

language origin, language evolution, evolutionary mutation

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(The followings are summaries of the first part of a Hebrew book (in press) by Yair Shimron. It brings a new attitude to the field of the language origin.. Ignore English mistakes, read openly, you will find it interesting.)

VOICES FROM THE GARDEN OF EDEN

The evolution of the Expressive voices into Language

English Summaries

Chapter 1: Background Conditions

1. Immense efforts are invested in the research of the making of language for the past 20 years, yet real advance has been made only in understanding the background conditions of human and language evolution. Scrutinizing the literature one finds not even one theory that is widely accepted at any area of research. There are no answers to main questions like the origin of speech sounds, their assembling into words, the emergence of syntax, nor is there an explanation of the development of any other prehistoric phenomenon of language.

2. Though most researchers agree that the making of language is a routine scientific area, some important linguists, like Chomsky and Jakkandof assume otherwise, counting on the basic prejudice that there is no evidence. It has to be pronounced that the making of language is scientific, not less than topics like black holes, evolution of wings, history of the Israelites, and there is much evidence that becomes clear if light is spotted at it.

3. Our work bases its force on a few factual lines and conclusions that are evidently inferred:

- a. Man has evolutionized from a chimpanzee-like ape, which means necessarily that the ancestral expressive voices must have been similar to chimpanzee voices.
- b. Vocal expression, animal voicing or speech, is an action, principally similar to any other action.
- c. Ape's expression is analogous to the beast's feelings and not symbolic. The work will explore the transition from analogous to

symbolic expression, and it will be shown that symbolism, although central to speech and language, is not similarly important to the path of transition.

– d. The atom of expressive voicing in animals as well as in human speech is the utterance, the unit of meaning. Therefore speech sounds, consonants and vowels, which have no meanings, are not utterances. This means that the evolution of the utterances, the units of meaning, the words, preceded the evolution of speech sounds.

– e. Consonants and vowels were developed due of the development of speech and neither because of bipedalism nor because of any other change of human structure. Moreover, the phonologic structure is trivial and incidental.

– f. The evolution of the vocal expression started potentially when apes became bipedal, was gradual and very slow for the first three to four millions of years. It was accelerated with Homo–habilis and re–accelerated with homo–erectus, and yet re–accelerated with homo–sapiens. Most of the development of speech took place within the last few thousands of years.

– g. A main line in the evolution of speech was the division of the ancient one type vocal expression into two types: one is the emotional expression, which is a direct continuation of ape voicing. Second is speech, which modified the ape voicing into an absolutely new voicing that counts on features that no ape has. Two main of which are a monotonous uniform long durational breathing and voicing, and the front part of the mouth, especially tongue, having chief role in molding the voicing into speech.

– h. A second main line in the evolution of speech, that literature shows no hint of which, is the transition of articulation and production of speech characteristics from the glottis–larynx through the pharynx to the front parts of the mouth. This transition is so important that without an account for which no theory of the evolution of speech can be valid.

4. A definition of speech for the purposes of this work: "Speech is a large group, a system, of acts of human expression, that generate meanings and endorse meanings through vocal forms of regular patterns, that deviates out from the initiator and therefore they are inert, forms from which meanings can be extrapolated".

5. Meaning is the hard core of language. Analyzing sentences counts on the meanings of words. All grammatical features are side effects of the need to generate meaning.

6. In order to be able to speak, one has to have regular human biological system, just as one has to have it in order to be able to drive screws, to play football or to do any other human action. However the problem of speech and its evolution is first of all cognitive, not biological. Many researchrs advocate for a genetic mutation to have a principal responsibility for the evolution of language. Even if this were true, what one has to explain is what really happened. Anyhow, this assumption is false, it doesn't have any true evidence, and it is rather a white elephant in the field of language origin.

7. Linear thought is a fruit of the development of speech. Linear

thought was made possible when expression took on the form of primitive words. Each word is like a capsule of ideas that enables the thinking mind to insulate each bundle of ideas from being interrupted by other bundles, unlike parallel thinking as in dreams, where words don't dominate.

8. Becoming bipedal did not in general free the hands of hominids. Watching apes we find that they do not walk very much. They spend most of their time collecting food and grooming each other using their hands freely. First bipeds for sure behaved very much the same. Yet the mothers now had to hold their babies as the feet became unable to hold, having their hands arrested, while the babies, not having to grasp mom's fur acquired free hands. These two facts are not pronounced in the literature. However they seem to bear a great consequence. The connection between mother and child was deepened and warmed. New features emerged: mutual eye to eye glances which are very rare in apes, more, softer care, probably mutual listening. And when the baby left mom's arms it would have carried some of those patterns of connection to the playing ground, hence influencing richer communication in the group.

On the other hand, the child had to resolve an everlasting problem: what to do with the hands? We see the same in children today. As minor as it might seem, we have to think of it as if 5 million years ago. The bipedal child had to solve problems that an ape child doesn't ever face, having its hands busy grasping mom. Another conclusion to be derived from the situation of child being held and denied of efforts is an overall weakening of human race.

9. Language and speech, we presume, developed only through voice, and by no means not through gestures, which cannot as a matter of fact be separated from the real situation. One must not be led astray by modern sign languages, which have all been developed amidst spoken languages.

10. It took a few million years of evolution of Australopithecines and Homo habilis before language became truly advantageous. It was not the advantage that selected for language, but rather the cognitive drive that performed an everlasting pressure on hominid minds to better their accomplishment of things in the world, amongst which communicative voices were very salient. The importance of cognition as a main force in the evolution of human kind is usually underestimated.

11. The evolutionary mutation is not accidental. Although this view is commonly accepted, it doesn't have proofs. The accidental story does not explain convincingly why all grazing animals and all carnivores have similar characteristics, respectively. It would have been of great advantage for a small grazer like goat to have protective leopard like claws. We also reject the widely accepted suggestion that the brain inflated thanks to meat eating. This doesn't explain why gorilla has twice the brain volume of the lions'. Moreover, all animals would have benefited having large brains. We presume that evolution makes its paces in narrow accordance with functionality, and we suggest a tentative mechanism that might enable this accordance.

Chapter 2: The Making of Speech

1. What needed to be explained is the real course of evolution through which the expressive voices of apes were converted into speech.

Speech uses special voices, called consonants and vowels. They did not "emerged" just so. They are certainly linked somehow to ape voices.

This linkage is not hypothetical, it is a fact: the principal fact that has to be explained: not with equations and computerized models, but by extracting all relevant facts from languages and from all human voices and all other facts that have any connection to human evolution, and rhyiming them on the correct string as to draw the factual description of the conversion of ape expressive voices into words made of consonants and vowels.

2. Each language has its own phonologic system. That system has been organized ad-hoc. What seems by many a systematic order is rather a momentary result of all the influences accumulated until the time of research. The assumed contrasting 'd' and 't' make the same difference as any other two consonants. Systematic is but the need of speakers of a language to be able to recognize what is pronounced.

3. In order to anchor our theory at safe shores, the basic reasoning must count on sure facts. That is why we must start from the point of time that we really know how our ancestors expressed themselves. That is the time that first chimpanzee-like apes became bipedal and began to walk forward to humanity, turning their backs odiously to apeness. At that point they could have only one sort of voices, quite the same as ape voices, which means voices that were produced at the glottis, and were neither consonants nor vowels, and had no other characteristics of speech. Those voices were parallel to the breath, recursive yet holistic, concerning meaning, meaning that was analogous to the feelings.

In order to avoid using terms that are used for describing speech phonology, I use the term "throaty" as a tentative description of the ancestral expressive voice production.

4. 4 main lines of proofs make sure evidence that speech started as expressive throaty voices:

— Ancient hominids could have no other voices but throaty voices.

— The voices of babies in their first months are only throaty.

— Adults at times of anguish, suffer, distress, loose – gradually – the words and use cries, shouts, laughs and other throaty expressive voices.

— A minority of the worlds' languages has laryngeal and pharyngeal speech sounds. Ancient languages had more. There is a proven process of weakening of these sounds, and languages loose them continually. No language that does not have such sounds has ever invented or produced new such sounds. They must have come from the only source that has ever existed – from the throaty expressive voices of the ancient hominids.

5. Speech like expressive voicing is made of holistic utterances.

Just like a shout, a word, short or long, although given to analysis, can not be divided to shorter parts. Dividing a word means changing its meaning, making a new word, a new utterance. This means that when expressive utterances gained signing and symbolic contents, ensuing

word properties, they must either have been, or have parts of, throaty, laryngeal–pharyngeal articulated sounds.

6. Most ancient stone tools are attributed to approximate time of similarly most ancient *Homo habilis*, about 2.5 million years ago. That *Homo* kind had shorter jaws than australopithecines. Therefore we presume that *habilis* did have a primitive sort of speech, but by no means does it mean anything similar to modern speech.

7. Laryngeal–pharyngeal sounds in contemporary languages like Khoisan languages, Arabic, Even, should be regarded fossilized sounds. They serve the language only in old roots, and are not used for new innovations, new word forming. For this purpose all languages use the historically newest consonants – consonants of the front part of the tongue and lip consonants. The preservation of those sounds in so few languages is due to relative isolation, which hindered or rather slowed the continual process of transition of speech production from the back part of the vocal tract to its front part. Arabic which cannot be regarded isolated since the 6th century, was isolated before that time, while becoming a ruling and dominant language afterwards.

8. The change from analogous expression to symbolic: analogous expression is an extension of the feelings of the expressive body. It doesn't have "truth value". It is not an agent, not a mediator between the expresser and reality, the world. Signing and symbolic expression has "truth value", and it is an agent and a mediator between the speaker and the world.

The transition did not begin at any one time. Signing values are produced and understood between animals. There are reports that apes perceive some signing value out of their group members' calls. Yet no species has developed its expressive voices into real signing system, not even the most intelligent, like dolphins. Although a few species have large brains, each species lacks some of the necessary conditions for the development of more sophisticated communicative system, all of which were gathered in bipedal and hominids.

Bipedalism was the pre-condition that drove some other: first was about 20% enlargement of the brain, compared to chimpanzee. Second the new complex mother–child, which enhanced mutual sensitivity, as well as sensitivities of the hands and mutual voicing and listening. All that framed within intensive group activity, with relatively rich trivial throaty voices that could already have some signaling challenges. Also most important was the rather free sexual relations, with a lot of touch of all body, kissing and frontal attitude. All that caused more and more subtle distinctions of things in the world, far far better than their ancestors, and supported attributing some of their recurring voices to recurring events like finding food, water, frightening animals, angers. We have to include the most important tool making. Chimpanzee make tools, no doubt bipeds improved such talents. Making tools demands some linear thought that in part focuses on aims of preparation that are not directly connected to the end destiny.

9. The description is getting now to the emergence of *Homo–habilis*. What were the main causes to the changes of the species brain and face? Australopithecines lived in the same countries as other apes and

most probably ate quite the same foods as chimpanzee, including 10–20% meat. The main causes were the sex and vocal communications that "demanded" and enhanced smaller jaws and teeth and less body hair. We may call the cause of those changes "intra–species ecological drive". If anyone doesn't believe us, have a look at woman breasts. Young girls grow large breasts not connected with birth and suckling, absolutely unlike ape females who grow breasts only for suckling. There could have been no cause to this unique human characteristic if not the "intra–species ecological (sexual) drive".

10. The process of dedicating specific voices to specific things was very slow for the first (since becoming bipedal) 3 million years. Had it been fast the brain and jaws changes would have been faster. There is no sure indication that this process made those australopithecines more advantageous relating to their environment, and sheer power was surely more beneficial for mating. Yet the process was unavoidable in the physical environmental situation and the gathered conditions and characteristics that (accidentally) made the framework of those ancestors. They were like babies who – UN– avoidably, consciously, prepared, aware – gain linguistic competence. It takes babies almost 8 months to obtain control of their throaty voices, and then within 4 months the child pronounces a first word, using, quite surprisingly mainly the front part of the vocal tract.

This parallels the long 3 millions years of becoming qualified throaty voices controllers of australopithecines before evolutionizing into Homo–habilis.

The overall situation of australopithecines compelled them to continually improve their perception, insight, ideas, discovering, recognition, noticing, realizing, understanding, and all other words that one might find in a thesaurus for such cognitive activities. As a feed–back an unprecedented burden compelled their brains to work extra ours in order to provide solutions to the ever troubled existence and most troubled of all – the ever renewing communicative system.

11. Feeding cats one easily finds out the Pavlovic effect: the cats, having been fed once or twice after having heard the door opened, would appear later on when that door is opened again. The Pavlovic effect give us the clue to how not 30 gram brain cats but 500–600 gram brain sensitive handed bipeds with rich voicing in complex groups could attribute meanings to their voices.

The last paragraph may seem too easy to many readers. It is not. It is not important whether one links the mechanism of recurring recognitions to Pavlov. What important is that recognizing stimulations has always similar mechanisms; think of how people become excited when reading about sex or watching sex in movie, and the same about food. Recognition qualifies stimulus relevant or non relevant.

This is what important. A voice is a banal stimulus. Watching cats helps again: the cat sits in the garden unbothered, moving its ears all around, qualifying all sounds unimportant. Suddenly it moves two ears at same direction and watches carefully: the spectator doesn't see nor hears anything though paying all his attention to the same direction. After half a minute another cat appears, absolutely unheard to man. Of all the noises only a super scanty noise was recognized

relevant. The relevance of the stimulus is what counts. And having the cat example in mind we can understand that for much much more sophisticated australopithecines attributing meanings to recurring self voicing was not a possibility but an unavoidable process.

12. Savage Rumbaugh thinks that becoming bipedal caused the descent of the larynx and a bend of vocal tract and therefore consonants were evolved. That is naïve theory. Primates can open and close their lips while producing voices and thus produce consonants. They don't do that.

13. Beaken, Owren, Aitchison and Liberman think that vowels are, as a matter of fact a direct continuity of ape voicing, and consonants evolved somehow to create with the ancient vowels the syllable, and thus make people able to invent words. Those are other naïve theories that don't take into account the important fact that the atom of voicing and speech is the meaningful utterance. They also fail to explain how consonants evolved and in what hierarchy.

14. Kinney and macNeilage try to cope with our problem through analyzing the syllables of creole languages. There is no chance in this direction because creoles are all the results of mixing characteristics of some modern languages, which means that creoles are modern languages.

15. Lindblom suggests that somehow from what he calls primitive vocal patterns and gestures phonemes and syllables evolved, and then meaningful words evolved. His theory is very sophisticatedly presented yet it suffers the same failures as number 13.

16. Studdert–Kennedy assumes that consonants and vowels are not the basic units of speech. Those units are the gestures that make the speech sounds. The gestures evolved by the differentiation of the holistic vocal gestures that were syllable–like. This theory has in common with ours, but it lacks most details that are necessary for a comprehensive account. A moving person doesn't produce movements of the muscles, but rather steps and long term walking. The aim of any act is the end meaning and not the middle stages. We learn from biology that sometimes in the past the movements of muscles were the aim. This is still the case in the heart, where the movements of the muscles are the makers of the blood pumping.

A speaking person doesn't produce sounds and syllables, but rather meaningful voices. Gestures of the vocal parts, some of them produce meaningful sounds. Other gestures participate in more complicated sounds. This implies that the atom of speech is always the meaningful utterance. The making of utterances equals principally to the making of any other act, and the meaning is determined by the context.

17. The history of speech can be told independent of linking to hominid–human evolution. But such linkage does help for better precision of the theory of speech history. Homo–habilis had larger brain and smaller jaws than predecessors. Habilis must have had better communication system. As we have a certain knowledge of the beginning with analogous throaty voices and the end with symbolic words articulated at tongue and lips, it would be probable to ascribe to habilis some wordy communication, yet certainly to negate anything like modern language, because that would imply much richer

civilization.

18. By no means did the meaningless sounds precede the words. The ancient words differed much from modern words. They had small number of sounds. It is possible that many first words had only one sound or one syllable. This assumption is based on the general process of lengthening of the words in languages as they represent more complicated civilization and need to describe new things. Languages use generally the same process: they join short words together to convey new things. However the first one-sound words were words, not phonetic sounds. Those first words were modifications of the analogous voices of bipedal apes. Ape voices are repetitive and are not dedicated each to one thing, though they do differ according to the subjects that stir them up. Now as the intellectual distinctive capabilities of the more developed bipeds obliged them to perceive, they could not avoid recognizing the repeated same voices at same situations, just as cats can't avoid being trapped by sounds that they recognize to precede feeding.

Along very long time Australopithecines related voices to situations. As such matches became more unambiguous, more compelling, the voicing accorded to a situation took on a narrower shape: tone, pitch, strength, duration, repeating, all could be limited as to be adapted time and again to the same situation. Ensuing from this was voicing that can be regarded as primitive words.

19. Two already mentioned facts have to be mentioned again: a) like cats, Australopithecines were trapped by their smart, hard-working brains, minds. They could not avoid making their distinctions. b) Their voices were only or mainly, as indicated by their big jaws, throaty, chimpanzee-like. On the brink of Homo-habilis emergence first laryngeal-pharyngeal consonantal elements started to emerge, and yet-not-meaningful lip interruptions made their proto appearance.

20. The making of consonants: voices of apes and mammals, though being produced at the glottis and larynx, are nor vowels nor consonants. These terms have no validity out of speech.

If during performing voicing lips are shut, compression of air is created above the glottis and voicing is stopped. If immediately the lips are being opened, a voice like 'p' is heard and being added to the preceding voicing that was interrupted. Such lip interruptions were at first closely linked to throaty voices. Shutting the lips during voicing at times that the hominids were yet not able to control breath well, could have caused evacuation beneath the glottis. The voicing hominid, needing much air at that moment, might have created, unaware, a voice of an empty swallow. We assume that incidents like this could have occurred at the end of Homo-habilis and the emergence of Homo-erectus. At those times hominids used vocal communication quite continually, and such events of harmless failures of linked voicing and breathing were not rare. Like other voicing and voices that happened to occur at random but quite often, those interruptions to the fluency of vocal expressions were – had to be – noted, and from time to time hominids even tried to resume them and reconstruct them, in order to make special indications. These could have been the principal courses that shifted ape voicing to have and use consonantal

elements.

We must remember that consonants are always interruptions of voicing and breath.

21. We insist on our hypothesis, that sexual behaviour with frontal attitude and vocal communication were the main causes to the changes of both jaws and brain. If chewing should have been the cause, why then chimps and monkeys that eat virtually the same as hominids did not change (Homo–habilis emerged before fire became available).

22. At times that first consonantal–elements voicing was generated and words got the shapes of those elements, the words were very short. This assumption counts mainly on two facts: a) the width of the neuron passage from backbone to the chest in Homo–erectus was like in apes. In Homo–sapiens this passage was multiplied, enabling much finer control of breath. b) All languages have old short words of one syllable that are remnants from antiquity.

23. There was continual contradiction between consonantal voicing and breath: the consonantal voicing was only (or almost only) laryngeal and pharyngeal. This is a sure induction because new expressions always result from existing similar expressions and the hominids that developed the new elements were heirs of Australopithecines.

24. The ability to retain long equal stream of breath and parallel long stream of voicing, while integrating interruptions that build into those streams the "nocks" that we call consonants, is not accidental. It is not a byproduct of human development. This ability is a consequential result of the main line of human evolution. The need to develop streaming breath–voicing was born together with the adding of lips to the systematic production of expressive voices. Shutting the lips while utterances were spelled necessitated longer breath duration.

25. The process described in paragraph 20 was initiated when much effort was invested in vocal expression. That great effort could influence the gestures of the larynx and pharynx. We can find clues to corroborate those assumptions from the strident vowels of Khoisan language as well as from the pharyngeal and emphatic consonants of Arabic.

26. Many researchers think that ape voices are vowels in their nature, and consonants came mainly to divide them. That's a great mistake. Vowels, more than consonants depend on the long equal streams of breathing and voicing. It is impossible to produce vowels during the intensively bursting and quickly fading voices of apes. Vowels are absolutely elements of speech itself, and by no means can be ascribed to any other voicing.

27. Some evidence to the former assumption we see in children. It takes children till the age of 5 to gain good control of the intensity of voicing.

28. Vocal expression had to grow a new branch that had to detach from the analogous emotional expression, in order to become speech. This detachment was achieved when a part of the vocalization took on the structure of signals that were made of long equal stream of voicing interrupted by knocks, parallel to similarly structured breath. The emotional vocal expression preserved the archaic rapid burst–fade

breath with parallel voicing, while the new branch that now became conscious, intentional, purposeful, shaped according to the newly developing mode of slow long equal streams of breath and voicing.

29. As far as Homo-erectus is known, both brain size which ended with about 1100 grams, and tools, which in Ubadiya near the Sea of Galilee were much elaborated, indicate that that Homo species had speech.

30. It has to be emphasized that the development of signaling and symbolic aspects of vocal expression was not a side effect of the development of sounds, neither was it vice versa. The two developments were parallel and supported each other. Principally, it is not impossible to assume that each expressive voice would gain a signaling meaning without the development of speech sounds.

31. Lips became next to larynx-pharynx in speech evolution to be participated in the enrichment of vocal expression and the generating of consonantal elements. The hypothesis that lips preceded other inner parts of the vocal tract is based on observations of apes that found some control of the voicing using different formations of the lips.

Also, children starting to pronounce syllables prefer lip sounds.

Other arguments for preceding of lips are their being well felt, seen, demonstratively busy while eating and kissing as well as the fact that the resulting acoustics of lip voices is in much contradiction to throaty voices, hence relatively easy to grasp.

32. Speech sounds are by no means codes. They don't symbolize anything. Had they been, how could one learn other languages, as same sounds serve absolutely different words? Or, how could one discriminate between same sounds and syllables in many words of the same language!

Speech sounds are likes lines of a drawing. When a person doesn't find words, one would voice something like ehheh. This voicing is like drawing a straight line when there is no subject. When having a subject, a face for example, the drawing becomes rich in many shapes, some circles, some ellipses, some right angles, and other. Those shapes are not codes. They represent the way that the draughtsman believes to have seen and able to convey it in the drawing. Dividing any small part of the line would produce but a meaningless line. On the other hand, the complete drawing does become signaling and symbolic. The complete drawing parallels a word or a phrase. A small part of a line parallels a sound or a part of a sound. Sounds do not stand for anything, nor do they symbolize anything. They are newly fashioned remnants of the old and everlasting process of modifying the expressive voices into words. According to our comparison the role of the sound in speech is like a curve in a line in a drawing.

33. Click sounds of the Khoisan languages give some clue as to the integration of lip and tongue sounds in speech. The vocal expression in old times was very intensive and mostly used high volume. Hence, new voices had to have similar characteristics in order to be recognized. Therefore, the initiating of new voices using non-voiced articulations had to have used acts that would enhance the noise of the articulation ensuing something like clicks. As intensity and volume of speech calmed down, it influenced the speakers to reduce the muscle efforts of tongue and lip articulations, resulting in sounds

like s, d, t, p, m.

34. Homo-erectus did have a primitive speech, based on short words (that surly were repeated many times). They were primarily laryngeal-pharyngeal with some lip and tongue consonantal elements. When Homo-sapiens emerged, born from erectus, the new species could not at the beginning have different speech. But it had been better equipped with larger brain and much improved control of the breath and the voicing. As far as we can induce from knowledge of tool making, not much development was made until about 50000 years before us. Only then a new move took people off to a new stage in the evolution of language.

35. Most linguists assume that language proceeded from phonetics to words and syntax. Bickerton suggest that first human developed a "proto-language", which consisted on short phrases of 3-5 words without syntax, and then due to genetic change syntax was developed dragging the development of phonology. If 3-5 words are put in line and have meaning, how can syntax be absent? In Hebrew there are many phrases of 3 words that can be ordered in all the possible patterns: subject-verb-object, object-subject-verb, and so on: there is no law, just preferences. And how could people produce full size sentences that had true syntax, if they didn't have phonology for articulating those words? Bickerton's suggestions are vacuous.

36. When hominids and humans had already meaningful signaling voices, namely primitive words, the only true syntax that served was repeating their utterances, very much like apes, yet with the added meaning and signing attachment. And that appendix which was not the main cause for the expressive voicing, helped to more and more utterances to be appended with dedicated meanings. Where did they take the new dedicated utterances? Not from the air, not from anything that did not exist. People don't laugh or weep voicing random voices. There are selected patterns of voices that are acceptable, patterns that people hear and use. All utterances and words are created in accordance with well-known existing utterances. New words are always, that's a law, made of existing words. This means that new words though somewhat different from the other, are always similar to other words. The ancient, wishing to attribute meaning to a thing could do so only by modifying one or some of their already in use utterances. At times when all grammatical laws were not at sight, the main procedure of renewing words was "phonetic declension". For example, if there was a word 'qa' to say 'water', it could be changed to 'qha' to represent 'river'. My example lacks sharpness because my computer is not equipped to show laryngeal-pharyngeal consonants. Another example is duplication: in Hebrew there are many words that change meaning as one consonant is duplicated: 'naphakh'=blow, 'nappakh'= a man who blows fire, a smith. This hypothesis explains quite much of problems that are not really explained by the comparative sound change theory.

37. It was assumed here that about 50000 years ago a new move took the speakers off to a new stage of linguistic abilities, counting on tool making and artistic evidence. Many suggest that the cause of that dramatic change was genetic mutations. It is not impossible that some genetic mutation like possibly at the tongue muscles did take place.

Yet the genetic assumption does not explain what really happened in the realm of speech, and that is what has to be explained. Moreover, the genetic we think, was a result rather than a cause.

38. In most languages classification of words according to parts of speech is possible only if relying on the meanings, and by no means on form. Many same form words can be classified as noun, adjective, verb. This implies that we should not assume any classification 50000 years ago. The short words, mostly one–two consonants of the lower parts of the voice tract, represented chiefly a core meaning that was utilized for all purposes. And what kind of phrases, sentences functioned at those days? As we know from the earlier inscriptions of five thousands years ago, the sentences were very short, of a few words, and they utilized only very small number of relative and conjunctive words. This suggests that what the sophisticated people who invented writing hardly had, their ancestors surely didn't have. Relations and conjunctions between the words were represented by gestures of face, hands and body, as well as by changing intensity of voicing. All those means are still in use today.

39. it is commonly assumed that Homo–sapiens emerged two hundred thousand years ago. Until about 40000 years ago we don't find much development of tools compared to homo–erectus. This should be regarded as "technological silence", which suggests that the developments in language were minor until a few thousands of years before the presumed time of most ancient cave paintings. Therefore, we assume that first great acceleration of language evolution was initiated about 50000 years ago. This by no means implies that language and speech began at those times. As we have described this means that all the millions of years until then, hominids and humans have been acquiring physical and mental skills that became the basis from which speech became for the first time dominant in human thought and mind. It took still more 30000 years, until the second great acceleration at the time of middle stone age, about 20000 years ago. We assume that from that period speech and language became what I call truly grammatical. It was based on recurring of quite stable patterns. Hence, any future development of language from then on depends mostly on inner linguistic procedures, rather than as before, on what we here named "phonetic declension". Phonetic declension takes its motivation more from the speaker's expressive behavior rather than the linguistic patterns. Speech next acceleration – now as true languages – was at 10000 years ago in the new stone–age. The invention of writing 5000 years ago, implies backwards that people did understand their speech linguistically.

40. Multiconsonantal words developed through a well–known mechanism of gluing two or more short words together. Short words did not come from air, but from yet shorter words. Although it is impossible today to analyze two or three sound words into former elements that might have been ancient words, it has to be clear, that even those words were not born from anything else but from former utterances made of primeval voices, primeval word–like utterances.

41. First languages as they developed had only a small number of words. It simply cannot be otherwise. Almost every consonantal sound

was generated to represent a meaning, therefore serving as a word. One Khoisan language preserves 141 sounds. This is possible because Khoisan people and languages have lived quite isolated. The mechanism that reduces the number of sounds is the merging and mixing of characteristics from two or more languages into a new language. Every time that such process happens, only sounds that are easy to be pronounced by all speakers of the new language are transmitted. We see this in creole languages as well as in all other, like Hebrew or English. There is no exception.

42. Words represent things. Connective words don't. They are abstract. We refer here to conjunctive and relative words in common, because the only difference is that relative are more confined in meanings, and conjunctive are quite freely integrated in sentences. First written languages had very few connectives. The connective words resulted out from new consonants that through unaware processes were attached to existing words, changing the meanings somewhat. Those new attachments were perceived different and detachable for long times. We see very similar phenomena in languages of the era of writing, where for thousands of years glued words do not merge to be one. Those consonants should be regarded new because all of those that survived to our time are articulated in the front part of the mouth, besides 'k' which serves in many languages.

43. The same new consonants that became connective words retained also their earlier contribution to the evolution of language. We find the same consonants in syllables serving all sorts of grammatical pattern alterations.