ON THE NATURE OF SEMANTIC UNIVERSALS

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The process of language acquisition has been a fascinating area of investigation for centuries. Learning this human system of communication separates us from the other members of the animal kingdom. The enormous nature of the task that confronts the very young language learning child and the surprising uniformity of the results in spite of great environmental differences has led researchers to agree that a certain amount of information about language must be genetically 'wired' into the human brain. There has been much speculation about the nature of phonological universals and syntactic universals, but relatively little work has been done with potential semantic universals.

The language learning child is very perceptive. They have the cognitive ability to organize and interpret sensory input on the basis of their past experience or on the basis of a species specific innate capacity for first experiences. We must grant this concept of innate universal capacity for if we did not it would be impossible to explain how any initial organization of sensory input could happen. Conceptual notions would be acquired before their verbal expression, or language would have to be viewed as potential nonsense. Eisenson (1984) suggested that perception implies an act of categorization according to which stimuli are sorted and given meaning. If one asks where the first category that allows the child to make additional categorizations comes from they are led to conclude that a normal child is born with some innate categories and then develops other categories as they mature. N. Chomsky (1980) noted that the rate of vocabulary acquisition is so high at certain stages of life, and the precision and delicacy of the concepts acquired so remarkable, that it seems necessary to conclude that in some manner the conceptual system with which the lexical items are connected is already substantially in place. Slobin (1985) argued that children learning language approach the task with a prestructured 'semantic space' in which meaning and meaning clusters constitute a set of notions onto which functors and other grammatical constructions are intially mapped. The particular forms that are mapped will vary from language to language, but the basic meanings are constant. Bowerman (1985) agreed that children can spontaneously categorize objects, events, and situations for purposes of linguistic expression. She also indicated that when children do form the categories they use meaning distinctions that are relevant for language, i.e. they use distinctions that are found in the semantic systems of natural languages.

Explanations or answers to questions about semantic universals have not been formulated to a great extent in the literature. The theory set forth in this paper addresses basic concerns about how children segment reality and assign labels for their earliest words, specifically, how a child begins to derive meaning from the language to which he or she has been exposed. At the outset verbal utterances come to have meaning for a child who has only a potential for acquiring language, but as yet no language. In this elementary verbal stage it is impossible to ignore the child's cognitive ability. Somehow an object, event, or scene must be associated with some name or label in the child's mind. The manipulation of objects leads to an understanding of 'thingness' and 'classes of events'. Later experiences lead to the categorizing of spatial, temporal, and action structures, all of which must precede the use of words for these concepts. The cognitive hypothesis suggests that children only can talk about what they already understand in some sense. This view forces one to have a rather rich interpretation for children's early words.

Often children's first words communicate meanings beyond adult usage. The overly broad use of a word for a class of several referents, some of which fall outside the adult category for the same word, is referred to as overextension. Overextension has been discussed by Clark (1973), Bowerman (1978, 1980), Nelson (1978) and Barrett (1982) among others. These studies suggest that all children have an elementary semantic system which allows them to reference the world in a principled way. Clark classified a number of overextensions in children's speech. She found that the possible defining features were such characteristics as MOVEMENT, SHAPE, SIZE, SOUND, or TASTE. Children have used a word such as 'bird' with a first referent a sparrow to later refer to cows, dogs, cats, any animal moving; a word 'moon' with a first referent as the moon is later used to refer to cakes, round marks on a window, writing on a window and in books, round shapes in books, tooling on leather book covers, round post marks, and the letter O; the word 'fly' with a first referent a fly later used to refer to specks of dirt, dust, all small insects, the child's own toes, and crumbs of bread; the word 'koko' with a first referent of a cock crowing later used for tunes played on a violin, piano, accordian, phonograph, all music, and a merry-go-round; and the word 'cola' with a first referent of chocolate later used for sugar, tarts, grapes, figs, and peaches. Similar processes occur in the acquisition of verbs and nouns; the child extracts a set of attributes from the actions or objects that are typically named by adults and then extends the words to other actions or objects that share one or more of those attributes. Only as he learns the names of more and more actions and objects does he limit their use to appropriate referents.

TABLE 1 contains the specification of the semantic primes suggested for the prestructured semantic space (using Slobin's term). It is difficult to get outside of the words of the language in order to establish a technique of scientific description, but these semantic primes refer to concepts and not to words. These primes, singly and in combination, provide the mechanism through which the child can segment his or her reality and eventually put labels on it. It is crucial that the child be able to extract these primes from the input speech of the adults in the child's environment.

TABLE 1.
Semantic Primes

1.	SPACE (physical space)	19.	ACTIVE (used in verbs)
2.	LIFE, VITALITY	20.	POWER, ABILITY, POTENTIAL
3.	MOVEMENT	21.	QUESTION
4.	LIGHT	22.	THING, OBJECT
5.	(HU)MAN	23.	BEING, EXISTENCE
6.	TIME	24.	THIS
7.	MATTER, MATERIAL	25.	RELATION
8.	SOUND	26.	INSIDE, WITHIN
9.	MIND, SPIRIT	27.	THROUGH, BY MEANS OF
10.	NEGATION	28.	TOGETHER, WITH
11.	CONDITION	29.	ABOVE, ON TOP
12.	SAME, EQUAL	30.	TO(WARD)
13.	ROUND	31.	FROM, OUT OF
14.	GOOD, POSITIVE	32.	BEFORE, IN FRONT
15.	PART	33.	ONE
16.	QUANTITY, NUMEROSITY	34.	TWO
17.	SENSATION, FEELING	35.	THREE
18.	QUALITY (used in adjectives)		

These primes are not listed in any order of importance. There is no hierarchy intended. To illustrate how these semantic primes function in forming the basis for early child vocabulary I have selected the following sample:

MOVEMENT
THROUGH ——— 'go'
SPACE

SPACE
HUMAN ——— 'house'
INSIDE

LIFE THING — 'animal'	LIFE THING TOGETHER — 'domestic animal'
LIFE BY MEANS OF — 'food'	LIFE BY MEANS OF ACTIVE — 'eat'
MOVEMENT INSIDE THING — 'car'	MOVEMENT ACTIVE — 'to move'
LIGHT SENSATION — 'sight'	LIGHT SENSATION ACTIVE — 'see'
GOOD LIGHT SENSATION — 'beauty	GOOD LIGHT SENSATION QUALITY — 'beautiful'
THIS HUMAN — 'I'	HUMAN TOGETHER — 'you'
LIGHT TIME — 'day'	NEGATION LIGHT TIME — 'night'
TOGETHER MATTER — 'solid matter' (does not flow)	SAME, EQUAL MATTER — 'liquid'
SOUND ACTIVE — 'to make noise'	SOUND QUALITY — 'noisy'
NEGATION SOUND QUALITY — 'quiet'	NEGATION SOUND ACTIVE — 'to be quiet'
MIND SOUND — 'word'	MIND ACTIVE — 'think'
MIND THING — 'idea'	MIND SOUND ACTIVE — 'speak, say, talk'
ROUND SPACE QUALITY — 'round'	ROUND SPACE THING — 'ball'

MOVEMENT BY MEANS OF ROUND — 'wheel'	ROUND MOVEMENT ACTIVE — 'turn'
GOOD MIND QUALITY — 'good' adjective	PART MATTER ACTIVE — 'divide'
LIGHT SENSATION PART — 'eye'	SOUND SENSATION PART — 'ear'
QUANTITY SPACE — 'size'	QUANTITY SPACE QUALITY — 'big, large'
QUALITY LIGHT — 'color'	QUALITY SPACE — 'form, shape'
SENSATION ACTIVE — 'to feel'	TOGETHER GOOD SENSATION ACTIVE — 'to love'
QUESTION SPACE — 'where?'	QUESTION TIME — 'when?"
QUESTION MATTER — 'what?'	QUESTION HUMAN — 'who?'
THIS SPACE — 'here'	THIS TIME — 'now'
RELATION SPACE — 'where'	RELATION HUMAN — 'who'
TOWARD INSIDE — 'into'	NEGATION INSIDE — 'outside'
TOGETHER SPACE — 'at'	TOGETHER ABOVE — 'on'
MOVEMENT TOWARD ACTIVE — 'to come'	NEGATION BEFORE SPACE — 'behind'
BEFORE SPACE — 'before'	BEFORE TIME — 'before'

ONE QUANTITY SPACE	'length'	ONE QUANTITY SPACE QUALITY	'long'
TWO QUANTITY SPACE	'flat'	TOWARD HUMAN	'child'
ABOVE MATTER	'air	ABOVE MATTER LIFE THING	'bird'
SAME, EQUAL MATTER LIFE THING	'fish'	SAME, EQUAL MATTER ACTIVE	'drink'
NEGATIVE IN FRONT MOVEMENT ACTIVE	'push'	THIS HUMAN QUALITY	'my, mine'
INSIDE MIND	'knowledge'	INSIDE MIND ACTIVE	'to know'
INSIDE CONDITION	'if'	TOGETHER GOOD FRIEND	'friend'

With this set of semantic primes we can begin to see how children may relate to their world with their first words. I have presented illustrations of how these primes can work in combinations to form the initial semantic content of early child vocabulary. Overextension on the characteristics of movement, shape, sound, size, etc. are readily explained with this system. Cross cultural comparisons can be made directly. It is possible to understand how a language might have one word for anything that moves through the air, e.g. birds and airplanes. The child learning English maps the concept IN FRONT spatially and temporally onto the same phonetic form 'before'. In another culture these independent concepts might be realized with independent phonetic forms. One of the goals of this theory and the ongoing research with normal and nonnormal speakers is to make our understanding of the underlying semantic system of language more precise. This area of research has not received enough attention in language acquisition studies. As Bowerman states (1985:1314)....

> We therefore cannot be satisfied with a theory that stops with the observation that meanings in some sense precede the acquisition of the forms that encode them. We need to go beyond this to determine how children work out the principles of semantic categorization that are functional in their language. Crosslinguistic comparisons will be essential to this effort in the future. Only by studying how children approach language systems that differ in their organization of what is, at a deep level, the 'same' conceptual material can we begin to discover how language learners construct a sophisticated and language specific meaning system from their nonlinguistic understanding of daily experience.

This set of semantic universals needs to be critically evaluated. The predictions need to be drawn out of these proposals and we need to determine whether counterexamples can be explained in some reasonable way. I look forward to future investigations of this fascinating aspect of language acquisition.

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