Could Onomatopoeic Words Be What Our Ancestors First Spoke?

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1.0 Introduction

Accounts of the origin of language have been many and varied (West, 1975). Besides the pervasive Judeo-Christian belief, many ancient cultures have provided their own stories of how language came about. Perhaps Max Muller, a scholar in the nineteenth century, was the most prolific in coining colourful terms to describe how language could possibly have evolved. He named them the Pooh-Pooh, Ding-Dong, Yo-He-Ho, and Bow-Wow or Onomatopoetic theories (ibid). With the development of a more scientific approach to the study of language origin, some theories have come to dominate the search for what and why our ancestors first spoke and how this primitive speech evolved to become a proper language. Among them are genetic mutation (Pinker and Bloom, 1990), change in neural organisation (Bickerton, 1990), social grooming (Dunbar, 1996) and the 'model' theories of Allott (1973), Calvin

(1992), Givon (1994), and Greenfield (1991) (cited in Allott (1995)) which are derived from research on language that models the neural parts of the brain, particularly the motor and visual systems.

Scientists studying language have suggested its origin from a more primitive form called protolanguage. This protolanguage differs from present-day language in that it lacks "most or all of the formal structural properties that characterize language" (Bickerton, 1992 · 130). Some also see it as comprising a restricted group of words combined with a grammar of some form (Carstairs-McCarthy, forthcoming (cited in Wray, 1998 · 47)) An account of how language evolved is necessarily an explanation of how protolanguage developed to acquire the grammatical relations exhibited by present-day languages.

At this juncture, it needs to be stressed that caution is necessary in the search for origins. It is very natural for researchers to look at existing phenomena when studying the origins of those phenomena. This however, can be misleading. What exists today might have existed in quite a different form in the past or emerged from a different system altogether. Take, for example, the evolution of the eye. We would be searching in the wrong place if in searching for the 'primitive eye' we focussed only on the physical shape of the eyes, i.e. bulbous and lodged in a socket, for evolution maintains that eyes were derived from patches of skin sensitive to light (Humphrey, 1993   32). There is still, however, some kind of continuity and in the case of the eye, it would be the sensitivity to light. With regard to protolanguage, the characteristics we deem best explain existing language might not appear at all in the primitive form. Bickerton observed an unbridgeable gap between protolanguage and language (Wray, 1998. 48). Hence, protolanguage should not be viewed the way we would customarily view language, that is as an act of communication. We need to view both protolanguage and language as a proxy for perception of which the communicative intent is only a by-product. With this we can de-emphasise the 'grammar gap' stated by Bickerton and look for the aspect of continuity somewhere else. This paper argues for a continuity not in the grammar or segmentation possibilities of protolanguage as described by Wray (1998) but in perception by way of reference. To support this hypothesis, the paper takes the stand that language is a derivative of perception. Since the main intention of this paper is to argue for the evolution of language (specifically, the lexicon) from animal calls from the perspective of the evolution of reference, I will use Pierce's suggestion of what references

are as explained by his 'trichotomy of signs' (Deacon, 1997 · 70) whereby signs can be categorised as icons, indices or symbols. In this paper, I will take the position that the evolution of animal calls to human languages mirrors the evolution of signs from icons to indices and lastly to symbols.

2.0 Language as a Proxy for Perception

The indirect link between language and perception is not new. In fact, Barsalou (1998) reported that for over 2,000 years, higher cognition (such as thinking and reasoning by using language) was considered derivative of perception. Recently, Millikan (1997 . 16) reinforced this view. On reflecting why 'substance concepts' such as mouse, milk or mama can be acquired without a direct encounter with these substances, she said that this could be explained "if we view speech as a direct medium for the perception of objects in the same way that, say, light is". What she probably meant was that by hearing an utterance one would immediately believe its content as if one had directly perceived what was being uttered.

If the main role of language is as a proxy for perception, how then do we explain the communication that is taking place around us all the time? To explain this we shall have to consider an analogy with chess. Two chess players would try their best not to communicate to each other their strategies for the consequence would be a match lost. They do not talk or use gestures but somehow a trained player can read the moves of his opponent. How does he manage to do that? The only plausible answer is that both players are able to perceive the other person's moves. Perception is possible because both players use the same rules. They might also have experienced the same moves before. Language, it is suggested, behaves in a similar manner originally. When a child who has just learned to talk says *I'm hungry*, he is merely relating the perception of his own bodily state. As he becomes more adept at using language, his language gets more complex. Like adults, children are able to perceive the intended outcome of their speech a few steps ahead as when the above sentence *I'm hungry* is uttered to anticipate a future behaviour such as to let him be where he is now (e.g. having a snack) although mum wants to give him a bath. Adults use this mode of language so often that it obscures the primitive role of language as perception. Therefore, language seems to exhibit two types of characteristics: one which is a medium for direct perception and another a medium for 'manipulating' the intended outcome. When language behaves as a medium for perception, which is what we are arguing for in the

case of protolanguage, words produced are not arbitrary as many linguists have proposed (see Saussure, 1915; Hockett, 1958, 1963; Firth, 1964 (cited in Allott, 1995 : 1)). Instead, the meanings of these words are 'naturally expressive' of the environment (Allott, 1995 : 1). This will be discussed in greater detail later.

2.1 Shared Perception

Since protolanguage originated as a proxy for perception, it will be argued that the concept of shared perception carries over from animal 'communication' to protohumans' first words. The term shared perception is meant to indicate that the members of a group share a common perception of their reality by virtue of being in the same environment (and therefore seeing the same things) and of the same biological and physiological make-up (species). Shared perception first emerged in the animal world presumably because of group interaction within the same species but later on, it conferred great survival value for if a vervet monkey was able to warn its conspecifics of impending danger without directly perceiving it, then its genes would live on. The minimum number for conspecifics to be present in a group is of course two. This is when mammalian mothers have to suckle their young ones before they are grown enough to fend for themselves. An effective bonding between the mother and its suckling young is one that will enhance individual and group survival. Without speech, this can only take place if some way of indirectly representing the surrounding can be formed, transmitted and 'deciphered' among members in the group - in other words, if the perception of reality can be shared using another medium that can represent absent objects.

A shared perception of reality among animals can occur in at least two ways: visual (bee dances and mating displays) and auditory (songs and calls). A reading of the literature involving animal communication showcases many examples of representations (Bickerton, 1992; Deacon, 1997). In East Africa, for instance, it has been found that vervet monkeys would give calls of different kinds to warn their members of predators. There are three characteristic calls depending on whether the predators are aerial such as eagles, arboreal such as leopards or terrestrial such as snakes. The different calls will cause the unsuspecting monkeys to run for safety to appropriate places. For example, a call related to an aerial predator will cause the monkeys to hurry down the trees to hide in the bushes nearby Vervet calls are a form of representation related to safety. Other forms could arise related to sex (mating

displays) and food (bee dances) for these are basic needs for the survival of any species. However, the form of representation is constrained by the physiological and biological make-ups of the species and also their environmental niche.

2.2 Charles Sanders Peirce and Representations

Animal calls are not just representations. They are also relationships between representations. The vervet monkeys' running away from a predator represents fear and the calls they make represent an alarm (to human perceivers). Animal calls then involve a relationship between representations. The American philosopher Charles Sanders Peirce proposed three kinds of relationships between representations, namely iconic, indexical and symbolic. He called this the 'trichotomy' of signs (cited in Deacon, 1997: 70). An iconic relationship exists when there is a resemblance or isomorphism between signs such as the resemblance between the portrait of Picasso and the artist. When a sign points to or indicates the existence of another such as smoke indicating a fire, this relationship is indexical. Symbolic relations between signs occur when "...there is some social convention, tacit agreement, or explicit code which establishes the relationship..." (ibid : 71). The relationship that animal calls represent is indexical. In Peirce's term, the indexical relationship between two representations means that one representation is an indicator of another one. With regard to the vervet monkeys, the calls are indicators of the presence of different predators and behavioural responses of the monkeys to the predators. By using indexical relationships, animals can share their perception of reality. That is why it is suggested that animal calls are shared perception. It must be remembered that Peirce's relationships are observed from the human point of view. Animals themselves, it is proposed, do not interpret their actions indexically. These relationships are like our instincts. When we are hungry we want to eat. We do not stop to rationalise why we should eat (granted some people go on a hunger strike but this is symbolic thinking in humans controlling our instincts. Animals do not have the ability to do this because they are not symbolic species). It is instinctive that we would react to our hunger by reaching out for food. The same explanation applies to animal calls. Since relationships among representations can only be interpreted by humans (Bickhard (1993) calls this phenomenon 'observer semantics'),we also consider these calls a tool, a mechanism, or a replacement for actual seeing. To us they are signs loaded with meaning and purpose. But

to think of them in this way is to commit an error of levels. In fact this is often done even by well-known researchers in the field. Calvin (1997 68) writes:

> The most accomplished bonobo, under the tutelage of Sue-Savage-
> Rumbaugh and her co-workers, can now interpret sentences it has never
> heard before - such as "Kanzi, go to the office and bring back the red ball"
> - about as well as a two-and-a-half-year-old child. Neither bonobo nor
> child is constructing such sentences, but they can demonstrate by their
> actions that they understand them. And comprehension comes first, pro-
> duction later, as language develops in children.

Kanzi appears to understand the situation because of its correct behavioural response as comprehended by its human teacber. Kanzi's behaviour has to be interpreted indexically since it is not capable of symbolic thought. Jackendoff (1994: 138) commits the same mistake when he concluded that apes could communicate symbolically.

Thus far, the discussion on perception and representations involving animals has been done with the objective of showing later that the origin of language does reside in some prior system that existed in the animal world. This is therefore in agreement with Bickerton (1992 : 23) who believed that our language ancestry does not reside" .. in prior systems of animal communication, but in prior representational systems " We need to understand how perception and representation work in animals and humans because only then can we understand what words and language are for us.

3.0 The Origin of Protolanguage

3.1 Allott's Motor Theory

As mentioned in the introduction there are many theories of the origin of language. A theory particularly relevant to this paper is the Motor Theory advanced by Allott (1973, 1991, 1992, 1995). The stand the theory takes regarding sound symbolism is very much aligned with the view expressed in this article. In outlining the motor theory, Allott (1992: 1) states that:

> Language originated as a transfer from or translation of the elements and
> system of combination of elements of the neural motor system, with the
> expression of motor programs which originally developed for the

co-ordination of veterbrate movement being redirected from the skeletal muscles to the muscles of the mouth, throat, chest, etc. with the side-product that this expression of the motor programs was accompanied by the sound produced by modulated streams of air which we recognise as speech-sound.

Hence, based on this view, the production of speech-sounds is not arbitrary but is controlled by the motor program in the brain for articulation by the vocal organs. Since the motor aspect of the brain is also intimately connected to the visual and auditory systems, the speech-sounds would correspond to the objects seen or heard. In other words, speech-sounds are meaningful to the contents of perception. This is a naturally necessary outcome of the motor theory of language which allowed Allott (1991) to propose that a certain characteristic of words known as sound symbolism is evidence of this meaningful union between speech-sounds and visual and auditory percepts. A common example of sound symbolism is onomatopoeic words (those that imitate natural sounds). This paper takes the lead from Allott's Motor Theory and will argue that sound symbolism is a form of representation that played a transitional role in the evolution from inarticulate animal calls to proper language among protohumans.

3.2 The Problem with Language as a Social Construct

In criticising Pinker's (1995) proposal of the first 'grammar mutant' among protohumans, Allott (1995) notes that the difficulty of resorting to individual explanation of the first speaker is how to resolve the conflict that language is a social construct and therefore could not have started off with any one individual. This is felt to be a major difficulty with theories of language origin which look at language primarily as communication. Communication entails a meaningful exchange of messages between speaker and hearer. A meaningful message is one in which the hearer would be able to understand the information contained in it. When a shared meaning of the words (or phonemes) contained in the message has not yet been obtained, it is difficult to see how the hearer could have understood the message transmitted by the first protohuman speaker. The model theories stated above showed that language has a neurological basis but they too do not offer a way out of this difficulty. Although it can be convinced that the shape of the object perceived would constrain the particular sound that could be articulated according to the motor theory (hence high-pitch words indicate small things such as in Malay,

kecil (small) and *kurus* (thin)), it is not very obvious how the protohumans came to speak the first word. It could not have been communicative since the listener would not know what it meant as rightly reminded by Allott above. Locke's account that the gradual "...transition from 'noise' and gesture to phonetic sequences..." paved the way to the evolution of human language (quoted in Wray, 1998 : 51) is still not free of the problem Allott (1995) highlighted since why the first protohuman that talked chose a particular sound rather than others from a set of sounds he was capable of making leaves the evolution too much to chance. Richard Dawkins (quoted in Ruse, 1998   68) once wrote "Chance is a minor ingredient in the Darwinian recipe, but the most important ingredient is cumulative selection which is quintessentially *non*random" (italics not mine). We need an explanation not based on chance alone to account for why the first protohuman who spoke used particular phonemes. It is suggested that this is possible. It is thought that Allott's 'communicative paradox' would disappear if the meaning contained in protohumans' first word takes its cue from the environment. Instead of having to invent an arbitrary word to communicate the intention of the first speaker (this is quite easy if the protohumans were like us with full knowledge of what language is but alas, they did not even know that they were inventing language!), the meaning is perceived from an event in the environment and the sound produced would be an imitation of the event.

What if the things you perceive do not make any noise? How do you provide a sound for them? To answer the question above would require protohumans to be able to provide sounds that match some aspects of the physical characteristics of the noiseless things by using other senses such as touch, vision, smell, and taste. This is in fact portrayed by present-day languages where high pitch sounds symbolise 'smallness' or 'far' and low pitch sounds 'largeness' or 'near' In fact, a lot has been written about sound symbolism for objects or events in this regard (see Allott, 1995; Ryan, 1998, Shisler, 1997). Therefore, before a language system could evolve, it must first be grounded in the environmental reality where the protohumans found themselves in. It must take its meaning and also its sound structure from this reality. Like animal calls, hominid behaviour was once triggered from environmental cues. Sound symbolism and onomatopoeia in particular would

be suitable phenomena that resulted from environmental cues shaping the sound structures of protolanguage.

3.3 Sound Symbolism: Onomatopoeia

3.3.1 Early Form

If we submit to the theory of continuity from animal calls to human speech then it is imperative that the protohumans' first words were indexical relationships. What could the first articulate sound indicate? It is proposed that the first sound which differs from the inarticulate cries or grunts of protohumans could be sounds made by animals (e.g. cats purring), nature (e.g. stones dropping into water), and even other protohumans (e.g. babies crying). An example of a group of present-day words mentioned earlier that are fossils of these sounds are onomatopoeic or echoic words. The imitation of these sounds does not suffer from the 'communicative paradox' highlighted above for the listeners who happened to be around the source imitated would understand what the speaker meant. In Malay the roar of the tiger is *ngaum*. This is very close (or perceived to be close by protohumans) to the actual sound made by the tiger. When this sound is imitated and produced on another occasion a listener who shares its 'meaning' would understand what the sound refers to. Since the first words, being indexical representations, are event-oriented, they did not refer just to the object but more importantly to a repertoire of actions possibly connected to the sound the object (tiger) made.

The view that the origin of words could have referred more to actions than objects is consistent with Johannson's (1973) observation that human infants tended to pay more attention to moving objects rather than stationary ones. As an indexical representation, a behavioural response would be elicited from the listeners just like the vervet monkeys' alarm calls. The sound *ngaum* could be interpreted in various ways by us who are used to the syntacticised language of who said what to whom. It is however proposed that in the protohuman world, the sound had an interactive meaning, especially related to what protohumans did in the event of hearing the sound. We can only guess what the sound meant to them but it would most probably be holistic. This line of reasoning, it is believed, should be followed to fit in with research on lexical and semantic development in children especially from the work of Nelson et. al (1985). They proposed that objects in the child's experience are initially embedded in events and as a result object concepts are not at first

undifferentiated from their event representations (1985 : 79). In other words, when a child refers to an object, the reference involves all actions, reactions and interactions which the child experiences with the object. The sound *ngaum* would refer to the tiger and to the interpretive possibilities (danger, hunting, food, clothing, etc.) from this interaction when protohumans hear the sound. This would not allow them to be efficiently communicative but it is still an added advantage for their survival. Uttering the sound in the absence of the tiger would allow protohuman listeners to take extra precaution for their safety or co-operate on another hunting trip when the prowling tiger is posing a danger to the community etc. As we can see there are a number of interpretations for the sound. Despite this, it is suggested that protohumans could still decide the exact meaning by using gestures. This would not be at all difficult for even primates with a much smaller cranial capacity could still manage to survive in the wild using calls and gestures.

3.3.2   Communicative Meaning Through Gestures

While animal calls play an important role for animal survival, protohumans' early words are a minor addition to the already sophisticated pre-linguistic 'mimetic skill' which Donald (1997) proposed existed long before words were spoken. This is felt to be the main mode of 'communication' among protohumans (they are not actually communicating in the sense that has been discussed in 2.0 above.)

In his paper, accounting for the cognitive evolution from nonverbal to verbal skills, Donald (1997 : 5) stressed that:

> A good theory of the first cognitive evolutionary steps of humans should
> try to account for as many human nonverbal skills as possible. This leads
> to the first proposal of my theory: the first major cognitive transition broke
> the hold of the environment on hominid motor behavior, and provided
> hominids with new means of representing reality. This form of adaptation
> was a revolutionary, supramodal improvement in motor control called
> "mimetic skill"

In the late-language model of the evolution of language we are proposing here, protohumans lived for a long time without relying on words to be communicative but by using only gestures in the form of Donald's (1997) 'mimetic skill' Nevertheless, words could have existed side by side with

'mimetic skill' and, it is suggested, in the form of sound symbolism such as onomatopoeic words. In this scenario, words would remain secondary to gestures for protohumans were not able to coin names intentionally for any objects or events they perceived even if they were able to utter intelligible speech. As stated earlier, they were not even conscious that they were inventing language.

3.3.3 Non-arbitrariness of Early Words

According to the picture above, it would also be difficult to imagine that the unconscious invention of words would be arbitrary. In fact, it would be just the opposite where words are non-arbitrarily derived from the environment. This the author has tried to argue by showing the isomorphism of onomatopoeic words with sounds heard from the environment. Donald (1997) suggested that interposing the idea of mimetic skill before language evolution could liberate the dependence of hominid motor behaviour on the environment which was necessary before protohumans were able to invent the lexicon which he sees as involving 'voluntary retrievability'. It is agreed that Donald's (ibid) mimetic skill is an important cognitive ability that protohumans were equipped with and lexical invention is the 'second major cognitive transition' as Donald (ibid) put it but the author disagrees that lexical invention broke the stranglehold of the environment on hominid motor behaviour which allowed them to invent the lexicon arbitrarily. This will be argued below.

One of the main hypotheses of this paper is that early words were not arbitrary in nature. These early words got their cues from the environment and therefore behaved very much like animal calls. Protohumans were not able to detach the dependence of their first words from the environment. The further 'invention' of the lexicon also actually did not break this stranglehold. Even now with our symbolic language, we are never free from the environment as we might think we are. Our ability to think in seemingly endless permutation of sentences makes us feel that our language production is divorced from the environment. In other words, we think we are free to utter anything that is not derived from the environment. This is actually an illusion. Our thoughts (hence language production) have always depended on context and will always remain so. We only need to momentarily reflect on this to believe. We utter *Good Morning!* when we see someone the first thing in the morning (context) or the question *How was your weekend?* if today is the first day of the week

(context). We could 'decontextualise' our speech by saying *Good Night!* or *How was Mars?* but these utterances, it is argued, are still in context since the purpose of uttering these sentences that are illogical is the challenge to make them such (context). We are able to do this but not the primates or even protohumans because we think in symbols - thanks to our language. Animal calls or even the manipulation of primate behaviour using symbolic representations invented by humans (e.g. the lexigrams of Sue Savage Rumbaugh (cited in Deacon, 1997: 84-92)) do not suggest that animals think symbolically too.

3.4 Arguments Against Sound Symbolism

A reading of Allott (1995) could have us conclude that the main thrust of the argument against sound symbolism is that the semantic relation between words and their objects of reference is considered to be arbitrary. It is easy to look at sound symbolism and words generally as arbitrary, especially when we consider words having the same meaning among various languages. West (1975) provided an example with the words 'thunder' in English, 'tonnere' French, 'donner' in German but 'ko-o-muts' in Keresan (one of the Indian tribes in America). From this one can easily form an opinion about the arbitrariness of words. This is, however, an unfair observation because present-day languages have undergone a lot of transformation from their original protoform. The European languages probably share the same root word for 'thunder'. It has undergone linguistic change probably due to the genetic predisposition of a race to pronounce a borrowed word a certain way as in 'school' and *sekolah*. Another example is the English word 'zero'. Barrow (1992: 89) tells us that the English numeral has its origin from the Sanskrit word *sanya* (not the Arabic *sifr* as some people might think because apparently, the Indians were the first to view the representation of the numerical 'zero' as equivalent to other non-zero numericals instead of just denoting 'nothing'). Looking at the present-day forms, it would be hard to see the relationship between these two words. When we consider our genetic predisposition to pronounce words in a characteristic way and the less than perfect accuracy between our vocal and hearing repertoire, there should be an equal possibility for producing a less than perfect copy of the sounds imitated from a natural source.

This might also explain the 'soundshift' postulated by Jacob Grimm in 1822 to have occurred with the prehistoric Germanic languages as when the phone /bh/ became /b/ and then /p/ and finally /f/ (quoted in The New Encyclopedia Britannica (vol 23) 1990: 52). This less than perfect matching

between 'output' and 'input' does not only pertain to less audible sound. Not all sounds, however clearly one hears, can be imitated. 'Thunder' itself is a very difficult sound to copy accurately. Although the word 'thunder' does indicate the general feeling of a great sound, it is not even close to the actual sound. One does not actually hear the sound 'thund' followed by 'der'. With problems in fidelity and soundshifts that result in linguistic changes, it is easy to show the inadequacy of approaching the origin of language from the starting point of present-day onomatopoeic words. From the perspective of language as perception, it is reasonable to propose that onomatopoeic words could have started the race for a trait unique among humans which is the development of language.

However, arbitrariness does exist between words and their referents. Words that are formed from acronyms like *blitz*, *flak* and *snafu* (McCrum et al. 1986: 23) are clear examples. *Flak* is an acronym of the German word Fl*iegerabwehr*k*anone*. The inventor of *flak* could have chosen the first syllable - *Flieg*, to mean the same thing. After all *blitz* is chosen from *Blitzkrieg* What we are arguing is that in some cases words can be arbitrary and in others they are not. To make sense of this, it is proposed that language began life as a reflection of reality and therefore, contained words which were imitative of nature. At that stage in the evolution of words they did not operate as symbols and therefore were non-arbitrary. As mentioned earlier, they were indices that provided listeners with a template of action like animal calls which were much needed in a precarious environment. Just like our instinct to run away from a snake when we happen to stumble upon it by accident, early words operated in this manner. As we have mentioned earlier, early words wereenvironmentally cued, to use Donald's (1997) phrase. This action-oriented protolanguage had to undergo a change for it to acquire the grammatical relations characterising present-day language.

4.0 Conclusion

The main focus of this paper is the argument for the evolution of language from onomatopoeic words. To support this view, the idea that language evolved to fulfill acts of communication has been disputed. If language is viewed in such a light, then whatever theories researchers put forward have to grapple with the paradox that if language is initially communicative then how would the listener know what the speaker meant. The speaker would also not know what word to invent to represent his thoughts in the first place. By imitating

sounds from the natural habitat, protohumans were able to articulate their first words. The seemingly communicative intent of these words would reside in the 'interactive' meaning protohumans perceived from the sound structures of these words and the naturally occurring referents (objects being referred to) that the sound structures mapped onto. Communication, after all, is a by-product of perception. Therefore, to view the evolution of protolanguage

this way means to accept that language originally behaved as a proxy for perception.

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