SIGNED AND SPOKEN LANGUAGE-BIOLOGICAL CONSTRAINTS ON LINGUISTIC FORM pdf

1: On-line processing constraints on the properties of signed and spoken language

*Signed and Spoken Language: Biological Constraints on Linguistic Form (Life Sciences Research Report, 19) [Germany) Dahlem Workshop on Sign Language and Spoken Language--Biological Constraints on Linguistic Form (Berlin, Ursula Bellugi, Stifterverband Fur Die Deutsche Wissenschaft, Michael Studdert-Kennedy] on www.enganchecubano.com *FREE* shipping on qualifying offers.*

Biological Constraints on Linguistic Form, Eds. Clues from Molecular Symbol Systems H. Natural selection operates on living systems through their function and behavior. The biological structures constraining this behavior always involve fortuitous elements, or frozen accidents, as well as essential principles. In order to distinguish the accidents from the principles we must refer to some theory of living systems. Similarly, in order to distinguish which biological constraints on linguistic form are fortuitous and which are fundamental, we must refer to some theory of symbolic systems. A theory of symbols must address the process that relates the symbol vehicle to its referent or meaning. At the level of natural language we have many facts, but still have great difficulty incorporating them in a theory of language. However, at the level of the gene the relation of symbol structures to their referent function is better understood. A careful look at this elementary symbol system may provide some clues to basic principles of language at higher levels. In particular, we consider the articulation of the discrete, rate- independent, linear symbol strings which generate continuous, rate-dependent, three-dimensional functions through the folding transformation. We suggest that this complementary interaction of constraints and laws involves general principles that are elaborated in higher linguistic forms. My purpose is not to make any claims about whether this system is or is not a language. Rather, I want to show some of the basic physical and logical requirements that are necessary to support this symbol system and to suggest that these requirements at this most elementary level may provide some useful clues to the universals of language at the highest levels. By a theory I mean a model that tells you what is important, as distinguished from what may be true but unimportant. Unfortunately many structures in living systems can be widespread or even universal without being important to a theory of life. The same is true for language universals as many linguists have pointed out e. The system I am talking about is the genetic system in cells. Now many linguists as well as philosophers of language may feel that DNA, and all that, is at best an overworked metaphor and at worst a collection of macromolecules looked at by an animist, but there are notable exceptions. Roman Jakobson wrote, " The only useful approach is to study explicitly the structural principles that support this primeval symbol system. We must then have a theory of symbols systems before we can discuss the importance of these principles in other domains of communication and expression. At the molecular level an obvious question is what supports or executes the relation between the symbol and what it stands for. In physics we cannot invoke incorporeal relations such as definitions, associations, or connotations. We are struck with the global laws of nature and the local constraints of physical structures to establish all relations. A symbolic relation, however, is clearly not the same [top of p. We do not say that the moon is a symbol for the earth because it has a gravitational relation with the earth, nor do we say that a nucleotide is a symbol for polynucleotides simply because it is related by a chemical bond to other nucleotides. What makes us aware of the polynucleotide DNA as a symbol is the existence of a specific and separate set of enzymes called the synthetases along with the transfer RNAs and ribosomes that execute the code relation. In other words, any "stands for" relation must have an explicit embodiment in the form of constraints that are not an inherent property of either the symbol vehicle or the referent. The question is what are the important conditions for these symbolic constraints and what are merely fortuitous or arbitrary frozen accidents. For example, the laws of chemistry allow left- and right-handed polynucleotide helices as well as left- and right-handed amino acids with no preference between them. We find it is a universal fact of life that only one-handedness is used. However, no one believes this universal is important for a theory of life. By contrast, the fact that the synthetases and transfer RNAs have their own sequences described in the genetic DNA is believed to be of fundamental importance for a theory of the origin and evolution of life e. The point is that without some theoretical framework, there is no way to interpret observations. Superficially, a theory generates and accepts certain observational data strings very much like a grammar generates and accepts certain word strings. What we are missing is at a deeper level where the symbol strings generate meanings and comprehension. This relation between symbol vehicle and its referent in ordinary language has proved to be incredibly difficult to pin down. In philosophy one cannot discuss this relation without becoming enmeshed in epistemological assumptions that appear inscrutable. So let us look at the simplest case we can find of a symbol-referent relation and see what actually takes place. Even at this simplest level there are many complications. I shall only outline what I believe to be the essential features according to my rudimentary theory of symbolic activity. At least the set must be closed; otherwise the structures that execute the referent relations would need to be multiplied indefinitely. This also implies discrete symbols or symbol classes. In DNA there are only four basic symbols, and it is plausible that at the origin of life there were only two. However, like natural languages, DNA has a multiplicity of patterning forming lexical and syntactic hierarchies, and I would claim further, a semantic hierarchy. Omitting as many details as possible, I come directly to the relation between a structural gene and its referent, say, a particular enzyme molecule. How is this relation executed, and what are the essential properties of the relation? The genetic code itself appears to have no basis in the shape, size, or chemistry of its components. Nor do the translating enzymes that help execute the code appear as necessarily unique structures. There is no logical or physical reason known why we could not have the same type of life using an entirely different code and even different primary sequences for enzymes. The only logically essential feature is the coherent function of the system, i. I want to emphasize that what a symbol stands for cannot end with just another symbol. The referent of a symbol is an action or constraint that actually functions in the dynamical, real-time sense. Here is where any formal language theory loses contact with real languages. A formal language only generates symbol strings from other symbol strings according to the rules of a grammar, and a fundamental restriction on these rules is that they are rate-independent. Formal languages are therefore [top of p. An important property of the gene-enzyme or symbol-referent relation, then, is that the symbols exist in a rate-independent context whereas their referents function in a rate-dependent context. In other words, the mechanism that executes the relation between symbol and referent must use rate-independent articulations usually one-dimensional discrete strings to constrain rate-dependent functions or action usually three-dimensional, continuous behavior. What types of constraints do this, and what are their physical characteristics? In physics we usually like to think of either stable, time-independent structures, like molecules, crystals or tables, or moving objects that can be described by rate-dependent equations like particles, waves, or fluxes. The constraints that translate symbols must be thought of as a combination of stable but movable i. In fact most machines are constructed from such constraints. They are called non-holonomic or non-integrable constraints since there is no rate expression to integrate 8. However, the artificial machines that we construct from non-integrable ratchets, bearings, and gears, or in the case of computers, from switches, gates, and clocks, are not constructed on the same principles as the non-integrable biological constraints of which the enzymes are the most basic example. In fact the nature of the symbol-referent relation is quite different in natural and artificial symbol systems, and this is one reason we find it so difficult to model language, or to find an adequate theory of language using the computer or other manifestations of the machine paradigm of explanation that dominate the classical sciences. Let us look at what happens [top of p. What, exactly, do these genetic instructions do to achieve their ultimate meaning or function? First, they are literally translated from the nucleotide strings of symbols to the amino acid strings. The relation between these two strings is called the genetic code, but it does not tell the whole story by any means! Once the one-dimensional amino acid string is sequentially synthesized the genetic symbols cease any further instructional activity. The information processing has been completed, and now this symbolic sequential order serves only as a remarkable non-integrable constraint harnessing the universal forces of nature to produce a new, three-dimensional folded structure that becomes more than a structure. It is now a precisely functioning dynamical machine that can speed up the rate of a specific reaction by factors of - Artificial machines are not constructed so cleverly. It is as if we could design any machine so that it could be assembled simply by hooking the parts together in a chain, and then have the chain spontaneously form itself into a functioning mechanism. In other words, the genetic symbols are not related to their referent action in any detailed or explicit form, but only through an implicit harnessing of natural laws and structures which need no instructions. In fact the amount of information in the genetic symbol string is only a very small fraction of the information that would be necessary for a completely formal and explicit specification of the structure of the enzyme. There are certainly no symbols in the gene for the three-dimensional coordinates of each amino acid residue, let alone for each atom in the enzyme. Life would hardly be possible if such symbolic detail were necessary, since the mass of each gene would far exceed the mass of the cell it could describe. But the folding transformation has even more significance than its demonstration of the implicit nature of the relation of symbols to their referents. The relation of the individual genetic symbols to the function of an enzyme is not localized in some [top of p. Changes in genetic symbols do not effect proportional changes in the function. In some cases, numerous, discrete changes in the gene may produce only small and continuous modulation in the enzyme function, while in other cases a single base change in the gene may produce nonsense or even a lethal mutation. There is little doubt that the folding transformation is of utmost significance for the origin and evolution of life, but does it give us a clue to theories of natural language? There are, of course, theories of language that are quite consistent with the behavior of the folding relation. To speak is not to put a word under each thought; if it were, nothing would ever be said. Of course the nature of the deep structure is the central issue. The laws of physics which are responsible for the deep structure of the primeval genetic symbol-referent relation have certainly been augmented by higher levels of genetic frameworks that may perform a type of folding transformation on higher level symbol strings to obtain what we call their meaning. Nevertheless, any transformation from linear, discrete, sequential, rate-independent symbol strings to the three-dimensional, continuous, highly parallel, rate-dependent function should be carefully considered, at least as a conceptual basis for a theory of linguistic competence. There is no reason to expect that at the level of the brain the structures executing this type of transformation are like synthetases and ribosomes. On the other hand, if the principle of harnessing the deep structures [top of p. How could this folding process at the molecular level have significance at higher levels of organization? Does it provide clues to learning and language? In other words, is folding generalizable? I believe it is. What happens in the construction of a cell is that a very explicit symbol sequence in the genetic DNA produces other explicit strings of polypeptides. Then, quite abruptly, we lose track of the explicit symbols. This self-assembly process is not an explicit symbol processing, but a harnessing of the laws by these symbol-dependent constraints or boundary conditions 7, At this second level of self-assembly, after the folding of single chains, we now see each protein molecule constraining its neighbors by its unique configurations to form higher structural levels with corresponding higher level functions.

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2: Clues from molecular symbol systems | Howard H Pattee - www.enganchecubano.com

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Some hearing parents may be concerned their own signing skills are not good enough to model as a communication input for their children. Learning ASL and using it with your child is a great way to communicate with them, increase bonding, and help them learn ASL, but there are several factors involved. The deaf students who perform best academically usually are the ones whose parents have effectively communicated with them from an early age. The culture and peer groups children are exposed to play an important role. Being exposed to a diverse set of signers, of different ages and abilities, is also helpful. Maybe we should just focus on one language to start. There is a misconceived fear that teaching babies more than one language too early may cause language delays or language confusion or that the child may never be as competent in either of the languages as a monolingual child is in one. In fact, research shows babies know that they are acquiring two distinct languages and are able to learn them without language delay or language confusion. Bilingual babies are able to reach the classic language milestones on a similar timetable as monolingual babies, such as when they say their first word, when they can say their first fifty words, and when they say their first two-word combinations. There are a few differences though. Early exposure of both languages is what is best for the child and will help the child to reach fullest mastery in each of the languages. There are both linguistic and cognitive advantages to being bilingual. Learning both ASL and English from an early age will help the child to reach fluency in both languages. The best time to start learning language is now. Cognitive and Linguistic Processing in the Bilingual Mind. Current Directions in Psychological Science, 19 1 , Bilingualism as a protection against the onset of symptoms of dementia. Bilingualism, aging, and cognitive control: Evidence from the Simon task. Psychology and Aging, 19, Journal of Speech, Language, and Hearing Research, 20, American Sign Language syntactic and narrative comprehension in skilled and less skilled readers: Bilingual and bimodal evidence for the linguistic basis of reading. Applied Psycholinguistics, 29 3 , Why sign with deaf babies? Unimodal and Bimodal [Video Lecture]. The effects of audibility and novel word learning ability on vocabulary level in children with cochlear implants. An introduction to bilingual development. Research findings at NTID. Retrieved from https: Preference for language in early infancy: Developmental Science, 11 1 , The linguistic genius of babies [Video file]. Biological Foundations of Language. Early language acquisition and adult language ability: What sign language reveals about the critical period for language. Doctoral dissertation, University of California, Berkeley. Chasing the Mythical Ten Percent: Sign Language Studies, 4 2 , Lawrence Erlbaum Associates, Publishers. Nicaraguan Sign Language and Theory of Mind: The Journal of Child Psychology and Psychiatry, 47 8 , The structuring of language: Clues from the acquisition of signed and spoken language. Signed and spoken language: Biological constraints on linguistic form. Recognition of signed and spoken language: Different sensory inputs, the same segmentation procedure. Journal of Memory and Language, 62 3 , Evaluating attributions of delay and confusion in young bilinguals: Special insights from infants acquiring a signed and a spoken language. Sign Language Studies, 3 1 , Human Nature and the blank slate [Video file]. Some aspects of the verb system in the language of deaf students. Journal of Speech and Hearing Research, 19 3 , Institutionalization and psycho-educational development of deaf children. Council for Exceptional Children. Language and cognition in deaf children. When learners surpass their models: The acquisition of American Sign Language from inconsistent input. Cognitive psychology, 49 4 , A study of the educational achievement of deaf children of deaf parents. California News, 80 A study of the relationship between American Sign Language and English literacy. Journal of Deaf Studies and Deaf Education, 2 1 , The influence of early manual communication on the linguistic development of deaf children: American Annals of the Deaf. American Annals of the Deaf, 5 , The use of ASL to support the development of English and literacy. Journal of deaf studies and deaf education, 5 1 , Theory of mind in deaf children. Child development, 73 3 , Early vocabulary development in deaf native signers: A British Sign Language adaptation of the communicative development inventories. Journal of Child Psychology and Psychiatry, 51 3 ,

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Jump to navigation Jump to search Michael Studdert-Kennedy [1] is an American psychologist and speech scientist. He is well known for his contributions to studies of speech perception , the motor theory of speech perception , and the evolution of language , among other areas. He is also a member of the Haskins Laboratories Board of Directors [2] and was Chairman of the Board from until In the s, Studdert-Kennedy and Donald Shankweiler [3] used a dichotic listening technique presenting different nonsense syllables simultaneously to opposite ears to demonstrate the dissociation of phonetic speech and auditory nonspeech perception by finding that phonetic structure devoid of meaning is an integral part of language , typically processed in the left cerebral hemisphere. Alvin Liberman , Franklin S. Cooper , Shankweiler, and Studdert-Kennedy summarized and interpreted fifteen years of research in "Perception of the Speech Code," still among the most cited papers in the speech literature. It set the agenda for many years of research at Haskins and elsewhere by describing speech as a code in which speakers overlap or coarticulate segments to form syllables. In recent years he has written a number of papers on the evolution of language , including work with Louis Goldstein. Representative publications[edit] Studdert-Kennedy, M. Psychological considerations in design of auditory displays for reading machines. Proceedings of the International Congress on Technology and Blindness, 1, High-performance reading machines for the blind. International Conference on Sensory Devices for the Blind, Perception of the speech code. Psychological Review, 74, , Motor theory of speech perception: Psychological Review, 77, Hemispheric specialization for speech perception. Journal of the Acoustical Society of America, 48, Opposed effects of a delayed channel on perception of dichotically and monotically presented CV syllables. Auditory and phonetic processes in speech perception: Evidence from a dichotic study. Journal of Cognitive Psychology, 2, Auditory and linguistic processes in the perception of intonation contours. Language and Speech, 16, Brain and Language, 2, Language and Speech, 23, Clues from the differences between signed and spoken language. Biological constraints on linguistic form pp. Hemispheric specialization for language processes. Journal of Phonetics, 21, Gestures, features and segments in early child speech. The particulate origins of language generativity: A brief history of speech perception research in the United States. Weigel eds A guide to the history of the phonetic sciences in the United States. University of California Press: Speech perception deficits in poor readers: A reply to Denenbergfs critique. Journal of Learning Disabilities, v. Imitation and the emergence of segments. Evolutionary implications of the particulate principle: The Evolutionary Emergence of Language. The gestural origin of dicrete infinity. In Morten Christiansen and Simon Kirby eds. Oxford University Press, How did language go discrete? Perspectives on Language, Oxford: Oxford University Press, pp.

4: Michael Studdert-Kennedy - Wikipedia

Signed and spoken language--biological constraints on linguistic form: report of the Dahlem Workshop on Sign Language and Spoken Language--Biological Constraints on Linguistic Form, Berlin , March Weinheim ; Deerfield Beach, Fla: Verlag Chemie.

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