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Concept-Demand Theory and the Evolution of Human Language

Rory M. Larson

Abstract: A model of language and its evolution is proposed, based on the theory of concept and demand as essential features of human language. A continuous and plausible series of evolutionary stages from the origins of communication to modern human languages is suggested. It is argued that the differentiation of concept from demand is the crucial step which bridges the gap between animal communication systems and human language.

This paper proposes a preliminary model for the nature and development of human language. This model is the author's own, formed over many years spent trying to learn languages, and is not founded upon any prior literature. In fact, the author has not even been able to find discussion directly relevant to it in a cursory examination of recent literature on the evolution of language. If the model has been proposed before, it does not seem to enjoy much attention.

Assumptions

Materialist assumptions about human nature can vary over at least three poles. Since the views of individual students may be too subtle to be simply subsumed under one of these headings, and since writers in any case do not often make their own assumptions explicit, I will not attempt to attach them to any named person. Rather, I will present them as ideal positions which may be used as fixed points of reference for locating our actual assumptions. One possibility is that individual character is completely mutable and determined by environment. In the realm of language, this assumption implies that neurological training alone determines the pattern of speech in a person without physical handicap. We may call this the *tabula rasa* assumption.

An alternative view is that our character is based on and constrained by a genetically determined neurological mechanism. This position can range between two poles. At one extreme, the mechanism

can be a singularity, determined by a single gene. By this view, language is constrained in a way that is universal and invariant across the human species. We may call this the *genetic singularity* assumption.

The third pole is that the neurological mechanism which underlies and constrains our character is multiplex, determined by numerous genes, and potentially variable between individuals and groups. Under this assumption, language patterns are constrained in ways that show hereditary affinity, but are not absolute and not necessarily universal within the species. We may call this pole the *genetic complexity* assumption. The author's own assumptions gravitate to this third pole. Neither of the other two poles plays well with Darwinian evolution. The *tabula rasa* assumption, so far as it is held, does not allow for phylogenetic evolution at all, since all character is individually developed, with no genetic basis upon which to select. The *genetic singularity* assumption allows for only two possible characters: trait present; and trait absent. For a complex trait like language, it requires evolutionary saltation: the enormously improbable event of a single mutation that produces a highly complex and adaptive mechanism so radical as to define a new species, and to which nothing further is added.

The *genetic complexity* assumption, on the other hand, expects human character to be founded on the same biological principles we accept for the physical traits of other species. It holds that language is based on hereditarily determined neurological and physical traits which evolved gradually as selectively advantageous adaptations. This view does not require special exemptions for the human mind, and it has the virtue of placing restrictions on the argument. That is, to satisfy the assumption, any origin story proposed is required to offer a complete series of intermediate steps, and to show that each stage is viable, and either a consequence of or an attainable selective improvement over the stage before.

A corollary of this assumption is that each language or communication system is substantially complete. No matter how primitive, every language must cover the universe of interactional interest. If we have fewer words, then either we have less to discuss, or the words must take on broader and less precise meanings.

Focus

The question of language and its evolution has many different angles. We may ask about the physical features that support language, and when they appeared in the human lineage. We may turn to other

primates to seek prototypes for early language systems, or to childhood acquisition of language to model its development. We may study its neurological components in the brain. We may ask why language evolved precisely in humans, and under what circumstances, and to what selective advantage. We may survey the known languages of the world and attempt to find patterns in their respective grammars that may shed light on their nature and evolution. The model presented in this paper takes a functional evolutionary approach. The focus is on what language is in a practical, interactional context, and of what necessary evolutionary stages it is composed. It pays no more than passing attention to physical implementation, timeframe, animal prototypes, or the question of why language developed uniquely in humans. The explanatory framework throughout is intra-group selection under the *genetic complexity* assumption.

Concept and Demand

To constructively discuss the origin of human language, we first need to understand what it is and how it functions. Its physical basis and grammatical complexities have been much discussed and are rather well known. An important point seems to be almost overlooked, however. The essence of language is *targeted signals*, each of which makes a standard type of *demand* upon the target.

Suppose that I initiate a conversation with you by saying: “The brown dog under the old oak tree.” Though this is all good, coherent English, and though there might indeed be such a creature of which we are mutually aware, you would probably feel that this sentence was incomplete. Having learnt English grammar in school, your first impulse might be to inform me that I have forgotten to include a verb.

Very well. A verb is a word that describes an action. So let me correct the above sentence. “The brown dog gnawing a bone under the old oak tree.” ‘Gnawing’ describes an action and takes a direct object, so it is arguably a verb. Any better? No. The real problem is that, although I have given you a fine conceptual reference, I have completely neglected to signal to you *why* I am submitting that dog to your consideration. That is, I have handed you a representation, or *concept*, without also signaling the *demand* that needs to go with it.

If I were to say: “The brown dog is gnawing a bone under the old oak tree”, then you would know that my demand is a *declaration*, the demand that you update your mental database with the concept I was sending you as information. If I said: “Is the brown dog gnawing a bone under the old oak tree?”, then you would know that my demand is

a *query*, the demand that you return information to me in the form of a confirmation or denial of the validity of the concept I posed. If I said: “Have the brown dog gnaw the bone under the old oak tree”, then you would understand that my demand is a *command*, the demand that you cause the concept to be implemented. Any of these sentences would be complete, because they would signal my demand upon you along with the concept.

In English, demand is signaled in a complex way that involves distinguishing classes of lexical vs. auxiliary verbs, declaring a subject and a specially marked finite or head verb that may be of one class or the other, and then swapping the order of subject and head verb, or eliminating the subject. In some other languages, signaling the demand is handled in a much simpler way by giving each demand a word of its own. Thus, if **yo** means command, **da** means declaration, and **ka** means question, I could make any of the above three complete sentences without altering word order: “The brown dog gnaw a bone under the old oak tree **da**” declares it; “The brown dog gnaw a bone under the old oak tree **ka**” asks it; and “The brown dog gnaw a bone under the old oak tree **yo**” commands it. The first part encodes the *concept*; the final word signals the *demand*.

In general, every complete utterance directed to a particular listener or set of listeners must include a demand signal or assume one by context. Thus, my original utterance: “The brown dog under the old oak tree” would be perfectly complete and acceptable if it were delivered immediately after a question by you, e.g.: “What are you looking at?”, since the demand of your question implies that the demand of my answer should be a declaration that fills in the blank indicated by your question word. Similarly, languages that encode demand explicitly may omit the word specifying it in the second person and the first person singular, since any utterance with myself as the subject is likely to be a declaration, while any utterance with you as the subject is probably a question.

Language Evolution

With the idea of *concept* and *demand* established, I would propose the following evolutionary stages in the development of language.

1. Observation. The first requirement for language is an observer, or “listener”. Before there is any point in sending messages, one must be in the company of other beings ready to receive them. In general, correct observation of one’s environment is almost always selectively advantageous to animate beings. Acute observation of the behavior,

particularly of conspecifics, provides critical information about both one's social circumstances and one's general environment. Prior selection for social observation develops the biological basis for conditions under which selection for message transmission can occur.

2. Involuntary Broadcasts. Facing a certain type of situation, an animal may behave, as a side effect, in some characteristic manner that can be noticed by its observers so as to allow them to detect the situation. From here, selection may either amplify such characteristic behavior under this condition, or suppress it, depending on whether it is inclusively advantageous or not to the animal to allow its observers to be tipped off. It is almost always to the advantage of the observer to know the truth. It is sometimes more to the advantage of the one observed to conceal it. An involuntary broadcast is a signal that is given off reflexively, with no regard to whether anyone is around to hear it. A cry of pain or a moan of pleasure would be common examples. In human language, the simple expletive is often a case of involuntary broadcast.

3. Directed Signal. A step beyond involuntary broadcasts is focusing a signal upon a selected target. This directed signal is what I call a *demand*. The expectation is that the target will respond in a manner that is favorable to the one issuing the signal. The first demand might have been a single, all-purpose signal soliciting favorable attention, perhaps of an infant from its mother. At this level, command, question and declaration are indistinguishable. The targeted observer is required to figure out the exact nuance of the demand by context.

4. Multiple Demands. A single, all-purpose directed signal suffers from a degree of ambiguity. A repertoire of several distinct signals used for different types of demand would make it much easier for the observer to determine the signaler's desire. In modern human languages, we have a variety of isolated demand words, unattached to a concept. "Hello" (to greet someone); "Good-bye"; "Hey!" (to attract someone's attention); "Excuse me"; "Sorry!"; "Here!" (when handing something to someone); "No!" (when refusing them); and "Thanks!" are common examples found in many or most languages.

5. Demand and Concept. A language consisting of single demand words allows only as many messages as there are words in its vocabulary. Furthermore, the real-world implication of the demand must always be determined by the listener from the immediate context. The next essential step in the evolution of human language is to

develop a system of *dual signals*, in which one signal conveys the demand while the other represents the demand's referential context. The latter is the *concept*.

Thus, different *concept signals* can be mixed and matched with different *demand signals* to multiply the number of possible messages. This is perhaps the key step into human language. Although other species may have communication systems extending up to the multiple demand level, I am not aware of any others that distinguish and selectively pair up concept with demand. This is not a trivial step, and may need to be broken down. It seems likely to me that the first sub-step was the ability to chain demands within a multiple demand system, along the lines of "Come gettit!" from two original demand words "Come!" and "Gettit!", while also being able to say "Go gettit!" from "Go!" and "Gettit!"

The second sub-step would be to differentiate one of these two demands as a concept. In the examples just suggested, "Come" and "Go" already imply the context for the primary demand "Gettit!" The first nouns might arise from originally specialized demands, as in "Banana!", meaning "Give me a banana!", being chained, for emphasis, with the generalized demand "Gimme!" to produce "Banana gimme!" Then, once our ancestors could chain that same "Banana" inappropriately with "Gettit!" to produce "Banana gettit!", the original demand "Banana!" would have mutated into a noun, and a pure concept. Thus, step 5 should probably ultimately be considered at least two steps.

6. Information Trading. Once we differentiate concept from demand, we are in the business of implying *information*. Even at the multiple demand level, we might productively do this. The first nouns might have arisen even more simply than in the "Banana gettit!" example, if we imagine a demand "Behold!" which directs the listener's attention to some phenomenon. Specialized versions of "Behold!" would indicate specific known elements of the environment, and could be used to inform the listener of their existence even when not perceptually present. Thus, "Lion!" would suggest that lions are around, and could be a specialization both of "Behold!" and of "Beware!" "Clam!" alone would direct the listener's attention to a clam, and by step 5 could be chained as either a demand or a concept to various demands, as "Clam behold!", "Clam beware!", "Clam gettit!", or "Clam gimme!"

The next step forward is *trading* and *evaluating* information. Up to this point, all demands look pretty much like commands, and when concept signal is differentiated from demand signal, the demand

signal looks like a verb, while the concept signal looks like a noun or adverb. So far, the height of our communication system has been in telling others what to do. But now, using the power of *information encoding* embodied in the concept, we may begin to make and solicit *assertions about reality*. Here we add at least two fundamental demands to our repertoire: *declaration* (say, **da**), and *query* (say, **ka**). Additionally, we will want an information *negator* (say, **na**), and a *question word* (say, **qua**) for soliciting the information we are presently missing. Add in a basic demonstrative (say, **he**) that generically references any concept upon which the listener's attention is focused, and perhaps a demand signal for a command (say, **yo**), and we have a pretty effective little human language, with a minimal vocabulary and grammar, and with the ability to discuss anything of interest in the real world (irrealis situations would not yet be possible) in one, two or three-word sentences:

Gimme (yo)!	“I want it.” or “Give it to me!”
Lion!	“There are lions.”
Clam!	“There are clams.”
He!	“Look at that!”
Clam gimme (yo)!	“I want a/the clam.” or “Give me the clam!”
Clam da.	“It’s a clam.”
Clam ka?	“Is it a clam?” or “Are there clams?”
Da.	“Yes.” or “It is.” or “There are.”
Na.	“No.” or “It isn’t.” or “There aren’t any.”
Ka?	“Huh? Say that again?” or “Really?”
Lion na.	“It’s not a lion.” or “There are no lions.”

Lion gimme ka?	“Does the lion want it?”
Lion gimme da.	“The lion wants it.”
Clam gimme da.	“He wants a clam.”
Qua?	“Which one?”
Clam qua?	“Which clam?”
He da.	“That one.”
Lion gimme (yo)!	“Give me a lion!”
Lion gimme ka?	“You want a lion?”
Da. Lion qua?	“Okay. Which lion?”
Na! Lion gimme na!	“No! Don’t give me a lion!”

To compose all these sentences, I used about nine words. Any of these words is meaningful as a stand-alone demand. If they are chained, the last word represents the demand, and the preceding word or words encodes a concept. If there are three words, the second is a lexical verb, and the first is an associated noun. At this level, there can be no more than one noun, so distinguishing subject from object for transitive verbs must be guessed by the observer from the context. In the examples above, I have included two grammatically equivalent sentences with very different translations ([Noun] **gimme da**) to illustrate this.

This suggests the beginning both of the grammatical ordering of morphemes, and of the differentiation of concept from demand. Note that the third element, the demand particle, represents pure demand; the first element, the noun, becomes pure concept; while the second element, the verb, is part of the concept in the information-trading world of declaration and query, but is the essence of the demand at the more primitive level of command. Perhaps for this reason, the verb seems to retain an intermediate function in modern human languages, sitting between leading nouns and trailing demand particles in SOV languages like Siouan and Japanese, while being integral to the process of demand signaling in other languages like English. In either case, nouns, prepositional phrases, and adverbs tend

to attach to verbs, which chain to a head verb, which links to the demand.

7. Complex Concepts. From this point, the development of language is primarily one of elaboration, driven by intra-specific selection. Selective pressure for ability to read the evidence for the natural and political facts of ones environment reflected in other people's speech, and to transmit one's own messages clearly and quickly to their intended recipients, must be enormous and ongoing. The language faculty in modern humans is extremely complex, and there is no reason to suppose that every piece of that equipment is equally powerful and finely tuned in every person.

Modern human languages show a wide diversity of grammatical patterns, gained over thousands of years of individual language history. If we pare away all features that are not universal, or nearly so, we will have a much-reduced core language system which might closely compare with the systems used by the common ancestors of modern humans, before they spread out over the globe in the past hundred thousand years or so. Such a language would probably have a rich variety of nouns, verbs, and descriptors of nouns and verbs; a way of packaging nouns with their descriptors into noun phrases; a simple adpositional system (prepositions and postpositions) that tied a noun phrase by location or direction to a verb or another noun phrase; a set of emphatic personal pronouns that could be used in place of a noun when context would not otherwise make it clear; one or more demonstratives; a set of question words, or perhaps a single question word that could combine with category words; verb chaining; subject and object noun phrases in restricted position with respect to the verb; free-floating adverbs; a way of expressing demand, probably through explicit particles; and a variety of singleton demands and involuntary broadcast words. It would not necessarily have imposed grammatical gender, person, number, or tense. It would have little or nothing in the way of numbers or color terms. It might have no conjunctions or any way of combining clauses. Hypothetical or irrealis constructions might not be possible. It would likely have been roughly ordered in the Noun-Verb-Demand pattern I used for my primitive language in step 6 above, which is represented today in Siouan and Japanese at least.

Conclusion

To productively discuss to origin of the human language faculty, we must understand it in terms of its practical function in the lives of the animals that use it. To say that language is used to facilitate communication is true, but insufficient. Communication itself should

be understood as an interaction between signaler and observer, whose respective motives are not identical, nor passively cooperative.

The distinction between concept and demand is crucial. The essence of directed language is the demand made by the signaler upon a targeted observer. The concept refines the context, or in the case of information trading, carries the payload, of the demand. In either case, the concept rides the demand, and is meaningless without it. A demand can stand alone. Demand is the more basic and primitive aspect of language. Yet in modern human languages, the concept signaling system is much more subtle and elaborate than the system for signaling demand, to the extent that we may fail to appreciate the centrality of the latter.

The evolution of language can best be understood as a progressive series of steps, each fully functional, involving the development of demand and concept. First, observation of one's peers is both selectively advantageous for animate organisms, and a necessary first step in the development of language. Next, a range of inclusively advantageous, involuntary broadcast signals may be developed, with corresponding refinement in detection and interpretation of these signals. Among these, a generic solicitation signal may evolve. When this signal is focused upon a targeted observer, it becomes the first demand. At this stage, the demand is completely generic, and depends on the observer to determine the signaler's desire from the context. To reduce ambiguity, multiple demand signals may evolve. Sometimes two of these demand signals may be chained together as multiple demands, with one setting the context for the other. From this stage, the context setting signal may take on that role completely as a concept signal. This allows the first sentences with multiple words. At this stage, information trading may develop. Adding declarative and querying demand signals, plus a negator and a question word, a simple but effective language may appear, consisting of single word demands, two word context and demand pairs, and three word noun-verb-demand sentences. At this point, the language is human, though internal evolution will make the language and the biological faculties on which it rests increasingly complex and sophisticated over time.