

Re: early language

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hello,
my kids want to know "when did people
start talking like we do"
I did not find conclusive answers for this
precise question :-)
Can someone please send a link / a word to
look for in Google
or elsewhere, or even an answer for a 7 and a
9 year old and
me, too? thanks, ed

There are two possible questions here. Are the kids asking
about
"Modern English", or are they asking about language in
general?
I've been told that linguists place the origin of the American
Standard dialect at 1776 for historical reasons. Before that
there
wasn't a United States to have an American dialect, let alone
a
standard one. It's a good question that can lead into all kinds
of
interesting learnings about how language changes gradually,
not all at
once.
For the origin of language itself, nobody knows. It's a fairly
hot
topic in paleoanthropology. Guesses range from around 2
million years
ago (based on skull endocasts that show what could well be a
major
thickening in the "language areas" – Broca's Area and
Wernicke's area)
to very recent (about 40,000 ya) based on changes in throat
morphology. The origin of "modern" language, which I take

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to mean the
full range of observed syntax variations as well as the full
range of
root semantic topics is probably in the last 200 ky. John Roth

If we analyse human speech into its different components, I think there are no major mysteries any more in how human language evolved:

Possible Preadaptations to Speech. A Preliminary Comparative Approach.

M Verhaegen & S Munro 2004 Human Evolution 19, 53–70

(google, eg, "Verhaegen Munro preadaptations to speech")

Human language is a unique phenomenon and its evolutionary origins are uncertain. In this paper we attempt to explore some of the preadaptations that might have contributed to the origin of human speech.

The comparative approach we use is based on the assumption that all features of a species are functional, and that all features can be compared with those of other animals and correlated with certain lifestyles. Using this method we attempt to reconstruct the different evolutionary pathways of humans and chimpanzees after they split from a common ancestor.

Previous results from comparative studies suggest human ancestors may not have evolved on the open African savannas as was once believed, but more probably were coastal omnivores feeding on plant matter and easy to catch invertebrates such as shellfish from beaches and shallow waters. Fossil and archaeological data suggest this coastal phase occurred at the beginning of the Pleistocene, when *Homo ergaster-erectus* dispersed between East-Africa,

North-Africa, South-Asia and Indonesia.

This paper presents comparative data suggesting the various human speech skills may have had their origins at different times and may originally have had different functions. Possible preadaptations to speech include, for instance, musical skills present in a variety of primate species (sound production); airway closure and breath-hold diving for collecting seafood (voluntary breath control); and suction feeding adaptations for the consumption of fruit juice or certain seafoods (fine control of oropharyngeal movements). The different evolutionary pathways of chimpanzees

and humans might explain why chimpanzees lack language skills and why human

language is a relatively recent phenomenon.

I'll try to "translate" this for 7 to 9 year olds.

A big problem is how to explain evolution theory, and the way we make sounds

(phonemes etc.):

Humans make sounds in the larynx, the voice-box in our neck. We can make

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these sound at free will, whenever we want, by breathing out & changing the vocal chords in the larynx we can produce different sounds & vocals in the larynx. The larynges of apes can make sounds such as shrieks & hoots & grumbles & crying & some sort of laughter, and gibbon apes can even sing in the morning or at the evening, but these loud sounds & songs are not made at free will, but are made automatically when the animal is emotionally involved, for instance, when it's frightened or angry or happy. Apes also cannot breathe whenever they want to, but they breathe deeper & faster when they are running or when they are frightened or so, when their body needs more oxygen. Some other mammals however can breathe whenever they want to,

for instance, sea mammals have to hold their breath under water, or else they get water into their airways. Sea mammals also can breathe at free will whenever they intend to dive, in order to get enough oxygen in their bodies for the next few minutes when they will be under water. But underwater, when their oxygen needs are highest, they have to hold their breath completely & close their mouth in order not to let water in.

When you can combine the breathing at free will with the sound production, you can produce sounds at free will. This is seen in a lot of sea mammals. Dolphins can make click sounds & some seals can imitate human sounds. The great biologist Charles Darwin some 150 years ago is the father of the evolution theory. The evolution theory says that all animals millions & millions of years ago had the same ancestors, and that animals became the way they are because the animals that were not adapted to their environment, had more chances to die before they had children, so the least-adapted animals died soon & only the best-adapted animals got children & stayed alive. For instance, in species that climbed trees, the animals that could not grasp branches, had more chances to fall & die, so after many many generations only the animals with grasping hands were left over. So animals began to differ from each other in very small steps, because some animals lived in trees & got grasping hands, and other animals started to swim, still others started to run on land, etc. The swimming & diving mammals got, for instance, the ability to breathe at free will to get enough oxygen before they wanted to dive. In this way, over millions & millions of years, the animals began to differ from each other more & more, and we got flying animals, running animals, swimming animals etc., so that we now have all sorts of animals.

The nearest relatives of us humans are the monkeys & the apes. The chimpanzee is our nearest relative, and then we have the gorillas, then the orangutans, then the gibbon apes, and then the monkeys. Charles Darwin already thought that human speech started millions of years ago with the singing of gibbons or with the hoots of chimpanzees. Now, if we can combine

this singing of the apes with the breathing at free will of the diving mammals, we can sing & produce sounds at free will, and then, for instance, when we want our group members to know that there are a lot of oysters to eat at a certain place, we can produce a certain sound, and when there are lots of coconuts, we can make another sound, and later when we want to say more difficult things, we can produce more varied or more complex songs or sounds.

But there is more. Humans can change the sounds that we make in the larynx

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in our neck, by opening or closing the mouth, changing the lips, the tongue etc. Animals that bite, such as lions, can only bite & slice the meat & swallow the prey in big parts, but animals that have to suck juice from fruits or mussels from the shell can close the mouth at different places, for instance at the lips, with the tip of the tongue or with the back of our tongue. Humans have much smaller mouths than the apes, we have round tongues & other difference with apes, so that we can suck juices & slippery foods more easily than apes & certainly monkeys can.

But we not only change the form of our mouth & tongue to suck slippery foods, but we can also changing our lips & tongue & throat in order to make different vowels, such as ah, oo, ee etc., and we can also close the mouth at the lips & produce p, b or v, or with the tongue at the teeth & produce t, d, or th: p & t are complete closures, and v & th are almost complete closure. These closures are called consonants: k, p, sh etc. The sounds made with open mouth are the vowels: ah, ee etc.

The problem is more complicated than this, and there were a lot of evolvments later on, but this is enough for today.

To summarize: human speech began with the combination of:

- breathing at free will, as in diving mammals,
- loud sound production & singing, as in gibbons,
- changing these sounds in the mouth, as in animals that suck slippery foods such as mussels or fruit juice.

BTW, AFAIK the "fathers" of these 3 elements are:

- Elaine Morgan or possibly Alister Hardy – I'm not sure,
- Charles Darwin & many others such as Mario Vaneechoutte,
- Roger Crinion, who noticed the parallels of the human (vs.chimp) mouth to suction feeders: small mouth, closed parabolic tooth row with incisiform canines, vaulted & smooth palate with few ridges, round tongue fitting into the vaulted palate, descended hyoid bone etc.).

To properly answer your question, ed ("when?"):

- diving, probably Pleistocene, beginning late-Pliocene? IOW, some 2 Ma?
- singing, probably starting at least 20 Ma,
- suction feeding, probably some 2 Ma, but possibly earlier, possibly together with the many (Plio)Pleistocene outs-&-intos-Africa along the coasts.

But of course, language is being refined until today, eg, google "Nowak Krakauer language evolution PNAS". --Marc

Hello, thanks for your interesting answer.

Actually I found a while back that the concept of evolution is easily understood by a 9 year old. I guess one has to be a biased grownup not to understand it.

To have a vague idea of it, yes, likely, but not to understand. recombination-mutation-selection process I'd think.

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I read some of your other posts on AAT and found them pretty unbelievable in their "ex cathedra" strictness, but I lack the education to really have an opinion.

If a child can understand Darwinian evolution IYO, there's no reason why you shouldn't be able to understand what I said above – nothing ex cathedra – all very logical & based on facts.

For me people are so immensely flexible and adapt to any habitat so beautifully, it seems like the defining characteristic of mankind.

That's the kind of anthropocentrism that we see too often in popular PA à la Olson cs. Humans are no immensely flexible, we have a lot of anatomical & physiological constraints, eg, our anatomy & physiology make it "highly unlikely that hominid ancestors ever lived in the savannas. Man is the opposite of a savanna inhabitant. Humans lack sun-reflecting fur, but have thermo-insulative subcutaneous fat layers, which are never seen in savanna mammals. We have a water- and sodium-wasting cooling system of abundant sweat glands, totally unfit for a dry environment. Our maximal urine concentration is much too low for a savanna-dwelling mammal. We need much more water than other primates, and have to drink more often than savanna inhabitants, yet we cannot drink large quantities at a time." Nature 325:305–306, 1987 "Origin of hominid bipedalism"
A very small minority of people do live in savannas today (although still next to water), but only with the aid of water bags, bow+arrow & a lot of other technology.

No animal, except maybe lice, can share every place we can survive and breed in. To me, the role model seems to be the rat rather than the muskrat.
But whether sucking marrowbones or oysters, or both,

If they had sucked marrowbones, they had to suck tons of them: seafood (oysters, crabs etc.) contains about 1000 times more DHA than bone marrow, eg, google "Cunnane Crawford DHA" or so.

--Marc

I can see that a high nutrition (i.e. juicy?) diet is good for a brain that needs energy and can mean preadaption for facial expression and speech. I wonder if primates can learn that their interjections are heard, and certainly get a reaction, and maybe start using them voluntarily. Gorillas learned to use loud instruments to scare a rival,

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not exactly speech, but pretty close to a hearty "piss off".
I understand physically they could not shout at will,
no control ? That sounds like a very old dividing line,
with all this teaching chimps sign language no word from them?
The kid's tale I'm telling is: sharing and working together
are the root of humanity, and the reason for the success
of the species. Language is vital for it, and any
improvement would have been beneficial for the group.
cheers, ed