

EXPLORING THE SHARED IN LANGUAGE AND IN THE MIND

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Though half of the century has passed since it was stated that the mutual influence of language and thought is largely unexplored [Glenn, 1962, 58; Denes, Pinson, 1964], the question still means problems in this area of scholarship (cf. the theme of the 1992 Conference of the Linguistic Society of Belgium). Approaching the problem from a linguist's point of view, it is reasonable to begin with concept-word relationship, because concept is the shared both in language and in the mind. The starting point might be the idea of language as physical reality. This concept may be interpreted in terms of physics, psycholinguistics and culture. The linguistic aspect of the problem was initially attempted at several years ago [Drazdauskienė, 1979], and its sociocultural interpretation may be a question of a major work. What may be presented in an article like this is a tentative interpretation of the concept in terms of psycholinguistics and physics.

Man lives in a physical world and experiences its influences in various ways. Language is also part of the physical world of man and part of its influences. Language affects man and exercises an influence in the form of different waves – sound waves, light waves and electromagnetic waves. The waves represent physical phenomena that involve wave motion [Denes, Pinson, 1964, 14]. Sound waves and light waves, i.e. audible speech and visually presented text, have a perceivable and well explored entry into the human body, i.e. the ear [Denes, Pinson, 1964] and the eye. But the mind's operation is based on electric impulses which derive even from sound waves. The mind should also be fed by electromagnetic waves. Since light is electromagnetic radiation, part of the electromagnetic input derives from light waves and affects the mind through the eye. Part of this input also derives from other sources which may be only slightly related to language and to verbal matter. In general all waves function on energy transfer without transferring the matter. This law also explains how and in what form language registers in the mind and how the return process occurs. Neither the audible nor the written word register in the brain, but memorization process begins with the impact on the retina and on the inner ear. Memorization is supported by the energy impulse which is perceived and registers in the brain by way of an association with concepts. We ordinarily say that it is only the people who have visual memory or are exceptionally sensitive to

the sound that retain the image of the physical impression of the word in the respective senses.

As an object which encounters the waves, the brain becomes a secondary source of the waves, and the vibrations recur in the reverse process. It is just that the return process, making use of the result of a concrete energy input, i.e. the production of speech, usually takes place in some time, which accounts for memory lapses and other problems.

When any of the three kinds of waves reaches the receptors of the brain, energy input registers as definite vibrations in the brain. At this point verbal matter is transformed into concepts and gets registered in the associated contexts and with the associated energy input. When all the three kinds of waves register simultaneously in the brain, the efficiency of memory is multiplied, but, when the waves register separately, the efficiency of memory remains weaker. Except for the cases of rational sterilized learning and cramming, verbal matter never or very rarely registers in the brain in the form of isolated concepts, because isolated concepts are zero energy units which miss entirely the network of sensory perception and therefore have the zero effect on the electromagnetic vibrations in the perceiving brain. For the same reason, isolated concepts have a very limited currency, – only in one mode the generation of the mind (see further, p. 56).

But there is a difference among the concepts associated with verbal matter – some are concrete and some are abstract, some are thing-related and some are related to relations or associations. Concrete, thing-related concepts, i.e. the conceptual contents of autosemantic words is more often registered in the brain with multiplied energy input and is remembered in the same capacity. Abstract and association related concepts, i.e. the conceptual contents of abstract and functional words is registered with reduced energy input and is likely to be remembered with difficulty which is simplified by related contexts. The related contexts and the combined capacity of the energy of the three kinds of waves increase memory potential when the process is reversed, i.e. when speech production occurs.

Energy input with which verbal matter registers in the brain is never an orderly sterilized process, and this is what ensures memory potential. The varying capacity of energy input is equivalent to the role of linguistic and extralinguistic contexts, when the total sensitivity of the human body is activated and memory potential increased. It is a chance matter what part of linguistic contexts is remembered intact, what part is registered in random fragments and what part in isolated concepts. But the fact is that this is not an orderly process, rather a variety of processes and divisions. What pro-

cesses and to what degree are involved in speech production may be partly explained when different modes of the generation of the mind are compared.

It may be stated with some certainty that there are at least three modes of the generation of the mind, which incorporate verbal matter in the form of logic and concepts. The three modes of the generation of the mind are: free purposeless generation of the mind, conscious rational operation of the mind and productive autonomous functioning of the mind.

Free purposeless generation of the mind is a functioning of the mind while human body is involved in some physical activity and the mind is free from rational engagement. In such conditions the mind is flexible enough to vibrate and manipulate with the matter at its disposition. The matter in this case is fragments of thoughts and ideas, separate concepts and notions. If consciously observed, in this case the mind may be said to fluctuate, with concepts and fragments of ideas meeting and separating, and with no continuous thinking being generated. At points the mind seems to linger at major units, usually borrowed from concrete contexts, and man consciously wonders at the ideas in such units. They may be fragments of songs or tales, fragments of informative texts, but no originally generated thoughts occur, if only to concentrate for a moment on the matter at hand. Free purposeless generation of the mind confirms that verbal matter in the form of concepts and fragments of ideas or of utterances makes, at least in part, the content of memory, and the mind's bioelectronic potential is always ready to manipulate with them.

Conscious rational operation of the mind is a determined and purposeful use of the mind by man, what is known as thinking. In this case the mind is strained, and man consciously selects concepts and ideas which he finds to be important in his mental work. In this process man gives preference to some concepts over others and a continuous train of thought is generated. It is in processes of this kind that the human mind produces utterances that are said never having been produced before.

This is a strenuous process of the mind and it is exhausting physically. Conscious rational operation of the mind leads to new ideas and observations, which are usually valuable. But conscious rational operation of the mind may also be trivial, because man can concentrate on minor, speculative aspects of reality and ultimately produce only unimportant observations, although expressed some way. In this process, the human mind obviously operates with concepts which are matched with words before a thought is expressed, tested and decided upon or discarded if the words disagree

with the concepts at some point. Logic invariably enters this process of thinking, usually as the discipline-maintaining factor. It is not what is known as planning in written or in spoken language. It is rather the condition of intelligibility.

In the case of conscious rational operation of the mind, man can tentatively observe the process of concept and word matching and of logic which is employed rationally too. It is only the previous process, when the movement is from word to concept, that is more obscure. But even word selection is so marginal in thought that conscious efforts are required to slow the process down to observe it. The human mind seems to use concepts, but the moment it turns to expression, the word is required as the ultimate medium. The mind becomes heavily word centred when the shaping of an utterance begins. Logic and sentence structure are simultaneously considered, and words come to be sorted out, selected or discarded. It is only logic and sentence structure that establish the conditions of a proper word relation in the mind. So logic and the logical in sentence structure seem to be the factors which extract verbal matter to the surface in the mind to use it in a worded text.

As far as verbal matter is concerned, it is definitely the ultimate phase in the process of speech production. But as far as a thought or idea is concerned, it is a continuous process, beginning with the initial conceptual phase and finishing with the wording. This continuous rational process is very much a merit of the modern man. His ideas may be unimportant, extracted from vague notions and exaggerated out of pure thinking or pure speculation. Speculation, i.e. excessive meditation and guess, seems not to have been intrinsic in the ancients' mind. Familiarity with the classics moves one to believe that man in the antiquity was mainly a rational observer¹, wondering at the grandeur and greatness of the world, and all that he observed was really great and worth marvelling at, because it was part of the ancient man or was felt as part of himself [Dickinson, 1965].

Finally generalizing on conscious rational operation of the mind by the modern man, one can say with relative certainty that in this the human mind is put to its extreme use. That is why concept-word relationship may reasonably be observed. Until the human mind is made to operate without

¹ If I were to state the difference between the language of the classics and that of the modern man, I would definitely say that the classics have left the language testifying to limited rationalism. That is why so often today authors turn to references to the classics as their ultimate resort. What they had said seems to be always fitting and there is quite a lot that was said by them and never improved by an excessive rationality of the moderns.

the necessity of overt expression, it makes use of concepts in their ideal form². As soon as man sets his mind to action, i.e. to wording its contents, logic emphatically demands a selection of words and so does the structure of his utterances. It is at this point that the switch turns to words or, to be more exact, to concept-word matching process. In this mode of the generation of the mind, there is no escape from this process until the speaker or writer finally gets the right ones within the pattern of his own logic and structures. It might also be noted that language never exposes more logic than the human mind contains of it. But in this mode of the generation of the human mind the role of logic may and may not be primary; it may be somewhat retracted and constitute a fifty-fifty process with concept selection.

Productive autonomous functioning of the mind is the process when, having hit upon a purpose, the human mind generates independently of man's will and without conscious efforts which are, in fact, excluded. The purpose is rationally conceived and, when the mind is charged with verbal matter, its functioning comes to be autonomous and very powerful. In this process the human mind is governed by logic. The mind works as if it were a solid apparatus, turning block after block its constituent propositions, while concepts enter them of their own, everything matching and fitting at once. The mind is so charged and the process so powerful that man can hardly manage to put the words down. It is a kind of magic autonomy, when the mind makes itself felt as an independent body. It is governed by light, proposition follows a proposition and instantaneously incorporates the relevant concepts. Concept-word matching is absolutely instantaneous, virtually unfeared and effortless, because the governing factor is logic.

Comparing this mode of the generation of the human mind with the previous two, it becomes obvious how the human mind makes use of concepts and words. The concept is a shared matter in the word and in the mind, and the transition between the two is instantaneous. A mind, charged to capacity with bioelectronic energy which has a sharing in pure energy outside the mind, felt as light, can generate of its own a corpus of rationally

² "Concepts in their ideal form" is a lame (and ideologically marred) term. What is meant is the consciously perceivable effect of the electromagnetic vibrations in the brain, which, being a result of the pure energy output, merely revives the cerebral impact of the initial sensory perception. As a result of the pure energy output concentrated in the brain, its effect is perceived as disconnected from the physical reality and its impressions. Although its primary source in every instance, had been sensory perception, the above mentioned effect which is part of the mental process is entirely cut off from the physical energy input through the neurons and therefore is given the lame name "ideal".

structured text without any conscious effort of man's own. Logic functions in this process as the dynamic force, while words enter the propositions exactly as they match the logical structures. Equipped with the guiding motive, the human mind extracts all necessary and related concepts and words, and matches them accordingly.

Concepts appear as minor and entirely subordinated elements, and this process, when consciously analysed, permits to see concepts and words as dependent rather than basic and dominant. It is logic that governs the process dynamically and selectively, and logic has to be admitted as the force in transition from concept to word. Logic dominates the selection of words both in the productive autonomous functioning of the mind and in the conscious rational operation of the mind. Indeed, concepts alone and of their own could never form themselves into any rational proposition. Concepts are only elements utilized of their own in free purposeless generation of the mind when no rational expression is sought or achieved. The result of the generation in this case is a messy corpus of conceptual verbal matter, never put into any orderly form of expression.

Concepts also function in the conscious rational operation of the mind and in the productive autonomous functioning of the mind, only as clearly subordinated elements of the matter. Propositional logic is the driving and shaping force. That is why the marginal process of concept-word matching is almost imperceptible. The latter mode of the generation of the human mind is very productive because of the logical load, incorporating concepts, with which the mind is charged and because of the sharing in light as an extraneous source of pure energy. The former is less productive because its driving force is man's conscious will and efforts, and the load of the mind alone.

Generalizing on what has been said, it might be reiterated that a logical stimulus is the driving force and projecting factor in both modes of the generation of the mind when speech is ultimately produced. Indeed, when speech is perceived, the mind registers it at least in minimum propositions, if not in entire contexts of several propositions. When they happen to occur in speech perception, single concepts normally appear in definite intonation contours which stand for the logic of an utterance, so that in speech perception single concepts perform the role only of incomplete propositions. The human mind seems to be equipped with the network of logic applying to most or all contexts of speech production, and functions on the basis of macro unite, i.e. propositions, which often identify with the formal structure of the sentence. It is noteworthy that the macro units shape themselves in the mind in com-

plete propositions rather than in the form of formal logic. That is why concrete concepts and words enter the propositions exactly matching the structures, logically and verbally. The question still remains how concepts are matched with words or words transformed into concepts in the process of speech production and perception.

It has to be stated again that the concept is a shared property in language and in the mind. Although the word physically performs the role of a conventional sign, it is the target between audible or written speech and the mind, and at both ends functions as a material stimulus. Merely because the concept is a shared property in language and in the mind the process of the transformation is obscured. The difficulty with word-concept and concept-word transformation is in conceiving the multitudinous operations which the mind has to perform. But the multitudinous operations are vibrations at the speed of light, which depend on logic, on the conceptual corpus registered in the brain and on the combined capacity of the waves. Logic is really decisive as is the conceptual corpus. The larger the conceptual corpus in the mind is, the simpler it is to memorize new words and extract them when the aim is speech production. This may be attested by mental processes in foreign language learning. Until conceptually stored verbal matter is scarce in the mind, the learner finds it difficult to memorize words and still more difficult to speak. When conceptually stored verbal matter expands, the learner finds it easier to memorize new words and to speak. But structural meaning and propositional logic do govern the mind at any stage of involvement with foreign words. Until the stored matter in the mind consists only of separate concepts, the foreign language learner cannot speak. Speech begins to be generated when the learner's mind becomes equipped with concepts of more general meaning, which comprise both logic and the syntax of a foreign language. These observations pertain to the adult learner rather than a child, when concepts are a definitely shaped operating matter of the mind [Luria, 1979].

Another confirmation of the primary role of logic in speech production is the mental work of a translator. When an experienced translator focuses on the expression in target language, he primarily resorts to such strategies as a projection of the structure of the would-be statements and then selects concepts and ultimately the words that fit the structures. But logic in this case is very integrated: it really is just another category of meaning, a somewhat extended conceptual network.

In speech perception logic is also decoded primarily. It is the logic of utterances, i.e. syntax, intonation and emphasis that notify the basic in

speech, thus permitting the listener to focus on the essential and to ignore less important. This process of selection in the perception of speech is rather ruthless. The logically important is selected and not infrequently taken note of in single concepts. In other words, speech is stripped off of non-essential, leaving only the important or logically prominent concepts. It is only in polite social conversation that attention is paid to all constituents in utterances for pleasure, enjoyment or merely for the sake of speaking.

The human mind is capable of registering an enormous amount of propositional structures and concepts. This process is not planned or otherwise geared. That is why, like in impromptu speech, the mind registers for storing only a part of verbal matter in perception. What happens to be stored in memory also depends on the sensitivity and on general verbal experience of an individual. The transition from word to concept is imperceptible because it is the result of the effect of different waves. The mind biologically registers the impulses and functions most effectively when sound, light and electromagnetic waves are combined.

In speech production the transition from concept to word is more obvious. Until the mind is bent on strategies, i.e. on the projection of logical structures, it rests on concepts and conceptual selection. The moment the propositional structure is decided upon, the mind turns to the selection of words, because the logic requires an adequate expression. It is words, not concepts, that are matched with definite syntactical structures which issue as a result of propositional logic.

Three processes of the generation of the human mind have been reviewed for adult speakers in cases when languages are learnt. The focus was on concept-word relations in the mind. Free purposeless generation of the mind was found to testify to the randomness of the process of energy input and its registering in the mind. The unpredictability of the registering in the mind of propositions and concepts was also noted for cases of the free purposeless generation of the mind. The randomness of the process of the registering of verbal matter in the mind was, in a sense, supposed to be equivalent to wave decay and the decay of its effect on the mind.

The dominating role of logic in the mind was attested for conscious rational operation of the mind and for productive autonomous functioning of the mind in the process of speech production. Propositional logic was dominant in these two modes of the generation of the mind, while concepts were subordinate elements, basic for the ultimate selection of words in the propositions. The concept is at first a vague notion, but, when logical conditions have to be satisfied in speech production, the word replaces the con-

cept and becomes a very concrete unit in the mind. The described mental processes raise problems of the measurement of the speed of bioelectronic vibrations, the span of memorization process, the size of verbal unite which register in the mind at a time and the stimulus for the predilection of logic in them. The equivalence of concept to the word in language and in the mind simplifies somewhat an understanding of the transformation in word-concept and concept-word relations.

KALBOS IR ATMINTIES BENDRIEJI TYRINĖJIMAI

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Re z i u m ė

Šis straipsnis gvildena kalbos ir minties santykio problemą. Laikantis sampratos, kad kalba yra fizinio pasaulio dalis, straipsnyje aprašomos sąvokos ir žodžio ryšių sąlygos žmogaus atmintyje. Šie ryšiai aptariami trijuose smegenų generacijos procesuose – laisvos betikslės generacijos, tikslingos sąmoningos generacijos ir produktyvios autonomiškos smegenų generacijos atvejais. Pastebima, kad procesas yra atsitiktinis atminties požiūriu, klausantis kalbos ir bent dalinai fikslingai atgaminant kalbą. Tikslingos sąmoningos generacijos ir produktyvios autonomiškos smegenų generacijos atvejais atgaminant kalbą, lemiamas vaidmuo priklauso logikai, o sąvokos yra subordinuotos, ir konkretaus žodžio transpozicija atsiranda, kai reikia užpildyti loginius-sintaksinius modelius.

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1993 m. balandžio mėn.