

# I'm Tired of Chomsky

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I recently watched a long [YouTube video](#) of Chomsky speaking pretty familiar stuff. The part on language origins was especially trite; it left me unsure whether to laugh or shake my head. So much for that old man, thought I.

Then [Christina Behme](#) posted a comment on this blog with a link to her [book review](#) denouncing Noam Chomsky's *The Science of Language*. For a moment I thought perhaps the linguistics world had come full circle. Chomsky's stardom had begun with a take-down book review, so it might end. Of course the review does not satisfy those anticipations. I suppose it could not. Chomsky was reviewing a book that set forth a theory that, as Chomsky demonstrated, was inadequate to account for the facts of language. One of Behme's complaints is that Chomsky does not set forth a theory, so it couldn't be knocked down.

## Chomsky's Theory

Yet Chomsky does have a theory. The language he describes is an internal process of generating strings of symbols. The brain contains a series of elementary concepts that are manipulated as symbols by a process called Merge. Merge creates strings by following the rules of a Universal Grammar for organizing symbols. Because Merge has a recursive function (i.e., strings can be embedded in existing strings), the potential length of these strings is unlimited. The brain system, or module, can pass these strings to at least two other modules: the semantic module that adds meaning and includes perception, and the externalizing module that translates the string into the public language of a particular culture.

Of special interest to this blog is Chomsky's implication for language origins: Language began as a system for thinking, not communicating. It appeared as the result of a single mutation that allowed the Merge operation. He has said many times that this power of sticking symbols together likely appeared as a mutation in the brain no more than 100 thousand years ago. Thus, the great growth in the human brain (occurring from 1.8 million to 200 thousand years ago), the introduction of fire, the use of tools to make tools, and the adaptation to savanna life all occurred without language and without sticking concepts together. The split-off of Neanderthals from our lineage also predates

the introduction of Merge and Neanderthal cultures were all accomplished through the use of elementary concepts, none of which were shared via speech (externalized conceptualizing).

The theory's initial proposition of inborn elementary concepts is not unprecedented; it dates at least to Plato, but it is not the only suspicion about where we get our ideas. An alternate theory is that people base their ideas on experience.

Normally when there is a basic disagreement between scientists, the solution is to perform a series of experiments designed to find the correct idea. As far as I know, Chomsky has never done any experiments to prove that concepts are innate rather than derived from experience. The evidence that he routinely cites is purely logical and anecdotal, and Behme's review does a good job of demonstrating their inadequacy. Meanwhile a great deal of experimentation is being performed by the other side of the issue. (See my discussion of [Benjamin Bergen's](#) thesis that sentences are understood by activating our perceptual apparatus: [Language Simulates Perception.](#))

Meanwhile, Chomsky might try to explain why concepts vary from language to language. A famous example is the way an English-speaker can say (1) I know London, and (2) I know accounting, while for a French speaker the verb in these two sentences will differ. If it is innate, why is the English concept of knowing so much broader than the French one? And there are many such examples when comparing the way words are used in different languages. It is not obvious from examining the various *paroles* that they are all based on the same elementary concepts.

So Chomsky's belief in innate concepts is not undisputed, not obvious, and poses a number of problems that at least need to be acknowledged. Perhaps even more disturbing is the way many of Chomsky's unusual doctrines depend on the existence of innate concepts:

- The primary function of language is thought, not communication.
- Meaning is less important than syntactic structure in sentence construction.
- Thoughts are applied to perceptions and not vice-versa.
- Language is an all or nothing phenomenon.
- The only thing that distinguishes human from animal thought is the presence of Merge and its recursive function.

- There is an internal language that is notably different from externalized language.
- All uniquely human thought is symbolic.
- The concepts never refer to actual things.

Taken together, the list seems like a lot to swallow when it cannot be defended by pointing to experiments, or some commonsense tradition. The latter, of course, is a poor reason to believe something and Chomsky has had many a good laugh at commonsense's expense. Even so, there seems to be no reason to embrace his metaphysics when, however plausible the first step may seem, you end up having to swallow so many implausible conclusions.

Fortunately, there is an alternative to Chomsky.

### **Alternate Theory: Community**

First, we can say there are several fundamental differences between humans and other primates, not just one.

- Humans can have parents from culture A but, when raised by members of culture B, they act like members of culture B. Chomsky often mentions this point, yet he never puzzles over what a strange fact this is. If you try to raise a wolf as a dog, you get a wolf. Birds who try to raise a cuckoo as, say, a robin, get a cuckoo. Yet families in Paris who raise babies born to natives of New Guinea get Frenchmen. This suggests that while most animals are born with a set of instincts to make them like their ancestors, humans are born with instincts to acquire the ways of their neighbors.
- Human communication is triangular and conversational while animal communication is a monologue. If a rhesus monkey sees a leopard, it lets out a distinct call. When other monkeys see the leopard, they join in making the same call. When birds sing a territorial song, other birds of the same species may avoid the area or sing the same territorial song. When fire flies signal their presence, potential mates approach. In none of these cases does anything like a discussion take place. The basic human arrangement of speakers and listeners discussing news about topics is nowhere to be found. Yet it is universal among humans.
- Human males take on social responsibilities. I do not wish to get too excited about the patriarchy, but, compared with most species, human males are not so terrible. Even an extremely social species like the African elephant never found a solution to the problem of males beyond driving them out of the herd. Somehow human males became willing to take some responsibilities for some women and children.
- Humans have moral codes which set rules on how to behave toward one another.

A theme is apparent in this list: humans are more than social, they are members of mutually dependent communities. We are, by nature, members of a culture that tells us who we are and how to act. Thus, the reason for suspecting that language's primary function is communicative is that we cultured animals need a tool like language to survive. We needn't ever have an original thought in our lifetime, but we must learn the ways of our neighbors.

This observation rejects one of Chomsky's most controversial conclusions:

- ~~The primary function of language is thought, not communication.~~

### **Alternate Theory: Perceptions**

A second part of an alternate theory might be that elementary concepts come from perceptions, not the other way around. Chomsky likes to argue that we have an innate concept of a river, and that idea allows us to recognize a real-world instance such as the Charles that flows by MIT or the Hudson that flows a few blocks west of my apartment. Thus, the person who lives an entire life in a Saharan oasis may never need to use the concept, but a descendant raised in Paris will find the concept ready to take off the rack and give meaning to the Seine. An alternate account might be that we get our concept of river from our experiences with them and that the oasis-born Parisian knows what the Seine is because it is there to be perceived.

Should we flip a coin to decide which theory is correct? Better might be an experiment. Oh, wait. Such experiments have already been made. The psychology world is full of experiments in which rats and pigeons are trained to use things their lineage has never before encountered, things like light switches, electronic locks, pulleys, etc. Humans might have gained these concepts by sticking more basic concepts together, but Chomsky tells us that animals cannot do such Merging. So we need some other explanation than innate prejudice for how animals come to make use of lab equipment. One alternative is that they have somehow learned from their experience with the gizmos.

Perceptions do not completely abolish the notion of inborn prejudices, but the biases do differ in their content. Instead of having concepts like rivers, perceptions assume relationships.

Imagine a zebra and a lion. The zebra's survival requires it be able to tell when a lion is charging it. The zebra's efficient survival requires that it be able to tell when a lion is moving but not coming. This subtlety of distinction means that zebras do not run every time they see a lion. Zebras seem to be able to perceive not just objects but a relation between the object and themselves. It would be most charming to conduct a series of experiments to determine which relationships animals can perceive.

As it happens, a number of perceivable relationships (called case relationships) are universal in languages. All languages, for example, distinguish between subjects and

objects. English marks the distinction mainly by word order; many other languages change the noun to indicate case. Old English used case markers and a few such markers survive: e.g., he (nominative), his (genitive), him (accusative).

Although the experimental evidence is not complete, it would not surprise me to learn that chimpanzees can distinguish between subject and object, direct and indirect object, thing and part of a thing. These are the elementary case relationships and they are universally translatable. So, until the experimental evidence shows otherwise, I will assume that no special evolution was required to acquire the case relationships.

Apes have been taught to make sign language words, and the apes themselves have spontaneously stuck a few words together. Most notably, a bonobo once coined the phrase *water bird* to indicate a swan. So it seems that as soon as humans had the motivation to share perceptions with one another, they had the ability to draw a companion's attention to something. Words and short phrases appear to have been immediately available to them.

What we still have no evidence of is perceptual Merge in apes. Chomsky's Merge sticks elementary concepts together, but to believe in that process you have to believe in innate concepts. Perceptual merge unites different points of attention. A sentence like *Jeter caught the ball* focuses on two separate perceptions: (1) somebody named Jeter, and (2) a ball. They are in a subject-object relationship and are held together by a binding word, *caught*. I call it a binding word because it ties the two perceptions into a complete thought. The binding word can go with either point of attention: *Jeter caught ...* shows Jeter doing something; *... caught the ball* shows something being done to the ball. So there is some kind of perceptual Merge capacity in humans and, apparently, humans alone.

This part of the alternate theory rejects a few more of Chomsky's conclusions:

- ~~Thoughts are applied to perceptions and not vice-versa.~~
- ~~All uniquely human thought is symbolic.~~
- ~~The concepts never refer to actual things.~~

### **Alternative Theory: Meaning**

Chomsky's Merge is a computational process, which is to say it is automatic, determined and reflexive. Merge sticks the concepts together and comes up with *Jeter caught the ball*. Perceptual Merge is different, relying on at least a crude recognition between separate points of attention. A complete thought identifies the topic (Jeter) and news (the ball), but it is up to the perceiver to determine what's the topic and what the news. Every topic could be the news and vice-versa. For example, a person could say *The ball flew straight to Jeter* to describe exactly the same scene in which the ball was the news rather than the topic.

While switching subject and object around requires a simple inversion of case indicators, the change to the binder word requires some understanding of what the word means. Language in this alternative theory works partly at the conscious level. There are unconscious processes at the level of phonetics, word choice, and grammar, but organizing an utterance to express a complete idea calls for a conscious awareness of the topic, news, and binders' meanings.

So we can also scratch out:

- ~~——— Meaning is less important than syntactic structure in sentence construction.~~

### **Alternative Theory: Multi-Step Evolution**

This alternative theory implies a multi-step evolution, First came a motive for sharing perceptions, and this motivation required a change to a group dependence more profound than anything currently known in the ape world. The ability to generate words and phrases drawing attention to specific perceptions was immediately at hand. Other steps included the ability to express case relationships and use metaphors. Another step was the development of a working memory that lets us keep track of topics in an utterance like *The man my mother saw left town*. Thus, we can also cross out:

- ~~——— Language is an all or nothing phenomenon.~~

### **So ...**

Besides having the experimental evidence on its side, the alternate theory is more in keeping with what we have learned from natural history and its evolutionary backbone.

It seems impossibly naïve to rely on a single mutation to account for human uniqueness. Mutations occur all the time and are part of every generation. If a single mutation was all it took to produce Chomsky's Merge, we would be left wondering why the mutation had not happened millions of years sooner. The likely answer would be that in all probability the mutation had occurred, but the environment was not ripe for its selection. Chomsky does not like this answer because it gives power to externalities and he wants a complete, internal system. As the poet warns us, however: *You can't always get what you want*.

It also seems naïve to claim an interest in the biology of language, and yet pay no attention to the abundant fossil and tool evidence of the evolution of the human lineage. It shows that for the past 1.8 million years the lineage has gotten smarter, more cooperative, and more fertile. Human infants are much more burdensome than chimpanzees and other ape infants. We have a much longer period of helplessness, and yet we reproduce more quickly than the great apes and even without modern medicine and hygiene more of our infants survive to adulthood. This success has given us an adaptability unknown to other primate species and makes it impossible to argue

reasonably that the only critical difference between humans and other apes arises from a one-time mutation that took place a mere hundred thousand years ago.

There is also the simple fact that languages vary tremendously. Why? The concepts they express differ enormously. The details of perception that they force speakers to express also vary, and there are plenty of completely arbitrary rules such as word-gender that languages enforce. Why? And double-why do we see this variation if, as Chomsky says, all languages express the Merges of a universally-shared, identical internal language module? Chomsky tries to offer reasons but they depend on complex and arbitrary rules that pay no attention to the external needs of survival or the capacities of the human body.

It seems a lot simpler to say that language serves a peculiarly human function, the sharing of perceptions and other ideas. The similarity of certain basics arise from the commonality of function and the shared powers of perception; the many differences reflect long histories of separate sharing by a species that acts not like its ancestors, but like its neighbors.

In the end, I have grown fed up with Chomsky's dogged refusal to take any idea seriously or respond honorably if it does not support internal autonomy. I have learned much more from people who learn from others: e.g., [Giorgio Marchetti](#), [Michael Tomasello](#), [James Hurford](#), and [Edward Wilson](#).

And yet by taking Chomsky seriously I have learned from him too. The alternate theory led me to scratch out most of Chomsky's surprising conclusions, but a couple were left standing:

- The only thing that distinguishes human from animal thought is the presence of Merge and its recursive function.
- There is an internal language that is notably different from externalized language.

These are important ideas and their persistence suggests I have gotten more out of Chomsky than just somebody to quarrel with, but to really use these ideas I have to modify them in ways that I'm confident Chomsky himself would dismiss with a wave.

- **...the presence of Merge...**: Humans and animals both rely on perception for their non-inborn knowledge of the world, but only humans can use language to share perceptions—that is to point things out, and name things we encountered while away from the listener. This sharing can be accomplished with words, phrases, and gestures alone, but the results can be much more profound when several perceptions are bound into a complete thought. And as Chomsky loves to point out, there is no automatic end to the Merging possible.
- **...internal language...**: Humans enjoy a subjective, sensory knowledge that language can evoke but not reproduce.