

# LANGUAGE, THOUGHT AND CULTURE: THE TRUE RELATIONSHIP

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## INTRODUCTION

By way of introduction to my talk today, I would like to tell you a story. I'm sorry to say that it is not a funny story. However, it is an interesting one, and, it is true.

In May of 1920, in Hamilton County, Nebraska, a rural sort of area in the United States, a teacher by the name of Mr. Meyer was arrested and charged with a crime. The crime involved a 10 year old boy.

No. The crime did *not* involve what many of you who have dirty minds might be thinking. No. What "dirty old" Mr. Meyer was caught doing was teaching a second language! He was teaching Bible stories in German at Zion Parochial School. This was in violation of a Nebraska State law which forbade the teaching of a second language to children under the age of 13 years.

As a matter of fact, following World War I, the teaching of foreign languages, except "dead" languages like Latin, was forbidden by law in 22 of the 48 states. The main target was the German language. America had just finished a war with Germany and there was a hatred of Germany, its social structure, military values, ideals and political institutions. The laws reflected a belief, held by many Americans, that the German language itself embodied all of the evil that exhibited itself in German culture. Nebraska prosecutors argued this position in their prosecution of the Meyer case (U.S. Supreme Court Reports, 1922).

Ironically, it was a famous German philosopher, Wilhelm von Humboldt (1836), who almost one hundred years earlier stated this doctrine concerning the relationship of language, thought, and culture, quite succinctly when he argued that a language em-

bodies the spirit and national character of a people. If this is true, and the German language itself, in its grammar and vocabulary, contains in it a philosophy and world view that is distasteful and antithetical to American ideals, then it logically follows that such a language could be harmful to American children, as the State of Nebraska and 21 other states held. It was in accord with this line of reasoning that these states passed laws forbidding the teaching of a second language to young children.

Mr. Meyer's conviction was upheld by the Supreme Court of the State of Nebraska. With that ruling, it looked as though Meyer would be heading for jail. However, Meyer decided to take his case to the Supreme Court of the United States. In October of 1922, the U.S. Supreme Court delivered its judgment on the case of *Meyer vs. the State of Nebraska* (U.S. Supreme Court Reports, 1922; hereafter, USSCR, 1922). The U.S. Supreme Court overturned the Nebraska law and all the other state laws forbidding the teaching of languages other than English.

Such laws were regarded in violation of the U.S. Constitution. According to the Court, "in our desire for the Americanization of our foreign born population we should not overlook the fact that the spirit of America is liberty and toleration." (USSCR, 1922: 392). "The individual has certain fundamental rights which must be respected. The protection of the Constitution extends to all, to those who speak other languages" (USSCR, 1922: 401).

Further the U.S. Supreme Court contended that "Mere knowledge of the German language cannot reasonably be regarded as harmful" (USSCR, 1922: 400). Well, was the Supreme Court right? Does knowledge of a language alone, its grammar and

vocabulary, influence or determine the thought of a person, how a person perceives nature and how a person views the world? The Supreme Court, in its ruling, did not consider argumentation regarding the relationship of language, thought and culture. (They were more concerned with individual rights and judged the case on those merits.) However, what I would like to do now is to ask you to join me in considering argumentation regarding this complex relationship.

#### FOUR INADEQUATE NOTIONS CONCERNING THOUGHT, LANGUAGE, AND SPEECH

**Notion 1:** Speech production or other behavior is the basis of thought

Contemporary proponents of this view hold that thought is a kind of behavior, mainly speech. Typically, such theories are held by behaviorists who wish to reduce the notion of thought or cognition to that which is observable or potentially observable. They reject any notion that affirms the existence of mental process and its relevance to the causation of behavior. The psychologists Watson, Skinner, and Staats, the linguist Bloomfield and the philosopher Ryle are but a few who propose such a conception. Advocates of the motor theory of speech perception--the theory that the understanding of speech requires a prior motor act of some sort, e.g., sub-vocal speech or internal articulation--are also generally involved in a similar conception, e.g. Liberman.

The following quotations characterize the view in question.

**John B. Watson (1924):**

The behaviorist advances the view that *what the psychologists have hitherto called thought is in short nothing but talking to ourselves...* My theory does hold that the muscular habits learned in overt speech are responsible for implicit or internal speech (thought). (p. 238 - 9) Speaking overtly or to ourselves (thinking) is just as objective (physical) a type of behavior as baseball. (p. 6) (emphasis is Watson's)

**B. F. Skinner (1957):**

The simplest and most satisfactory view is that thought is simply *behavior*--verbal or nonverbal, covert or overt. It is not some mysterious process responsible for behavior but the very behavior itself in all the complexity of its controlling

relations, with respect to both man the behavior and the environment in which he lives. (p.449)

**Leonard Bloomfield (1961)** from a 1942 paper:

The fully literate person has succeeded in reducing these speech movements to the point where they are not even visible. That is, he has developed a system of internal substitute movements which serve him for private purpose, such as thinking and silent reading, in place of audible speech sounds. (p. 3)

**Gilbert Ryle (1949):**

Much of our ordinary thinking is conducted in internal monologue of silent soliloquy, usually accompanied by an internal cinematograph-show of visual imagery. This trick of talking to oneself in silence is acquired neither quickly nor without effort; and it is a necessary condition of our acquiring it that we should have previously learned to talk intelligently aloud and have heard and understood other people doing so. (p. 27) (emphasis mine)

Thus, Ryle regards thinking, which for him is talking to oneself in silence, as an accomplishment that has a speech base.

**Alvin Liberman (1957):**

...articulatory movements and their sensory effects mediate between the acoustic stimulus and the event we call perception. (p. 122).

Let us consider some objections which may be raised with regard to the position of these theories. Not all objections, however, will apply to all theorists. Then, too, some of the objections placed under succeeding notions may also be applicable to these theorists. And, as was noted before, given the abstract and intangible nature of the subject matter, no objection can be expected to be definitive. The principle aim, rather, is to provide a number of objections whose combined effect is to raise reasonable doubts about the notion in question.

**Objections to Notion 1:**

#### 1. Speech understanding precedes speech production in normal children

Normal infants learning a language come to understand speech prior to producing it themselves. For example, a one-year-old child may be able to understand a sentence like *Put the banana on the table* yet still may be only at a one-word (or even no-

word) stage of speech production. The research that has been done in this area confirms this common observation of parents. For example, Huttenlocher (1974) studied four children and found that their speech understanding was well in advance of their production ability. Similarly, Sachs and Truswell (1976) found that children who could say only single words could understand speech structures composed of more than one word, e.g. *Kiss ball* and *Smell truck*. Then, too, Steinberg and Steinberg (1975) report the case of a normal child who from one to two years of age was taught to read and understand a number of written words, phrases, and sentences before he had developed the ability to utter them. Thus, the fact that children have the ability to understand speech indicates that they must have the thought that is involved in the comprehension of speech. And, the fact that children learn to understand speech prior to producing it indicates that speech production is not necessary for the development of thought. That children are able to construct and utter words and sentences which provide a meaningful communication only after they gain an understanding of language items first is not surprising. The sound forms of the words of a particular language, the meanings of those words, the syntactic relations in a sentence, etc. cannot be known by a child without prior exposure and some analysis of that language.

## 2. Speech understanding without speech production in handicapped children

Persons who are congenitally mute or have congenital spastic paralysis and are otherwise normal acquire a normal understanding of speech even though they cannot produce it or can only produce it laboriously and faultily. For example, Steinberg and Chen (1980) report the case of a three-year-old Japanese girl who was congenitally mute but hearing. Although she could utter only a few sounds, that child could understand what was spoken to her. (Appropriate behavioral responses to a variety of complex instructions provided empirical evidence for this.) She was even taught to read complex Japanese writing through matching cards with objects. Clearly, that she was able to understand language indicates that she was able to think. The existence of thought could not have been dependent on the acquisition of the ability to speak because she had no such ability.

If it is then to be argued, as Skinner does, that

behavioral responses other than speech may be the basis of thought; it then remains to be demonstrated what particular behavioral responses, e.g. muscular or glandular activities, are involved. In this regard, it might be noted that about 50 years ago, behaviorist psychologists were delighted to discover that changes in electrical potential occurred in parts of bodies of subjects who were instructed to think of certain motor activities. For example, changes in electrical potential in the musculature of the right arm occurred in response to instructions to think about lifting that arm. Many psychologists then believed that they had begun to localize thought and meaning in the body. The problem with this theory is that it incorrectly predicts that a loss of thought or meaning will occur with damage or removal of body parts. It also fails to explain how persons with congenital paralysis or muscular deficiencies of various sorts can acquire an understanding of language. (See Osgood (1953 : 648) for a critical review of such research attempts.)

The fact that persons with various speech and behavioral deficiencies acquire the ability to understand language, and that such an ability must include thought, however one defines such a term, shows that the development of thought does not depend on speech production and other behavior.

## 3. Simultaneous speaking and thinking

Consider a situation where a person is talking to someone but is thinking of something else at the same time. That person might be talking to someone about a movie and also be thinking about how the other person looks, etc. One might even be telling a lie. Clearly, two distinct processes with different content are occurring at the same time. However, if thought were merely some kind of internalized speech, serious problems would arise from this behaviorist conception. For, according to this conception, the variables which control the content and construction of sentences are the same for overt and covert speech. They do not postulate one set of variables which would determine sentences for overt speech and another set of variables which would determine sentences for covert speech. Rather, the principal model holds that one set of variables determines the content and construction of sentences. (Other types of variables, e.g. reward contingencies, will then determine whether the sentence will be uttered.)

**Notion 2 :** Language is a fundamental basis of thought

Many theorists, such as Vygotsky, Sapir and Whorf hold that the language system, with its rules or vocabulary, forms thought or is necessary for thought. For example :

**Vygotsky ( 1934 ) :**

Thought is not merely expressed in words ; it comes into existence through them...The relation between thought and word is a living process : thought is born through words. ( pp. 125, 153 )

**Edward Sapir ( 1921 ) :**

The writer, for one, is strongly of the opinion that the feeling entertained by so many that they can think, or even reason, without language is an illusion. ( p. 15 )

**Benjamin Whorf, from his 1940 paper ( Carroll, 1956 ) :**

The background linguistic system ( in other words, the grammar ) of each language is not merely a reproducing instrument for voicing ideas but rather is itself the shaper of ideas, the program and guide for the individual's mental activity, for his analysis of impressions, for his synthesis of his mental stock in trade. *Formulation of ideas* is not an independent process, strictly rational in the old sense, but is part of a particular grammar, and differs, from slightly to greatly, between different grammars. We dissect nature along lines laid down by our native language. ( p. 212-13. emphasis mine )

It might be noted that Vygotsky differs from Whorf in that he does not make language the ultimate source of meaning. Rather, Vygotsky sees meaning ( thought ) as arising from an interaction between language and environment. The environment is not considered to be an independent source of meaning, however.

**Objections to Notion 2 :**

**1. Deaf persons without language think**

There are many deaf children who do not begin to acquire language until a rather late age, often after five years, when they begin to attend special schools. These are typically children who have a congenital hearing loss of over 90 decibels and are unable to receive speech, and whose parents ( usually hearing ) do not know sign language. These children, when at play and when participating in activities around the home, appear to behave just as intelligently and rationally with respect to their environment as do hearing

children. If one holds that language is the basis for thought, one would have to argue that these children do not think. And, if one holds that grammar determines how we 'dissect nature,' then it must be argued that either the non-language deaf children cannot dissect nature or that they do it differently from children who do have grammars. No such difference has ever been noted, nor has it ever been observed that deaf children who acquire language late undergo a radical change of perception. Rather, research evidence points to the opposite conclusion. Furth ( 1966 ; 1971 ), for example, provides research data which shows no difference in intelligence between normal and deaf persons, even though the language knowledge of the deaf persons is generally far below that of hearing persons. The case of Helen Keller whose language knowledge was minimal until she was eight years old also is relevant to this issue. It would be insupportable to maintain that she could not think nor sensibly perceive the world prior to that age.

**2. Multilinguals as unitary persons**

Consider persons who are proficient in more than one language. If the language system forms thought, and if different languages form different thought systems, then such persons would have formed more than one system of thought. ( It would not have been possible under the theory to form a single system because opposing concepts derived from the different languages would be involved. ) Persons knowing three languages would have formed three systems of thought, for example. If multilingual persons have many different thought processes, such persons would not have coherent intelligence or personalities. Different guiding ideas would be involved with the different languages. Then, too, such persons would have difficulty in using the knowledge gained through one language when operating in the other languages, since thought is supposed to be language-specific and not universal according to this theory. No evidence of the malfunctioning and other sorts of problems for multilingual persons which the theory predicts has ever been offered in support of the theory. Casual observation of multilingual-multicultural persons might sometimes seem to provide such support, e.g. a person might be aggressive in one culture but passive in another, or polite in one and impolite in another. However, such observations, it must be realized, cannot be taken at face value as indicating true differences in thought or per-



sonality. In life, even in a monolingual cultural environment, a person plays a variety of roles some of which involve such different demands and relations that it appears that a different person is involved. It is not uncommon, for example, for a subordinate to be surprised at how the boss behaves when the subordinate visits the boss' home. Deference, manner, etc. may change from situation to situation. It would be erroneous, however, to interpret such changes as indicating different systems of thought.

**Notion 3 :** The language system per se provides specifics of one's view of nature

Whorf, Sapir, Korzybski, and others are of the view that one's knowledge of vocabulary or syntax influences one's perception and understanding of nature.

**Benjamin Whorf, from Carroll (1956) :**

Concepts of 'time' and 'matter' are not given in substantially the same form by experience to all men but depend upon the nature of the language or languages through the use of which they have been developed. (p. 158) Newtonian space, time, and matter are not intuitions. They are receipts from culture and language. That is where Newton got them. (p. 153) We are thus introduced to a new principle of relativity, which holds that all observers are not led by the same physical evidence to the same picture of the universe, unless their linguistic backgrounds are similar, or can in some way be calibrated. (p. 214)

**Philipp Frank (1953) :**

Einstein's *relativity of time* is a reform in semantics, not in metaphysics. (p. 218)

**Objections to Notion 3 :**

### 1. Vocabulary and perception

Psychologists have tried experimentally to determine what effects, if any, knowledge of the vocabulary of language has on perception or behavior. (See Niyekawa-Howard, 1972, for a comprehensive survey of such research.) The principal problem in doing research on the question is this: since in an experiment only a few of the multitude of the language, cultural, and behavioral variables can be controlled one can never be reasonably sure that an observed effect is not due to some uncontrolled variable. Suppose, for example, that we compare English speakers

to Japanese speakers with respect to their counting and mathematical ability because we have a hypothesis about their language; we expect English speakers to be better than Japanese speakers in quantification because in English nouns must be marked for number and verbs must agree in number while such is not the case in Japanese. Let us further suppose that English speakers performed better in counting and mathematics than the Japanese speakers. Can we conclude that language difference was the cause of the observed differences in performance? Clearly not, since other variables such as kind of schooling and cultural interest in mathematics could just as reasonably have caused the effect in question. Then, too, there are many other aspects of a language that involve quantification. If valid conclusions are to be drawn, these must also be taken into account.

Some substantive results, however have been provided by experimental research. The work of Brown and Lenneberg (1954) and Lantz (1963) indicates that knowing words does not influence perception of the world. They find, rather, that knowing word forms (spoken or written) may aid memory. Thus, with regard to color words, speakers who must remember a color but do not have a word form for it have more trouble remembering it than speakers who do have such a form. (The sound of a word evidently provides an additional memory clue for association.) More recently, Kay and McDaniel (1978) in a large cross-cultural investigation found no difference in perception of colors for different language speakers. They conclude that '...rather than language determining perception, it is perception that determines language.' (p. 610) Similarly, there is no reason to suppose that Eskimos learn to perceive varieties of snow through their language rather than through their life experience. After all, English-speaking skiers are able to distinguish a variety of types of snow despite the lack of vocabulary in English. What they do to describe the physical condition of snow is to create phrases, e.g. *powder snow*, *wet snow*, etc. Then, too, life experience does not always lead us to coin vocabulary items. For example, English speakers are surely quite aware of the idea of 'male dog' (we have the superordinate *dog* and the female *bitch*); 'back of hand' (we have *palm* for the front or underside); and of a singular superordinate idea for 'cow' and 'bull' (*cattle* is plural) even though they do not have individual words for those ideas.

## 2. Same language forms, changing meanings

Consider such items as : *The sun rises, sunset, red hair, time flies and kick the bucket.* As the result of our hearing and using such items, the theories under consideration imply that we would come to believe that the sun actually rises of its own accord, that a person's hair is actually red, and that kicking buckets is what death is all about. The fact of the matter is that we can believe something quite different from what the language literally specifies and that the continual use of a language form may not change an underlying thought. This situation necessarily implies that the meanings of these language forms had their origins in other than the language forms themselves, e.g. by perceiving the world we learn that a person who is said to have red hair actually may have orange-brown colored hair. We do not perceive the color as red no matter how often we use the word red. Such a result runs counter to the implications of the theories being assessed here.

## 3. Multilinguals' view of nature

If the language system forms or guides thought in the way we perceive nature, then multilinguals must be said to have a variety of ways of viewing the physical world. The multilingual would have as many different conceptual-perceptual systems of the physical world as he or she has languages. If it is true that different languages have distinctive and important effects on the way we view nature, then the multilingual must similarly have distinctive and important ways of viewing nature. As was noted in a previous section, no such differences have ever been noted.

**Notion 4 :** The language system per se provides specifics of one's culture

Many theorists believe that even if language is somewhat distinct from thought, nevertheless, knowing a language will itself condition one's cultural or social beliefs or views of the world. In the 19th century, Wilhelm von Humboldt ( 1836 ), for example, held that language embodied the spirit and national character of a people. The views of the following theorists are similar, although of a more recent vintage :

**Edward Sapir ( 1929 ) :**

Language is a guide to 'social reality.' Though language is not ordinarily thought of as of essential interest, to the students of social science, it powerfully conditions all our thinking about social

problems and processes. Human beings do not live in the objective world alone, nor alone in the world of social activity as ordinarily understood, but are very much at the mercy of the particular language which has become the medium of expression for society... No two languages are sufficiently similar to be considered as representing the same social reality. The worlds in which different societies live are distinct worlds not merely the same world with different labels attached.. We see and hear and otherwise experience very largely as we do because the language habits of our community predispose certain choices of interpretation. ( p. 209 )

**Alfred Korzybski ( 1933 ) :**

...a language, any language, has at its bottom certain metaphysics which ascribe, consciously or unconsciously, some sort of structure to this world. Our old mythologies ascribed anthropomorphic structure to the world, and of course, under such a delusion, the primitives built up a language to picture such a world and gave it a subject-predicate form. ( p. 89 )... the Aristotelian type of education ( through language and its subject-predicate form of representation ) leads to the humanly harmful, gross, macroscopic, brutalizing, biological, animalistic types of orientations which are shown today to be *humanly adequate*. These breed such 'führers' as different Hitlers, Mussolinis, Stalins, etc., whether in political, financial, industrial, scientific, medical, educational, or even publishing, etc., fields, fancying that they represent 'all' of the *human* world. ( p.xxxi )

**McNeill ( 1987 ) :**

"...inner speech symbols seem to impose on thinking an implicit theory of reality, or world view" ( p. 173 )

"...the world view embodied in time nomenclature ( in English and other Western languages ) is that articulated in the Aristotelian distinction between form and substance. Time ( regarded as substance ) is divided into days, hours, and so forth ( regarded as forms )." ( p. 176 )

**Objections to Notion 4 :**

If it is indeed the case that the language system does provide a view of culture and society and our outlook on the world, we would expect to find diffe-

rences and similarities in such essentials as philosophy, religion, politics, or societal structure to be a function of language. In this regard, the following objections may be raised.

### 1. Same language, different world views

Consider, for example, the contemporary United States where native speakers of the same English language vary in terms of their philosophical, religious, and political ideology. Variation may be observed among speakers in the same neighborhood and even in the same family, e.g. the mother may be an atheist, the father a Christian, the daughter a Hare Krishna, and the son a Zen Buddhist. If it is true that language influences or determines one's world view, then we should expect greater uniformity since only one language system is involved. Since the uniformity that the theory in question implies has not been demonstrated, there is reason to doubt the validity of the theory. Then, too, if factors other than the language system can account for cultural change and variation, then there is no special need to assign such an explanatory *role* to the language system.

### 2. Same language over time and world view change

We may observe that a society may change its world view even though its language remains relatively unchanged. For example, in less than 100 years, China has changed from Feudalism (under the Manchus) to Capitalism (under Chiang) to Communism (under Mao). Yet, the language has changed relatively little over that period in terms of its syntax or what may be called its basic grammar. Similar changes may be noted in the history of many countries. (Minor but highly observable changes in forms of address and titles do occur, e.g. *comrade* and *citizen*, but even these language changes cannot be said to be determined by the prior language situation.) If we observe that changes in world view occur without changes in language, then what can be said to be *the* world view of any language at any point in time? Those who would argue for the world view thesis are obliged to show what world view is inherent in what features of language. Then, too, if changes in world view can occur due to causes other than the language system, it remains to be proved that language is the cause of any change at all.

### 3. Different language, similar world views

Consider that many countries having widely different languages may share similar political, social, religious, scientific, and philosophical views. If a language system influences or determines world view, then we should expect that different languages or language families should hold different world views. Such is not the case. On the contrary, we find, for example, that Buddhist, Christian, Communist, Capitalist, authoritarian, democratic, militaristic, royalist, and vegetarian doctrines are shared by speakers of many very different languages.

### 4. One language can describe many different world views

A language system is said to embody a particular world view and guide one's thinking with respect to that world view. However, if this were true in any significant respect, then it would be difficult or even impossible for a language to express different world views. Yet, the Bible of the ancient Hebrew people and the Communist Manifesto of the Europeans have had their essential ideas translated into most of the world's languages. The theories being assessed are unable to account for such a phenomenon.

That a perfect translation between languages is difficult to attain is insufficient of itself as evidence that each language has its own thought or system of thought. A perfect translation may be difficult or impossible to obtain not because thought is not universal but because the words which compose sentences are often associated with different implications, presuppositions, attitudes, feelings, and politeness in the languages. Thus while it is not difficult to match sentences of different languages in terms of their primary essential meaning, it is very difficult to match them in terms of all their secondary meanings and implications. Consequently, the lack of exact correspondence may not indicate any difference in thought but only a difference in the way ideas have been assigned to the words and structures of a language.

### 5. Multilinguals and world view

If a person is a multilingual, this theory predicts that such a person will have as many distinct world views as language systems. Thus, a multilingual would have to hold competing views as being true. No support has ever been found for such a prediction.

## 6. Recent research on grammatical structure

The most recent attempt to find support for an effect of grammar on thought involves the work of Bloom (1981) which involves Chinese and English speakers. Since English has both conditional -(if-then) and subjunctive forms and Chinese has no subjunctive form, such a difference was predicted to affect subjects' perception of the truth and falsity of certain sentences. Bloom did find an effect, the Chinese gave more untrue judgements. However, further research by Au (1983, 1984) and Liu (1985) showed that the supposed differences were the results of translation and other problems and that once these variables were controlled, there was no difference. Again, no evidence has been provided to support the view that grammar affects world view or thought.

## SOME FAULTY ASSUMPTIONS UNDERLYING THE INADEQUATE NOTIONS

What might be the basis for theorists advocating the four notions just discussed? Aside from the anti-mentalistic position of some of the behaviorist theories which would treat thought as some sort of speech or behavior that is potentially observable, there are certain faulty assumptions which might have been made that led to the invalid conclusions. I will consider two such assumptions. The first involves the surface elements of a sentence as the only meaning elements of the sentence. The second concerns how the meaning of words is acquired.

### 1. Surface structure does not directly represent semantic structure

The most serious deficiency in the theorizing of Whorf, Sapir, McNeill, Korzybski, Skinner, Von Humboldt, and others concerns the assumption that the directly observable words or the structure of a sentence represent all of the semantic or thought elements of that sentence. These theorists drew conclusions largely based on what linguists today would consider a superficial surface structure analysis. Whorf (Carroll, 1956), for example, states that 'Our Indian languages show that with a suitable grammar we may have intelligent sentences that cannot be broken into subjects and predicates' (p. 242), and that '...the Hopi language

contains no reference to "time" either explicit or implicit' (p. 58). Such statements (since disavowed by subsequent linguists, e.g., Malotki, 1983 and Comrie, 1985) are made essentially because it is assumed that surface structure represents all of the structure of a sentence. However, if Chomsky and contemporary linguistics have demonstrated anything, it is that surface structure often does not directly exhibit basic relations and meanings. Consider, for example, a sentence like *The needle hurt* which has a simple surface structure. Such a sentence does not overtly express a cause-effect relation, yet in our understanding of the sentence such a relation is involved. We understand that the needle has been the cause of someone's being in pain, the effect. Making inferences about the thought of speakers solely on the basis of a surface structure analysis is hardly a valid procedure. Actually, considering only the surface structure of languages makes it appear that languages are more different than they really are.

McNeill, with his pro-Whorfian views, often falls into this trap, particularly with regard to metaphor. Who is to say what philosophy underlies what metaphor? And who is to say what notion of time underlies our surface usage in English? Our time expressions may well be simply surface metaphors. Einstein's or Hawking's time is certainly not that of Aristotle's, but we need not change our language whenever we discover or invent new notions of time.

### 2. Meaning is not linguistic in origin

Let us consider the meanings of words. Except for the minor case of onomatopoeia, the relationship between a word and its meaning is conventional. Thus, when one hears a word for the first time, e.g. the English word *tantivy*, its meaning (if it is not composed of known morphemes) is not apprehended. The meaning that is to be associated with a particular sound sequence must be acquired. It is not possible to know from the sound sequence alone that the meaning of *tantivy* is 'a gallop or rapid movement.'

Meaning for words is acquired in four main ways: (1) a sound form is associated with an object, situation, or event in the world, e.g. the sound [dawg] with the object 'dog'; (2) a sound form is associated with an idea or experience in the mind, e.g. [peyn] with the feeling of pain; (3) an inference may be made in linguistic context, an idea may be suggested, e.g. in reading a paragraph one word may not be known but because everything else is understood, its



meaning may be guessed by inference ; and ( 4 ) an analysis of known component morphemes may suggest a meaning for the sound form, e.g. the meaning of *unprimitive* can be gained through knowledge of *un* and *primitive*.

In considering these four ways of acquiring word meaning, we may note that the first two involve non-linguistic sources. In ( 1 ), the experiencing of objects, situation, and events in the world provides a basis for meaning, and in ( 2 ), experiences in the mind itself provide a basis. Language is not involved except to provide empty sound forms for association. While ( 3 ) and ( 4 ) provide meaning through the medium of language, it must be recognized that the meaning of the language that is used as a basis for determining the meaning of the unknown word had non-linguistic origins itself ( in ( 1 ) or ( 2 ) ). Thus, the ultimate source of all meaning is based on non-linguistic experiences of the world or mind. This view, it is worth noting, does not conflict with the view that all essential ideas may be innate in the mind ( Chomsky, 1967 ). It would conflict, however, with a view that all innate ideas were part of language, for that would allow language to be the ultimate source of all essential ideas. Such a view has never been proposed, to my knowledge, and it certainly conflicts with the position of Chomsky who has argued in his 'faculty of the mind theory' that different groups of ideas are innate in the mind, e.g. language ideas, mathematical, and logical ideas, and these groups of ideas function and develop relatively independently of one another ( MacIntyre, 1970 ).

The mistake of Vygotsky, Whorf, McNeill and others is to assume that hearing the sound form of a word ( an unknown one ) itself provides some sort of meaning. A language sound form itself, however, does not provide meaning.

## WHERE THE USE OF LANGUAGE INFLUENCES ASPECTS OF THOUGHT

In considering the objections raised concerning the four notions regarding the relationship between thought and language, it must be concluded that language, speech, or behavior, is not the basis of thought and that the language system *per se* does not provide the specifics of one's view of nature or culture. Nevertheless, although knowing a language does not affect the nature of thought with respect to

its basic categories, systems and operations, there are important cases where the use of language could be said to affect the content and direction of particular thoughts. Three particularly important instances are : ( 1 ) language may be used to provide new ideas ; ( 2 ) language may be used to bring about a change in beliefs and values ; and ( 3 ) language may be used to assist memory. Each of these is now briefly discussed.

### Providing new ideas through language

Suppose that I say, *Every July 4, Stalin drank Coke and sang the Star Spangled Banner*. In all likelihood, this sentence and the idea it expresses would be novel for you. If so, then the idea formed in your mind must be the result of hearing the sentence which I uttered. Concerning that novel idea or thought conveyed by the sentence, it is important to note that it is not the component ideas and relations which are new but their unique arrangement. The vocabulary and structure were already known. Thus, novel sentences are created and understood on the basis of what a speaker already knows about the language in terms of its syntax and vocabulary. And, if new words are to be introduced, they are explained in terms of old ones. Thus, while, for example, Freud's psycho-analytic doctrine is unique in terms of the ideas it represents, it is not unique from the point of view of language. No new syntax and only a small number of vocabulary items were introduced. The effect on people's minds, however, has been profound. Thus, we see that while knowing a language by itself does not influence thought, the use of that language may indeed affect the content and direction of particular thoughts.

### Changing beliefs and values through language

As a result of reading the Communist Manifesto, one's values, beliefs, and world view could be radically changed. Persons who are so changed politically, religiously, etc., are often said to 'think' differently. However, it should be recognized that what occurred were mainly changes in the truth and attractiveness values which were assigned to propositions. Because a person's behavior may have changed radically as a result, an uncritical observer might erroneously infer that commensurately great changes must have

occurred in basic thought categories and operations. The more satisfactory explanation is that changes in truth values, goals, and purpose account for the changes in observed behavior. This, of course, is the essence of persuasion through language.

### Language may be used to assist memory

The fact that we have language and can write language enables us to preserve ideas and to build on those preserved ideas. Our thinking is undoubtedly stimulated by ideas we hear and read. Without language, no human group could have developed much of a culture of any sort. It is language that allowed for the development of modern science, technology, and industry. However, just as the research with color words shows that having a word can assist memory but does not, in and of itself, affect perception, neither is there any basis for assuming that any of our fundamental categories and operations of thought have been affected by this development. The thought processes of non-technological peoples, for example, have not been shown to differ in fundamentals from peoples of technological societies.

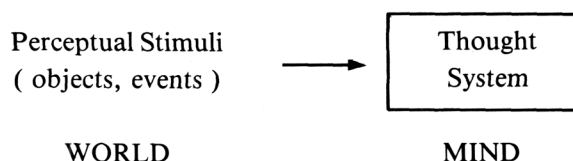
### Summary of effect of language use

The mere fact that a person knows a language does not affect the nature, content, and direction of that person's thought. The language system is *neutral* with respect to the thoughts it conveys. However, the content and direction of the particular thoughts of a person can be affected by other persons' use of language. Receiving sentences which others have constructed and communicated can influence a person but not with regard to that person's basic categories, or operations of thought.

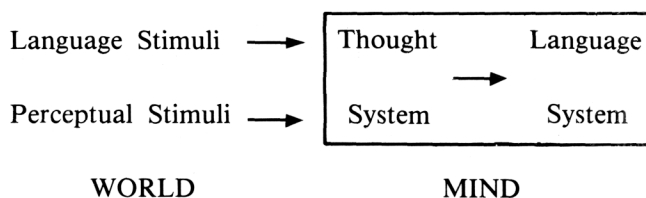
## LANGUAGE, THE INSTRUMENT OF THOUGHT

Relationship and development of thought and language

The relationship between language and thought which shall be proposed here is essentially one which was advocated by Locke (1690) some three centuries ago. It is that thought is independent of language, that language is dependent on thought, and that the function of language is to provide a means for the expression or communication of thought. The following schemas outline this view of the development of thought and language and their relationship:



Schema 1. Development of thought in the child



Schema 2. Development of language in the child

Thus, the thought system in the mind of the child develops over time as input stimuli of the world, e.g. visual, auditory, and tactile stimuli representing objects, events, and situations in the environment, are experienced by the child. Until thought is sufficiently developed (ideas of objects, relations of objects, states and actions of objects), words uttered in the presence of the child are not meaningfully processed. (This view is similar to that of the Piagetian school, e.g. Sinclair-DeZwart, 1969.) When that happens, and when language input is experienced in coordination with objects, events, and situations, then language can begin to be learned. Over a period of time, the language system, with its vocabulary and grammatical rules, is formed.

Part of the language system is actually part of the thought system, for the meaning and semantics of the language system are those ideas that are part of the content of thought. There is not one idea for *dog* in language and another in thought. Such a view would be unparsimonious in the extreme. Rather, the thought and language systems are joined through meaning and ideas.

Regarding Being Aware of Speech in the Mind.

It is often observed that sound forms of words come to one's awareness while one is thinking. It is a mistake, however, to conclude from this that the sound forms themselves are thought. Such word forms are merely reflections of some underlying ideas. Thus, it is thought which determines the selection of word forms. As children, we learn to encode thoughts into language and then into acoustic speech. Because we discover that in order to interact effectively with people, we must be instantly ready to express our

thoughts into speech or gestures, we consequently develop a habit of converting thoughts into language at a mental level. That is, word sound forms are selected to represent the underlying thought. It is this sound form that we become aware of when we think. Hence, the sound form is not thought itself but simply a secondary reflection of it. Whether the mental sound form is to be physically realized as speech through the motor skill system of the body is generally a matter of voluntary control. We speak when we want to speak, except under great stress. At those times, it seems that whatever is thought of is realized as speech. This would indicate that the connections from a particular thought to mental language and then to physical speech are automatic and that it is only with conscious effort (our normal condition) that we do not say everything that we think. When a child first learns to speak, it seems, that the child does not have complete control, and that much of what he or

she thinks is articulated into speech. What the child must and soon does learn is that while it is all right to automatically convert all thoughts to sentences in the mind, it is not all right to convert all of those sentences to speech. Socially unpleasant consequences result for those who do. Then, too, when we are alone we sometimes drop our conscious control and speak aloud (so-called 'talking to ourselves'). When we are ill with a high fever, we may also speak aloud. However, all such instances are the reflections of underlying thoughts. The speech is merely a surface manifestation of those thoughts.

## CONCLUSION

The U.S. Supreme Court's decision that mere knowledge of a language cannot reasonably be regarded as harmful, i.e., significantly influential, is one that is justified, when one considers the relations of language, thought and culture.

## REFERENCES

- Au, T.K-F. 1983. Chinese and English counterfactuals : The Sapir-Whorf hypothesis revisited. *Cognition* 15 : 155 - 187.
- Au, T. K-F. 1984. Counterfactuals : In reply to Alfred Bloom. *Cognition* 17 : 289 - 302.
- Bloom, A.H. 1981. *The linguistic shaping of thought : A study in the impact of language on thinking in China and the West*. Erlbaum : Hillsdale, N.J.
- Bloom, A.H. 1984. Caution-the words you use may affect what you say : A response to Au. *Cognition* 17 : 275 - 287.
- Bloomfield, Leonard. 1961. Teaching children to read, in Bloomfield, Leonard and Barnhart, Clarence L. 1961. *Let's Read*. Wayne State University Press : Detroit. Article written in 1942.
- Brown, Roger W. and Lenneberg, Eric H. 1954. A study in language and cognition. *Journal of Abnormal and Social Psychology* 49 : 454 - 62.
- Carroll, John B. (Ed.). 1956. *Language, Thought and Reality : Selected Writings of Benjamin Lee Whorf*. MIT Press : Cambridge, Mass.
- Chomsky, Noam. 1967. Recent contributions to the theory of innate ideas. *Synthese* 17 : 2 - 11.
- Comrie, B. 1985. *Tense*. Cambridge University Press : London.
- Frank, Philipp. 1953. *Einstein, His Life and Times*. Knopf : New York.
- Furth, Hans. 1966. *Thinking Without Language*. Free Press : New York.
- Furth, Hans. 1971. Linguistic deficiency and thinking : Research with deaf subjects, 1964 - 1969. *Psychological Bulletin* 76, 1 : 58 - 72.
- Humboldt, Wilhelm von. 1836. Über die Verschiedenheit des menschlichen Sprachbaues und ihren Einfluss auf die geistige Entwicklung des Menschengeschlechts. *Linguistic Variability and Intellectual Development*. (1971). University of Miami Press : Coral Gables, Florida.
- Huttenlocher, Janellen. 1974. The origins of language comprehension, in Solso, R.L. (Ed.). *Theories in Cognitive Psychology*. Lawrence Erlbaum Associates : Potomac, Md.
- Kay, P. and McDaniell, C.K. 1978. The linguistic significance of the meanings of basic color terms. *Language*, 54.3 : 610 - 46.
- Korzybski, Alfred. 1933. *Science and Sanity : An Introduction to Non-Aristotelian Systems and General Semantics* (4th edn). The International Non-Aristotelian Publishing Co. : Lakeville Conn 1958.
- Lantz, Delee. 1963. *Color Naming and Color Recognition : A Study in the Psychology of Language*. Doctoral dissertation, Harvard University.
- Lieberman, Alvin M. 1957. Some results of research on speech perception. *Journal of Acoustic Society of America* 29 : 117 - 23.
- Lieberman, Philip. 1967. *Intonation, Perception, and Language*. MIT Press : Cambridge, Mass.
- Liu, L.G. 1985. Reasoning counterfactuality in Chinese : Are there any obstacles? *Cognition* 21 : 239 - 270.
- MacIntyre, Alasdair. 1970. Noam Chomsky's view of language. (Stuart Hampshire's interview of Noam Chomsky), in Lester, Mark (Ed.), *Readings in Applied Transformational Grammar* (1st edn). Holt, Rinehart & Winston : New York.
- Malotki, E. 1983. *Hopi time : A linguistic analysis of the temporal concepts in the Hopi language*. Mouton : Berlin.
- McNeill, David. 1987. *Psycholinguistics : A new approach*. Harper and Row : New York.
- Niyekawa-Howard, Agnes. 1972. The current status of the linguistic relativity hypothesis. *Working Papers in Linguistics*. University of Hawaii 4 - 2, 1 - 30.
- Osgood, Charles E. 1953. *Method and Theory in Experimental Psychology*. Oxford University Press : New York.
- Ryle, Gilbert. 1949. *The Concept of Mind*. Hutchinson : London.



- Sachs, J.S. and Truswell, L. 1976. Comprehension of two-word instructions by children in the one-word stage. *Papers and Reports on Child Language Development* 12 : 212 - 20. Department of Linguistics, Stanford University.
- Sapir, Edward. 1921. *Language : An Introduction to the Study of Speech*. Harcourt, Brace & World : New York.
- Sapir, Edward. 1929. The status of linguistics as a science. *Language* 5 : 207 - 14. Also in Mandelbaum, D.G. ( Ed. ). *Selected Writings in Language, Culture and Personality*. University of California Press : Berkeley.
- Sinclair-De-Zwart, Hermina. 1969. Developmental psycholinguistics. In Elkind, D. and Flavell, J.H. ( Eds ). *Studies in Cognitive Development*. Oxford University Press : New York.
- Skinner, B.F. 1957. *Verbal Behavior*. Appleton-Century-Crofts : New York.
- Steinberg, Danny D. and Chen, Shing-Ren. 1980. A three-year-old child learns to read: the illustration of fundamental reading principles. ( In Japanese ) *Dokushu Kagaku* ( Science of Reading ) 24.4, 134 - 41. Also in *Working Papers in Linguistics*. University of Hawaii ( in English ). ( 1980 ). 12.2, 77 - 91.
- Steinberg, Danny D. and Steinberg, Miho T. 1975. Reading before speaking. *Visible Language* 9.3, 197 - 224.
- U.S. Supreme Court Reports. 1922. October Term, Meyer v. Nebraska, 392 - 403.
- Vygotsky, Lev S. 1934. *Thought and Language*. MIT Press : Cambridge, Mass.
- Watson, John B. 1924. *Behaviorism*. Norton : New York.