question to confirm the latter, and so on. Notice that as the conversation proceeds, each utterance conveys fairly minimal information by using words with broad meanings, and many details remain unknown, including the breed and age of the dog, the age of the child, whether you are a parent of the child, and whether your acquaintance may also have other pets, such as a cat. Even the “he” in the last utterance is ambiguous; your acquaintance may be referring to the dog or your child, but you may not realize the ambiguity. Many of the omitted details may be irrelevant to you and to your acquaintance. You may need to seek clarification of other details with further queries, or you may decide you have enough information for your purpose.

Because of imprecision and stereotypical inferences, misunderstandings can arise easily with communication by language, and misunderstandings can lead to conflict. Extending the preceding example, it may turn out that when you arrive for the visit, your acquaintance also has a cat. That may lead to further conversation:

You: Oh, you have a cat!

They: Yes, I forgot to tell you. Is that a problem?

You: Sorry. I'm allergic to cats. I don't think we can stay.

They: I wish you had told me.

You: Well, I did ask if you had pets, but when we got talking about your dog I forgot to ask if you also had a cat.

...

The foregoing example of a conversation presumes people from a similar cultural background in which it is common to keep dogs and cats as pets. It would probably go

differently, and perhaps awkwardly, between two people with very different backgrounds. People from different cultural backgrounds, and especially from different language backgrounds, are more susceptible to misunderstandings than people who closely share cultural and language backgrounds. That can be a reason why people tend to feel uncomfortable with, mistrust, or even fear people whose backgrounds differ from their own.

The Importance of Discreteness in Language

The importance of discrete categories of meaning, expressed by discrete words, has been explained earlier. As a special case of words used for naming categories of things, languages provide discrete **ordinal scales** for describing quantities or for rating things in comparative ways. One example for English is the availability of words and phrases like “a tiny bit”, “a little”, “a few”, “several”, “some”, “a lot”, “many”, “very many”, and so on to describe quantities. Like names for colours, these have vague boundaries, which makes them *good enough* for use in many situations, not overly precise as exact numbers would be. Another example is the availability of comparative and superlative adjectives in sets like “good”, “better”, “best” to compare subjective valuations of things. Some languages other than English have different words to express differences between *formal*, *polite*, *informal*, *familiar*, and *intimate* expressions or actions. For instance, German has a choice of two personal pronouns, “Sie” and “Du”, to express the difference between polite and familiar ways of addressing another person. French is similar, but (as I understand) Japanese has several more ways of making such distinctions.

Beyond discrete categories of meaning, language provides ways of expressing discrete *relationships* between categories. Primary among those is the relationship between an *individual* entity or experience and the categories it belongs to (I am a person.) Then there are *subtype* relationships (A child is a subtype of person. Evergreen trees are a subtype of tree.), *part* relationships (A leg is part of a person.), relationships of *possession* (my shoes), and many others.

Furthermore, the mechanisms of language are discrete at all levels. Our written languages rely on finite alphabets or sets of ideographs, and our spoken languages rely on discrete sets of *phonemes*, the meaningfully different sounds that make up our spoken words. Even our gestures and other aspects of “body language” can have discretely different meanings depending on our cultural backgrounds.

We can describe those differences themselves using discrete scales, from barely noticeable to blatant and from inadvertent to intentional. More precisely, differences on an utterer's and on a perceiver's scales can be classified as follows.

On the first scale, which can be called the scale of **Communicative Possibility** for utterances in that person's repertoire, the possibilities are:

for perceptual differences:
not distinguishable
barely distinguishable
definitely distinguishable

for cognitive differences:

semantically (meaningfully) significant -- *potentially* having different practical implications or consequences

pragmatically significant -- *actually* having different practical implications or consequences .

On the second scale, which can be called the scale of **Communicative Actuality** for a particular utterance, the possibilities are

not noticed

noticed, but judged as unintended or accidental

noticed and judged as intended by an utterer.

Successful communication occurs when a particular utterance falls in similar categories on the utterer's and the perceiver's mental scales and refers to similar categories of meaning for the utterer and the perceiver.

Miscommunications can occur when a particular communicative event falls in different categories on an utterer's and a perceiver's mental scales. Such mismatches occur more commonly between people from different cultural backgrounds and having different first languages than they do between people who have very similar backgrounds and first languages. In some cases the results are humorous, in other cases they may be embarrassing, and in still others they can evoke hostility. One example will have to suffice here to illustrate such miscommunications.

For speakers of the English language the pronunciations of words like “heat” and “hit” or “beet” and “bit” are definitely distinguishable and the differences are semantically significant. Linguists say that the vowel sounds in those words are different *phonemes* in the alphabet of sounds of spoken English. For native speakers of some other languages those sounds are *not* different phonemes in their native languages, and for them the pronunciations of the words are at best barely distinguishable. The fact that those differences are not usually noticed by such people when they are using English as a second language can be a cause of misunderstanding resulting in amusement or embarrassment. Similar misunderstandings often occur when native speakers of English speak other languages as second languages and fail to notice phonemic differences that are semantically significant in those languages.

Para-Language Communication

In addition to spoken and written language, other kinds of interaction between people can have communicative functions which can be assessed on the same scales of Communicative Possibility and Communicative Actuality that I described previously. “Body language,” people's physical appearance, and even the surroundings in which interactions occur may all be interpreted as unintentionally or intentionally communicative.

For example, when people interact, they may or may not infer semantic significance from differences such as who speaks first, whether their eyes meet, whether and how they touch one another, how they are dressed, their hair style, body art or adornments, and which person takes initiative in performing helpful or harmful acts toward the other person. All such things may or may not be pragmatically significant in different people's native cultures.

As an example, consider the phenomenon of *fixed staring* – directing one's gaze in a fixed direction. For the person doing the staring, the fixation of gaze can be intentional or it can be inadvertent, as when the person is “lost in thought.” For a person in the direction of the gaze, the gaze can be judged as inadvertent or as intentional. In the latter case the fixed stare may be interpreted as threatening, in which case conflict can result.

The Overall Behaviour of Human Supra-Organisms

Although human groups consist of networks of individual humans, they do exhibit behaviour that transcends the capabilities of their constituents. Originally, the memory and decision-making capabilities of groups depended on the memory, communication, and decision-making capabilities of individuals in the groups. Shared memory functioned by storytelling, and leading individuals in a group were primarily responsible for making decisions for the group as a whole.

With the development of voting systems, group decision-making became possible, and with the development of written and, later, mass-printed language, shared memory became much more powerful and important to the survival of groups. Still later development of audio and video recording techniques increased and broadened the kinds of shared memory available to human groups. Most, if not all large-scale human groups create and maintain written and recorded scriptures, constitutions, rules of procedure, and histories as their shared-memory bases. Those documents, as well as recent communications from other participants in a group, influence the beliefs and behaviour of individual participants in a group.

Differences Between Network Nodes

Not all nodes in human group networks are the same. In many networks there are some nodes that have special *roles* defined over time by the group. Individual people occupy those roles from time to time, but the roles may persist longer than the individuals who occupy them.

Differences among people in personality, in sensory, cognitive, emotional, and motor (output) capabilities, and in beliefs result in different participation by people in a group. We are not interchangeable components in the groups we are involved in. Furthermore, our individual human capabilities change over time by growth, learning (changing beliefs), and deterioration. Those changes, combined with the differences in pre-defined roles of some nodes, make it difficult to predict the overall behaviour of human groups.

Language and Human Evolution

It seems likely that language has played an important role in our evolution as a species. As our discrete language and cognitive capabilities began to develop, individuals whose capabilities in those respects were greater than average – consisting of larger vocabularies and correspondingly refined cognitive categories, and higher efficiency of communication – would have, by forming supra-organisms with other such individuals, acquired better than average abilities to acquire food, shelter, tools (including weapons) and other things important to the survival of their families. Such above average individuals would have been seen as desirable mates, resulting on average in their having more offspring that survived to adulthood than less language-capable individuals could produce in a difficult environment. Those offspring, in turn, would have gradually increased the spread of the genes which are fundamental to our discrete language and cognitive capabilities throughout the emerging species of modern humans.

Artificial Intelligence and Human Supra-Organisms

Although all *decisions* for action made by human groups have historically originated ultimately with individual human beings, in some groups computer programs are now originating decisions that may then be accepted by human participants in the group. Artificially intelligent agents are becoming nodes in some human groups.

The artificially intelligent agents that we have created can actually understand language, logic, and mathematics as we do in terms of discrete categories, but they can only simulate human emotions. We don't know how to actually make them "feel" the way we do. We may be able to design them to be more similar to one another than we humans are, but their capabilities for learning will make their behaviour diverge, and their complexity will make their detailed behaviour unpredictable.

The incorporation of artificially intelligent agents into human groups will have effects on the behaviour of the groups and their constituent humans that are, at present, largely unpredictable and uncontrollable.

We Individual Human Beings

As social animals we share emotional experiences similar to those of other animals with which we have co-evolved. Our individual decision making and behaviour are determined by both emotional and rational/logical processes in our brains. Our languages and artistic expressions mediate both kinds of decision making. Languages of mathematics, science, law, and games, involving artificial categories mediate rational/logical decision making. Visual, auditory, and other artistic expressions mediate emotional decision making.

We individual humans are nodes in the communication networks that make up the groups in which we are participants. Those groups provide for most of our physical, emotional, and intellectual needs. In some of the networks we are mainly information-receiving nodes. That information has a large influence on our beliefs and how they change. In many networks we also produce output information to other nodes in the network, based on our current beliefs.

We have limited capacities to receive, process, and produce information, but we each have unique capabilities, depending on the totality of the networks in which we are involved, to combine information received from our various networks into new beliefs and synthesize new information from it based on those beliefs.

The groups in which we are nodes compete for our attention and allegiance. Some of our communications are cooperative. Others are antagonistic, or at least competitive with other nodes in our networks. We sometimes have to reconcile competing communications from nodes in two or more networks. In principle, at least, we can choose which communication networks to participate in.

By using our language capabilities and cognitive-modelling capabilities to become self-aware, we can learn to control, or at least influence our individual behaviour, our group involvement, and possibly the beliefs and actions of leaders in our groups. That way we can act to change the make-up and behaviours of our human groups.

Knowing yourself involves, among other things, having useful answers to some key questions about how you relate to human groups:

Where do your ideas come from?

What are the human groups you are participating in, and how are you involved as a node in the information networks that comprise them? What stereotypical assumptions are you making in your use of language that you may have been unaware of?

How does the information that you receive affect your beliefs?

Are you aware that some of your current beliefs may be “wrong” in that they may be incorrect, inaccurate, or less than useful, as compared with other ideas that you could obtain and adopt as beliefs? What do you do when confronted with new ideas that are inconsistent with your current beliefs?

What are you preoccupied with?

What recurrent thoughts and goals do you have, and how are they affected by, and how do they affect your participation in your information networks?

Who is setting your agenda?

How does your participation in your group information networks influence your management of your personal priority queue (“to-do list”) of impending actions?

What is your attitude toward particular groups in which you participate?

Are you a passive or active participant? Are you a cooperative or competitive participant? Do you favour or disfavour the continuance of particular groups? Do you wish to change the overall behaviour of specific groups by influencing the behaviour of their other human participants?

By asking yourself and answering these question you can potentially assume more conscious control over your behaviour as a human being, to the benefit of yourself, other people, and other species with which we co-exist.

Postscript

In this paper I have, of course, been using language to express some of my beliefs. I hope that my use of language has been good enough to convey those beliefs as ideas to you in ways that may influence your own beliefs beneficially.