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Résumé de l'article

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Verbal Language, Secondary Perception and the Emergence of Artistic Expression

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Abstract: A study is made of verbal language and artistic expression in human communication and their link to secondary perception, the way perception changed once humans achieved verbal language. The connection of verbal language to artistic expression through secondary perception is made as is the explosion of new tools, altruism, a theory of mind and religious practice, which are explored.

Key words: secondary perception; language; verbal language; artistic expression; tools; percepts, concepts; theory of mind; altruism; religious practice

Introduction

One can roughly classify human communication as being either verbal or non-verbal. The verbal modes of communication include speech, writing, mathematics, science, computing, the Internet, search engines and AI, which form an evolutionary chain of languages (Logan 2023). The non-verbal modes of communication or forms of artistic expression include the visual arts of painting, sculpture and photography and the performance arts of music and dance, all of which we will refer to as forms of artistic expression. Some art forms like film, theatre and opera contain elements of both the verbal and the non-verbal forms of communication. One interesting question we will consider in this article is: What is the connection between verbal language and artistic expression both of which are symbolic? One hint of a connection is the fact that humans are the only animals that possess verbal language and express themselves artistically through visual images and music. Although there is an element of musicality in bird songs and other animal cries these are merely signals that are repetitive and do not possess the variety of human musical expression. We think it is no coincidence that only humans possess both verbal language and artistic expression and that the conceptualization inherent in verbal language plays a key role in the emergence of artistic expression even in the non-verbal arts of music, dance, painting and sculpture. We will also explore how verbal language also led to conceptual thinking, more sophisticated tool making, a theory of mind, greater social co-ordination, altruism and religious practices.

I began this article in the spring of 2020 but for some unknown reason I put it aside, I returned to it after having written the article "Propagation of the Organization of Works of Art" that appears in this issue of New Explorations just before this article so I suggest you read that article before tackling this one if you have not already done so.

Secondary Perception

We will attempt to show in this paper that the origin of artistic expression is linked to the origin of verbal expression through what I term secondary perception which I define as the perception influenced by verbal language and the conceptual symbolic thought that verbal language makes possible beginning approximately 50 thousand years ago. I define secondary perception that arose with verbal language to distinguish it from primary perception, the perception experienced by humans before the advent of verbal language and by non-human animals including hominids such as Neanderthals, Denisovans, Homo Erectus and Australopithecus who it is assumed did not possess verbal language, although there are some who dispute claim. For example, Daniel Everette in his lecture, "Homo Erectus and the Invention of Human Language" (<https://www.youtube.com/watch?v=4uUillN-8gk>, accessed March 28, 2024 – from 44 to 48 minutes into his lecture) claims that Homo Erectus possessed language. He also claims that they possess art work and other forms of graphic representation.

In introducing the notion of secondary perception, the perception that emerged once humans acquired spoken language. I am inspired by and I am following the lead of Walter Ong (1991) who formulated the notion of secondary orality, namely the orality of a literate culture to distinguish it from the primary orality of a pre-literate culture.

We will also examine the relationship of human communication, both verbal and artistic, with that of altruism and religious practice making use of the concept of a theory of mind and the notion of secondary perception. In addition to being the only animals with verbal language and art, humans are also the only animals with a sense of spirituality and religiosity.

An Evolutionary Chain of Languages

In a study of the verbal modes of communication in *The Sixth Language* (Logan 2004), the six modes of symbolic communication of speech, writing, mathematics, science, computing and the Internet were shown to form an evolutionary chain of languages. Each new form of language arose as an emergent phenomenon to deal with an information overload that the previous languages created and could not cope with. Each new form of language had its own unique semantics and syntax that differed from that of the prior languages. In a more recent study Logan (2023) made of the verbal modes of communication added in addition to the six languages of speech, writing, mathematics, science, computing and the Internet two additional verbal modes of communication, namely search engines and artificial intelligence (AI).

Speech or verbal language is believed to have emerged among humans 50 to 100 thousand years ago with Chomsky (1996) proposing the earlier onset at 100 thousand years ago. Writing and mathematical notation both arose together for the first time in Sumer to deal with the information overload that developed in keeping track of tributes around 5 thousand years ago. Farmers made tributes to priests in the form of agricultural commodities that they grew or livestock that they raised. These tributes were redistributed to the irrigation workers who made farming and animal husbandry in Sumer possible. The emergence of writing and mathematical notation quickly gave rise to formal schools and teachers to teach the skills of reading, writing and arithmetic, the 3 R's, that still form the core of primary education to this day. Formal education was a way to deal with the information overload of literacy and numeracy. Some of the teachers over time became scholars creating new forms of knowledge and a new information overload that led to science or organized knowledge 2500 to 3000 years ago. The information overload generated by science and science-based technology led to computing only 80 years ago, although the idea of an automated calculating machines was conceived as the analytic machine by Charles Babbage in 1837. The information overload of computing in turn led to the Internet

45 years ago and the World Wide Web together with search engines a mere 30 years ago. Artificial Intelligence or AI dates back to the work of Alan Turing in 1941 and the team of Warren McCulloch and Walter Pitts in 1943 (https://en.wikipedia.org/wiki/Artificial_intelligence#History, accessed Jan 30, 2024) but it is only in the past couple of years that AI really took off. This is how the evolutionary chain of eight languages came into being. (A personal note: Having mentioned McCulloch & Pitts I wanted to share with you, the readers, that I had the privilege of spending time and conversing with Warren McCulloch in his lab as a physics graduate student at MIT in 1964-65).

From Percepts to Concepts: The Extended Mind Model of the Origin of Verbal Language

The evolutionary linking of the seven forms of notated language back to spoken language led naturally to the question of how spoken language originated. In an attempt to tackle this question, the Extended Mind (Logan 2000, 2006 & 2007) model was developed in which it was proposed that speech emerged out of the non-verbal mimetic communication of hand signals, gesture, body language and non-verbal vocalizations to deal with the complexity of hominid life due to

- a more sophisticated form of tool making from materials other than stone,
- the systematic control of fire,
- the increased complexity of co-operative social structures that arose to take advantage of the improved hearth and to engage in large scale coordinated hunting and gathering making use of improved hunting tools.

Before speech emerged, human thought was percept-based like the thought of pre-human hominids and other non-human animals. The human brain at first was a percept processor and as such could no longer cope with the new complexity that began to emerge as humans began to develop the advances listed above.

As a result, the spoken language that emerged was symbolic as opposed to the sounds and grunts of mimetic communication. The symbolic elements of the language, namely the words, acted as concepts. As a result, there emerged among humans a bifurcation from percept-based thinking to concept-based thinking. It is claimed that the first words of spoken language were our first concepts acting as strange attractors for and uniting all of the percepts associated with that particular concept. The use of the word water, for example, calls to mind and unites all our perceptions of the water we drink, we wash with, we cook with, we swim in, and the water we associate with rivers, lakes, the sea, rain and melted snow. Words acting as concepts allowed for the uniquely human capability to plan and think about things that are not immediately at hand in space and time and hence could not be immediately perceived. Language also allows us conceive of things that do not exist or abstract ideas that are not perceived by our senses. One cannot perceive the notion of the soul or of gods, but with verbal language one can conceive of such things and many others.

Once humans possessed concept based verbal language the developments that led to verbal language began to accelerate so that tool making and social organization became even more sophisticated and new elements emerged such as agriculture, commerce, writing, math, religions and artistic expression.

The causal relationship of the emergence of verbal language, sophisticated and systematic tool making and more complex forms of social organization, however, was not just a simple linear relationship. The emergence of language that facilitated concept-based thinking led to more sophisticated tool making and it also gave rise to more complex social organization. A new complex system of human culture emerged consisting of the following components:

1. verbal language,
2. sophisticated tool making,
3. a more reliable hearth, and
4. a more sophisticated form of social organization beyond that of the nuclear family.

These components listed above bootstrapped each other and the system of human culture as a whole came into existence. The system of human culture that emerged was a complex emergent system

possessing properties that none of its components possessed and as such began to evolve creating still more elements, namely art and religious practice, that began to appear within a very short time after the emergence of speech 50 -100 thousand years ago, a turning point in the evolution of modern humans, i.e. Homo sapiens.

The Impacts of the Origin of Speech 50-100 Thousand Years Ago

The abstract achievements of modern homo sapiens such as more sophisticated technology and social organization, altruism, artistic expression and religious practice beginning 50-100 thousand years ago at the same time that verbal language first emerged or shortly thereafter according to the following scholars: John Pfeiffer (1982), Ian Tattersall (1998), Richard Klein and Blake Edgar (2002), Philip Lieberman (2008 a & b) and Jared Diamond (2017). Here is Philip Lieberman's formulation of this idea:

The overlap of the emergence of verbal language and its promotion of conceptual thinking and the explosion of sophisticated forms of technology, art and religious practice suggests a causal connection between these developments. Although modern humans, homo sapiens make an appearance as early as 200 thousand years ago the final physical evolution of our species was not completed until 50 thousand years ago when humans achieved the biological equipment that made vocal language, i.e. speech, possible.

Speech is the default medium for language, and it most likely has a long evolutionary history. However, the fully human speech anatomy which allows us to produce the most common, "universal" vowels [i], [u] and [a], first appears in the fossil record in the Upper Paleolithic (about 50,000 years ago) and was absent in both Neanderthals and earlier humans (Lieberman 2008a).

The human speech anatomy dates back to 50,000 years ago when human artifacts first appeared. The human speech anatomy results in increased risk for choking to death on food lodged in the larynx and infection from impacted third molars. There would have been no reason for retaining tongues that had descended into the throat, carrying the larynx down to a position in which choking could readily occur, unless the neural substrate were present that allows us to freely reiterate the motor pattern generators that underlie speech (Lieberman 2008b).

The achievement of the advancement of technology and the proliferation of new tools in the same time frame or shortly after the arrival of speech can be attributed in part to the conceptual thought that verbal language made possible as well as the secondary perception that allowed humans to see and to perceive things in a new light. Secondary perception contributes to technological innovation and design because it allows the inventors of tools to envisage how the tools can be manufactured and used. The inventors' power of perception combined with their analytic skills of conceptualization due to their use of verbal language became a powerful combination that led to a flood of new tools. With conceptualization and secondary perception human inventors began to perceive the tasks that they needed to achieve and the materials that were at their disposal differently. Instead of seeing stone as the only material from which tools could be fashioned, they suddenly began to use a large variety of materials for tool making including bones, sea shells, antlers, ivory and even baked clay. Some of these tools created new kinds of economies. Humans were now able to fashion a sharp point from bones which resulted in new tools such as needles used to sew clothes and hooks to catch fish. The relationship between the emergence of speech and the explosion of new technologies is not a simple linear one because as new technologies or tools came on stream the complexity of human life became greater which in turn stimulated the further development of verbal language, which then led to still more new tools. In other

words, verbal language and sophisticated technology bootstrapped each other into existence. The spoken word and the conceptual thinking it permitted led to an evolutionary chain of languages as described above. It is also the case that the appearance of art and religious practices also begins to appear shortly after the emergence of verbal language which are developments that also can be attributed to secondary perception.

Percepts, Concepts and a Link Between Verbal and Artistic Expression

Ever since I proposed the evolutionary relationship between the different forms of verbal language in my book *The Sixth Language*, I have been asked what about the visual arts and music. Aren't they languages also? My answer has always been: yes, they are languages also but non-verbal ones. My proposal for the evolutionary relationship of verbal languages did not encompass the fine arts.

I now believe I can speak of a relationship (perhaps a tenuous one but one nevertheless) between the verbal languages that I have suggested are related evolutionarily, on the one hand, and the visual and auditory forms of artistic expression, on the other hand, given that the advent of verbal language by modern humans and the conceptual thinking it made possible also led to the first forms of artistic expression as well as religious practices. The visual arts and music are activities grounded in visual and auditory perception respectively, so how does verbal language and conceptual thinking contribute to artistic expression?

The insight that led to understanding the link of the verbal language with that of artistic expression was the realization that the visual arts and music are both percept-based because of the physicality of the artistic medium and, most importantly, conceptual as well because of the symbolic and representational nature of the arts and the desire of the artist to create an effect as McLuhan (1977) suggested when he said, "Every artist - any painter, any poet or musician sets out to create an effect, he sets a trap to catch somebody's attention. That is the nature of art." Artists make use of concepts as much as the scientist but artists are also grounded in their physical media whether that is paint, marble, film or musical sounds. The artist engages both our emotions through our perception of their medium and our intellect through the symbolic representations of their composition and the effect they are attempting to create.

I believe that this explains why the emergence of artistic expression followed so closely on the heels of the emergence of spoken language. On the one hand, the conceptual thinking that language made possible, created the motivation for the artists to create the effects that they tried to achieve. And, on the other hand, the secondary perception, also a product of verbal language, provided the perceptual tools necessary to execute their artistic vision.

This hypothesis I have proposed is an abduction which cannot be tested scientifically because it cannot be falsified as the development of verbal language and the emergence of artistic expression happened only once in human history. The model, however, is consistent with similar claims made by a number of scholars reviewed below. What this model provides is a mechanism to explain why artistic expression co-emerged with verbal language shortly after the emergence of human speech.

Mind = Brain + Language

In the Extended Mind model (Logan 2007) it was suggested that before language emerged hominid thought was purely percept-based and the brain was basically a percept processor. With the emergence of verbal language, the brain bifurcated into the brain and the mind. The brain continued as the seat of percept-based thought and the mind became the seat of concept-based thought. The metaphoric formulation of this notion is captured with the equation: mind = brain + language. The best way to understand the relationship between the brain and the mind is in terms of complexity or emergence theory. The notion of the biosphere consisting of all living organisms was introduced to distinguish it from the abiotic universe. Living organisms represent a level of complexity above and beyond that of the physical components of which they are composed. Living organisms represent emergent phenomena in the sense that the properties of a living organism cannot be predicted from,

derived from or reduced to the properties of the physical biomolecules of which they are composed. Life represents a higher level of organization with respect to abiotic material.

The biosphere, on the other hand, gives rise to a more complex and emergent domain with humans once they possess verbal language, namely the symbolosphere, defined as the human mind and all the products of the human mind including symbolic abstract thought, language and culture including technology, science, governance, economies and all the forms of artistic expression. The notion of the symbolosphere was first introduced by John Schumann (2003a & b) and later elaborated in Logan and Schumann (2005) and Logan (2006b). It represents another emergent phenomenon at a higher level of organization than the biosphere in the sense that its properties cannot be predicted from, derived from or reduced to the properties of the human brain from which it emerges. The universe constructs itself from energy, the biosphere constructs itself from biomolecules and the symbolosphere constructs itself from concepts acting as strange attractors for neural-based percepts in the human brain (Logan 2007).

The new insight regarding the emergence of art is that with language and the concept-based thought it creates, secondary perception emerged in which perception is transformed by conceptual thought in much the same way that orality was transformed by literacy giving rise to secondary orality. Secondary orality is Walter Ong's (1991) simple idea that there is a difference between primary and secondary orality, where primary orality is the orality of a pre-literate culture and secondary orality is the orality of a literate culture. Ong observed that literacy changes the nature of orality creating what he coined to be "secondary orality". In the same way, verbal language changes the nature of perception creating what I have called secondary perception.

Once humans acquired verbal language and conceptual symbolic thought the nature of their perceptual sensorium changed into what I have identified as secondary perception. Secondary perception is to primary or pre-verbal perception, what secondary orality is to primary or pre-literate orality. Secondary perception allows the potential artists to combine their perceptual capabilities with their ability to create symbols and to think symbolically, all of which are the necessary ingredients for artistic expression which combines the physical medium of their art work with the conceptual products of their mind.

The mechanism by which secondary perception emerges is through downward causation from the mind, the seat of conceptual thought due to its possession of verbal language to the brain which I have identified as a percept processor in the Extended Mind model. This formulation yields a theory for the emergence of art as the product of secondary perception and concept-based thought. It also explains the apparent correlation of the emergence of speech and symbolic art. Unfortunately, this hypothesis can be construed as a just-so story as the emergence of symbolic art and verbal language were each one-time events in the history of humankind. However, one independent prediction is possible based on the idea that artistic expression entails secondary perception and concept-based thought. I believe that a brain scan of an artist composing or performing a work of art would reveal activity in both the part of the brain associated with verbal language and the part of the brain associated with visual or auditory perception depending on the art form. I hope that some experimental psychologists or cognitive scientist will test this conjecture of mine.

A Google search of the literature revealed that there is a definite impact of the left brain associated with verbal language skills and conceptual thought on artistic expression which is largely associate with right brain function. The following excerpt from a study by from Annoni et al. (2005, p. 797) of an artist who suffered a minor stroke reveals the involvement of both hemispheres in artistic expression indicating that conceptualization plays a role in artistic expression:

Painting is a very complex behavior and its neural correlates involve brain areas processing the perceptive, cognitive, and emotional valences of stimuli; brain

damage, therefore, could modify artistic expression... Right parieto-occipital damage resulting in spatial neglect, constructional apraxia, or perceptual agnosia can alter the spatial configuration of the whole painting or individual parts, while extensive left hemisphere damage may be responsible for simplification of detail of represented objects.

Another neurologist, Anjan Chatterjee (2004, p. 1573), based on studies of artists with neurological deficits also links conceptualization with artistic expression:

Thus, from the limited data available, the art of patients with visual agnosia seems to be largely determined by whether their deficit is closer to the perceptual or the conceptual end of object recognition processes. If the deficit is at the perceptual end, patients are likely to not produce the overall form and composition of images, but continue to render individual features of objects. By contrast, patients with deficits at the conceptual end are still able to draw very well if copying from a rich source, but fall apart when having to draw from memory or if guided by their knowledge of the world.

Ellen Dissanayake (1988, p. 112) argues that "the elements of art are human nature's fundamental elements" of which she includes "Language and speech - Classification and concept formation - Symbolization." She goes on to suggest a connection between these elements. "Inseparable from abstract or conceptual thought and language is the ability to symbolize, to recognize one thing as standing for or representing another (ibid., p 118)."

The Joint Emergence of Verbal Language and Artistic Expression

Support for the hypothesis I have proposed comes from a number of scholars who have suggested that the emergence of language, symbolic or conceptual thought and artistic expression are all connected and simultaneously began about 50 thousand years ago in what Jared Diamond (2017) called the "great leap forward" and what Pfeiffer (1982) and Ian Tattersall (1998) call the "creative explosion". It was at this time there was an explosion of human inventiveness when for the first time there emerged a profusion of new tools, clothing made from animal hides, decoration of tools, jewelry, rituals such as ceremonial burials, artistic expression in the form of cave paintings and carved figurines and musical instruments.

To many archaeologists, art--or symbolic representation, as they prefer to call it--burst on the scene 50,000 years ago, a time when modern humans are widely thought to have migrated out of Africa to the far corners of the globe. These scholars say the migrants brought with them an ability to manipulate symbols and make images that earlier humans had lacked... As Richard Klein of Stanford University puts it, "There was a kind of behavioral revolution [in Africa] 50,000 years ago. Nobody made art before 50,000 years ago; everybody did afterward." (Appenzeller 1998)

Dunbar (1998, 105) reaches a similar conclusion

Symbolic language (the language of metaphysics and religion, of science and instruction) would have emerged later as a form of software development (it embodies no new structural or cognitive features not already present in social language), probably at the time of the Upper Paleolithic Revolution some 50,000 years ago when we see the first unequivocal archaeological evidence for symbolism (including a dramatic improvement in the quality and form of tools, the possible use of ochre for decorative purposes, followed in short order by evidence of deliberate burials, art and non-functional jewelry).

The First Appearance of Art 50 Thousand Years Ago

Emanuel Anati (1989, 209), an expert on rock art, maintains that art, language and religion have a single root. He also dates the advent of visual art to 50,000 years ago.

There is no evidence of a full-scale use of visual art until 50,000 years ago. The consistency throughout the world of the same basic repertory of symbols and images exhibited in the early phases of rock art testifies to the common origin of *Homo sapiens* and of his uniquely human intellect... Early prehistoric men already operated within a framework of mental mechanisms of association, symbolism, and abstraction, which still today are defining characteristics of our species. In comparison to the preceding hominids, using these cognitive skills was not only an evolution, but also a true revolution: a leap forward that once taken has made us forever a very different Primate (Anati 2004, p. 53 &).

David Lewis-Williams (2004), an art historian in his book *The Mind in the Cave: Consciousness and the Origins of Art*, as the title of his book indicates, links the origin of art to consciousness. Like Anati (2004) he also links the origin of art to religion. Both religion and consciousness depend on conceptual thinking and hence language as proposed in the Extended Mind model (Logan 2007). We therefore consider the work of both Lewis-Williams (2004) and Anati (2004) as supporting the link between the origin of language and the origin of art.

Additional evidence of symbolic thinking, art and religion is the appearance of the Venus figurines beginning 40 thousand years ago all across Europe and parts of Asia of small statuettes 2.5 to 10 cm in size depicting a voluptuous often pregnant naked female with exaggerated breasts and buttocks assumed to be representing fertility or a fertility goddess. These statuettes were carved primarily of mammoth tusks but also teeth, antlers, bone, and stone and in some instances of clay baked ceramics, one of the first known instances of the use of ceramics (https://www.ancient.eu/Venus_Figurine/, accessed April 6, 2020).

In addition to the figurines additional evidence for symbolic art are the many examples of cave art across the world depicting hunters and their prey dating as far back as 44,000 years ago in the case of the cave art found on the island Sulawesi in Indonesia (<https://www.nationalgeographic.com/science/2019/12/ancient-cave-art-in-indonesia-may-be-worlds-oldest-hunting-scene/#close>, accessed April 6, 2020) and also in the Franco-Cantabrian region that stretches from northern Spain to southern France (https://en.wikipedia.org/wiki/Franco-Cantabrian_region, accessed April 15, 2020). More recent examples of cave art have been found all over Europe, Asia, Africa and Australia.

Similarities and Differences of Verbal Language and Artistic Expression

Both verbal language and artistic expression communicate the intentions of the speaker or writer and the artist respectively and hence both entail a theory of mind, the idea that the sender of a communication assumes the recipients have a mind similar to their own. Both forms of communication, linguistic and artistic, can be used to express emotions. Both require thought and planning although conversational speech and some forms of musical performance tends to be more spontaneous and less planned. But even conversational speech entails a certain amount of planning even though it takes place as the speaker speaks and hence is not a very lengthy process. Both language and art are abstract in that they represent transformations of reality into words or utterances in the case of language and visual plastic forms or sounds in the case of art. As a result, both language and art are

representational and symbolic. From a Peircian semiotic perspective, however, verbal language is always symbolic but art can be iconic, indexical or symbolic or some combination of all three. Iconic representation is representation by similarity as for example the way a photograph represents the thing being photographed. An indexical representation is a sign that is associated with the thing being represented as smoke indexically represents fire. Symbolic representation is when the sign stands for something else by convention. Like the word dog represents the four-legged animal that we think of as man's best friend.

Another similarity is the fact that every human culture that we know of possesses both verbal language and artistic expression. They are both universals of the human condition and unique to our species.

Hominids had been evolving for 4 million years, but art only appeared with *Homo sapiens* and proved to be an exquisitely human expression. The «creation» of art was a revolution (Anati 2004, p. 67).

Our ancestor early *sapiens* was characterized by the neurological capacity of creating an ideology, whose basic matrix is still present at the core of modern man's conceptual cognition. This framework included a capacity for synthesis and abstraction which, among other things, led man to produce art and abstract thought, and to develop an articulate and complex language (ibid., p. 60).

And finally, to conclude this catalog of similarities it is important to remember that painting, sculpture and music are often referred to as languages and verbal language in the form of oratory, poetry and literature are often referred to as art forms. There are many crossovers between verbal and artistic expression but let us now examine some of the differences.

The arts appeal immediately to the sensual aspect of human perception and then to the intellectual side. Verbal language, on the other hand, appeals immediately to the intellect and then possibly through imagery to the sensual side of our mentality. Verbal language is linear whereas the arts are multidimensional. Even music, which has a temporal linear progression is multi-dimensional because it is composed of pitch, timbre, tempo, volume, melody and harmony. Verbal language can be analytic and has led to mathematics, science and computing whereas the arts are synthetic and aesthetic. Both verbal language and artistic expression can express both ideas and feelings but the arts tend to be more about feelings and verbal language more about expressing ideas. This dichotomy is only approximate especially if one considers poetry or the poetic language of a playwright like Shakespeare which at times can be both analytic and sensuous. And songs with lyrics can also be both sensual and analytic at the same time. Beethoven's Ode to Joy comes to mind.

A Theory of Mind – Art Is about Creating an Effect

As was already noted both the arts and verbal language are about communicating intentions and expressing thoughts and feelings. Both forms of communication therefore are based on a theory of mind, i.e. the notion that the communicator believes those who are their audience have a mind similar to their own and hence will comprehend their communication whether that is verbal or artistic. Those who study the origin of language consider the human capability of a theory of mind was a cognitive capability unique to humans that made verbal language possible. Dunbar (1998, p. 101-02) defines a theory of mind as “the ability to understand another's individual mental state” without which he claims,

there would be no language in the form we know it.... Language requires more than the mere coding and deciphering of well-formed grammatical statements. Indeed, as has been often pointed out, many everyday conversations are conspicuous by their lack of grammatical structure (Gumperz 1982). However, important formal grammar may be in the precision

of information transfer, it is surely the intentionality of speech that is the most demanding feature for both speaker and listener.

I believe that a theory of mind is just as critical for the origin of artistic expression as it was for the origin of verbal language. Artistic expression is also a uniquely human attribute and its execution requires a theory of mind on the part of the artist and their desire to affect others. Artists through their artwork are trying to create an effect on their audience and this requires a theory of mind on the part of the artists to believe that they can create effects on their audience like the ones they experience. As mentioned earlier McLuhan described the artist's methodology as working backwards from the effect they want to create to the causal elements that will produce the effect they have in mind. In order to work in this manner, the artists obviously must have a theory of mind.

Both Speech and Artistic Expression as Forms of Social Communication

Both verbal language and artistic expression are forms of social communication. "Speech... serves two functions, that of social communication, and the representation of and a medium for abstract thought (Logan 2007)." The same may be said of artistic expression. Both verbal language and artistic expression are forms of abstract thought. While both are vehicles for the expression of emotions, the visual and musical arts tend to favor emotional expression over analytic thought more so than verbal language. This generalization is only a general trend as one can find superb examples of emotional expression through verbal language and music and visual art that is extremely analytic and everything in between.

The Emergence of Verbal Language and Altruism

Verbal language has been a very important tool for creating social cohesion and cooperation. There is a very strong correlation between altruism and the origin of verbal language. The motivation for verbal communication in many cases is to get help from another human or to co-ordinate a joint action that will help both parties, but there are many times that the speech act is made merely for the benefit of the recipient and is therefore an altruistic act. Without the desire to help conspecifics or to co-ordinate with them for their mutual benefit of both there would have been no motivation to want to communicate with fellow humans so there is no doubt that verbal language, artistic expression, socialization and altruism go hand in hand as suggested by Anati (2004, 67) who wrote: "Why did humans have a need to record their own thoughts and emotive simulation? No doubt this was part of the nature of Homo Sapiens, like socialization, the sense of aesthetic, love, ambition, and solidarity" to which I would add altruism.

Altruism is most often thought of as a noble emotion, but actually it has some innate survival benefits for both the initiator of altruism and the beneficiary of the altruism. The benefit to the recipient of altruism is obvious but it is also a benefit to the altruistic one as well. An example of how an altruistic act benefitted both parties was the practice of feasts and the sharing the meat with neighbors when a hunter-gatherer family made a large kill. Because they could not possibly consume the carcass of their large kill before the meat would begin to rot, they invited the members of their community to a feast to enjoy the meat before it went bad, an altruistic gesture. The survival advantage of their altruistic gesture is that they in turn would be invited to a feast when one of their neighbors made a big kill. This is one mechanism among many others in which the trait of altruism had a survival benefit for both parties. With a theory of mind, the person contemplating an altruistic act reasons that the beneficiary of their altruism thinks like them and they will return their kindness with an altruistic act for them sometime in the future. So, kindness begets kindness among the members of a community. Sadly, that does not always extend beyond the in-group towards other communities.

What Goes Around Comes Around

Merlin Donald (1991) in his book *The Making of the Modern Mind* suggested that mimetic communication consisting of hand signals, facial expressions, body language and non-verbal prosody (sounds such as moans, groans, growls, etc.) was the cognitive laboratory in which the skills of generativity, representation and communication developed and, hence, were the source of the cognitive framework for speech. Logan (2007, 61) then in *The Extended Mind: The Emergence of Language, the Human Mind and Culture* suggested that the roots of artistic expression also lie in mimetic communication:

The roots of the fine arts like speech can be traced to percept-based non-verbal mimetic communication... The very first art forms were all non-verbal and grew out of mimetic communication. They included music, painting, sculpture and dance all of which were a part of ritual. Music can be traced to the variation of tone and rhythm and hence to prosody. Dance is basically a form of body language set to music. The first forms of painting were body and face painting and the first forms of sculpture were masks and costumes, which can be seen as attempts to enhance and intensify facial gesture and mime. With the advent of spoken language new hybrid forms of the arts emerged which combined mimetic communication with words to produce modern (postverbal) art forms such as poetry, which include both words and prosody, songs which combine words and music and theater which combines words with mime and dance

So mimetic communication, a non-verbal form of communication that may be regarded as proto-art in which the medium is the human's body engaged in mimesis becomes the laboratory in which verbal language emerges. And then verbal language creates the conditions for secondary perception that then becomes the stimulus for the emergence of artistic expression and religious ritual that makes use of the arts of cave paintings, sculpture in the form of figurines, chanting and dance. Verbal language and secondary perception become the vehicle for the proto-art of mimesis to re-emerge as artistic expression.

Conclusion

The overlapping emergence of verbal language, conceptual thought, secondary perception, artistic expression, religious practice, a theory of mind and altruism beginning circa 50 thousand years ago led to the characteristics of human culture that persists to this day and is what makes us humans unique unlike any other animal including our hominid ancestors and hominid cousins such as Neanderthals and Denisovans. I will leave the last words of this essay to William Shakespeare's Prince Hamlet who said in Act II, Scene 2 of the play that bears his name, "What a piece of work is man."

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