

Origin of Language : Theories and Speculations

Team Chimichangas



Robert C. Berwick

WHY ONLY US

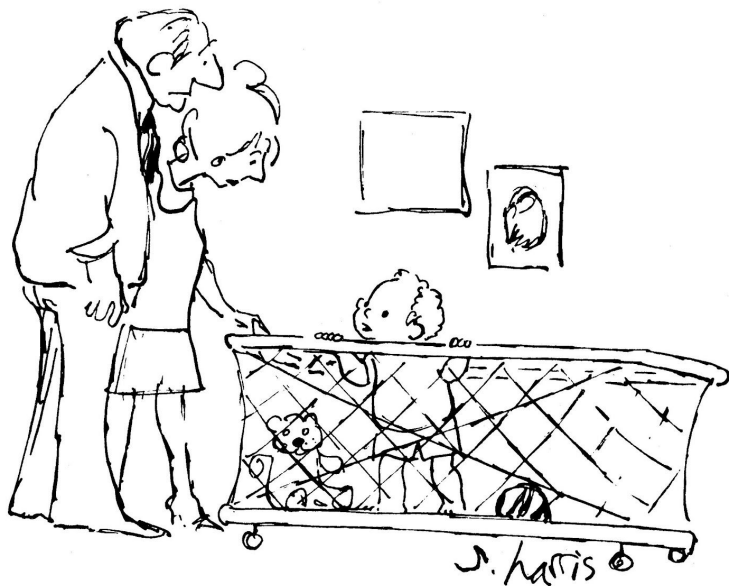
LANGUAGE AND EVOLUTION



Robert C. Berwick • Noam Chomsky



Noam Chomsky



Rationalists VS Empiricists

1. They believe that the acquisition of language faculty is **extremely recent** in our lineage.
2. It being acquired was not in the **context of slow**, gradual modification of **pre-existing** systems under natural selection but in a **single, rapid, emergent event**.
3. ~~toolmaking and language are based on metaphor~~
4. Berwick claims that verbal language does **not facilitate toolmaking**.

Views of the American linguist - Noam Chomsky

“The child does not learn the language, but creates it anew.”

- Chomsky suggests ‘that language is an innate faculty.’
 - The universal grammar is the basis upon which all human languages build.
 - Claims that major reason why children acquire their mother tongue is-
 - Children do not simply copy the language that they hear around them.
 - Children are exposed to very little correctly formed language.
 - Children would unconsciously recognise which kind of a language they are dealing with -and will set their grammar to the correct one.
 - The set of language learning tools, provided at birth, is referred to by Chomsky as the Language Acquisition Device .
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The 'Nature vs Nurture' Conundrum

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Chomsky says that the origin of language has been studied from a **viewpoint of animal communication** such as calls of apes and so on. But he thinks that this is a waste of time because **human language is quite different** from animal communication system.

The appearance of new **ways of thinking** and communicating, between 70,000 and 30,000 years ago, constitutes the **Cognitive Revolution**. What caused it? We're not sure. Chomsky's theory argues that accidental **genetic mutations** changed the **inner wiring** of the brains of Sapiens, enabling them to think in unprecedented ways.

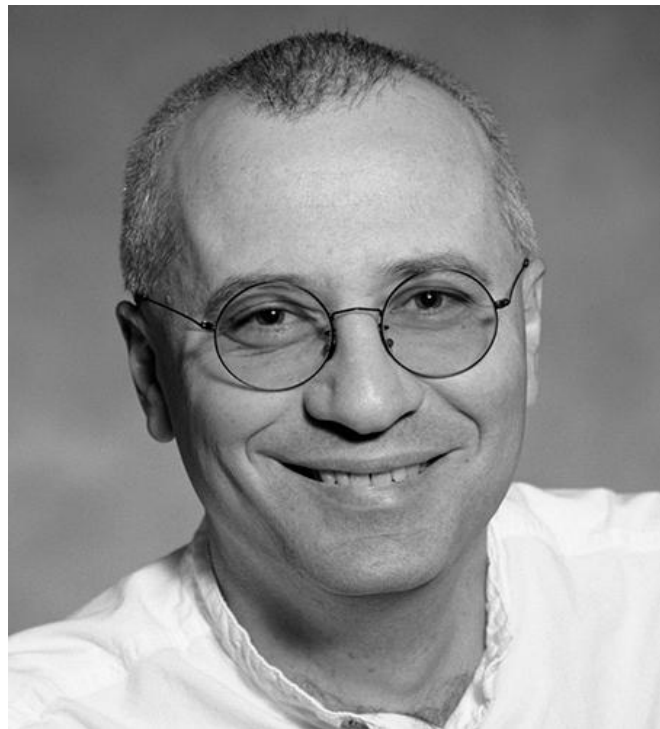
It has been referred to as the **Tree of Knowledge** mutation. Why did it occur in Sapiens DNA rather than in that of Neanderthals? It was a matter of pure chance, as far as we can tell. But it's more important to understand the **consequences of the Tree of Knowledge mutation** than its causes.

So Chomsky's theory supports the 'Nature' part of the debate and he says that we are equipped with an **innate template of language** and that blueprint of language helps us in **constructing a grammar** for our language.

Reasons that support the Innateness of Language

“Normal physical development is always triggered by external phenomena, but its major properties are built in. And so is language. A child can't help acquiring it.”

- The fundamental fact that all humans **eventually learn to speak** favours Chomsky's idea.
 - The **speed of acquisition** argument that tells us that any mentally sound child is able to learn a language within 2 years of birth.
 - The **critical age hypothesis** which tells us that how the **ability to learn to speak diminishes** with age.
 - The discovery of the '**FOXP2**' gene, believed to contain aspects that give us the ability to speak, all but confirms the presence of a **biological component** to language.
 - The fact that there is **loss in ability** to speak when a certain area of the brain gets damaged.
 - Chomsky says „It's (language) something that your mind **grows in a particular environment**, just the way your body grows in a particular environment.”
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Shimon Edelman



Oren Kolodny

Views of the Kolodny and Edelman

“Language hasn’t just sprouted from scratch but is a result of millions of years of evolution and ‘**hijacking**’ of cognitive mechanisms.”

- Language is a **toolkit** that effectively supports an individual in influencing the behaviour of others (maybe self as well)
- This system’s sophistication is closely related to those underlying animal signaling and **social interaction** .
- Here the role of language as a means of communication is able to influence the **cognitive** and **behavioural** processes by linguistic means.
- Drastically different from the formalist view of Berwick and Chomsky , albeit being akin to the functionalist views.
- The singular occurrence of language was triggered by exaptation of existing cognitive mechanisms, related to sequential processing and motor execution.

Volume

1500cc

1000cc

500cc

S. tchadensis

A. afarensis / africanus

"rudolfensis / habilis"

H. ergaster

H. erectus

H. heidelbergensis

H. neanderthalensis/sapiens

6.0 mya

3.0 mya

2.0 mya

1.0 mya

.5 mya

0

Time



The Cognitive Coupling (COCO) Hypothesis

- Language is a product of evolution; An application of *natural selection* , which paraphrases to the fact that evolution is efficiency- centered .
- The origin of language was necessitated because of the social lifestyle of early *hominins*.
- Following the hypothesized sequence of adaptations, language also acquired a number of social characteristics, like
 1. Intentional use of language to affect others' behaviour
 2. Propensity of extended dialogue interaction
 3. A vast, learning-intensive social component
 4. A critical role in humans' capacity for innovation.



Problems with Formalist and Functionalist views

- According to Kolodny, giving up on **formalist conceptions** of grammar makes it easier to resolve other problematic ideas associated with these conceptions. Eg -
 - Babies learn **infinite productivity** and structural perfection—traits found in no other species—from **finite data**
 - Our species evolved such unique traits from scratch
- Adopting the popular alternative assumption regarding what language is ‘for’—communication, as per functionalist linguistics—suggests other answers to these questions and brings to the fore yet another set of issues -
 - It becomes critically important to determine how language relates to **honest signalling**.
 - It also brings to mind queries as to which aspects of language acquisition are **developmental**, dependent on **cultural exposure**, and which are innate, **a product of evolutionary adaptation**.

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Predictions

1. The COCO hypothesis is founded on the assertion that **communication is coupled** with a tool whose use would facilitate its **social transmission**. This can be tested as in experiment, especially in children.
 - a. Dimensions of interest would include whether (and how) children choose to incorporate coupled communication in their demonstration of a physical skill, when instructed to teach the skill or to help another child acquire it
 - b. How communication that accompanies the physical demonstration changes along transmission chains that include multiple children
 - c. What kind of communication is added, e.g. **gestural** or **vocal, linguistic** or **non-linguistic** and how this changes as a function of age, earlier experience or the details of the instructions provided.
2. It may be useful to study the manner in which human cognition accommodates **evolutionarily novel tasks** other than language and how new skills emerge when provided with a **cultural context** that makes them beneficial or that **reinforces** them **socially**. Eg - Reading and writing, Mathematics , etc.
3. There should be prominent differences between first and second languages in the ease and fluency with which individuals process and produce utterances that include complex or high-order **syntactic dependencies**.

References

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