

"ARCHITECTURE" OF HUMAN LANGUAGE

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Summary: The paper deals with architecture of language. A language is considered as a system of meaning. Semiotic means of language are studied. Physical, biological and social systems are analyzed. The conclusion is made that the organization of language is determined by the movement of meaning.

Key words: architecture of language, biological system, semiotic system, social system, physical system.

Аннотация: В научной статье рассматривается структура языка. Язык рассматривается как система значений. Изучаются семиотические средства языка. Анализируются физическая, биологическая и социальная системы языка. Делается вывод о том, что организация языка определяется динамикой значения.

Ключевые слова: биологическая система, семиотическая система, структура языка, социальная система, физическая система.

Анотація: У науковій статті розглядається структура мови. Мова розглядається як система значень. Вивчаються семиотичні засоби мови. Аналізуються фізична, біологічна та соціальна системи. Робиться висновок про те, що організація мови визначається динамікою значення.

Ключові слова: біологічна система, семиотична система, соціальна система, структура мови, фізична система.

The paper concerns architecture of language. In some cases it will be clear how these assumptions were arrived at.

But not all the basic concepts will be made explicit in this way: partly because we never fully grounded them — and partly because, even when we wanted to do so, we used to think that an academic article should be like a finished garment, with all the tacking removed before it was put on display. That was a mistake. In any case, simply by being resented in the context of a published text the organizing concepts are bound to appear as ready-made, as if they had been in place from the start. But they weren't; rather, they emerged as the by-product of those engagements as we struggled with particular problems — problems that arose in my own work, in literary analysis or language teaching or translation, human and mechanical; but also, increasingly, problems that were faced by people in difference disciplines and professions. The "assumptions" were more like working hypotheses that enabled me to formulate, and to begin to explore, a broad variety of questions concerning language [1, c. 70].

A language is a system of meaning — a semiotic system. "Semiotic" means having to do with meaning (semiosis), so a system of meaning is one by which meaning is created and meanings are exchanged. Human beings use numerous semiotic systems, some simple and others very complex, some rather clearly defined and others notably fuzzy. A language is almost certainly the most complicated semiotic system we have; it is also a very fuzzy one, both in the sense

that its own limits are unclear and in the sense that its internal organization is full of indeterminacy [1, c. 112].

There are three other kinds of system: physical, biological and social. One way to think of these is as forming an ascending order of complexity. A physical system is just that: a physical system. A biological system, on the other hand, is not just that; it is a physical system (or an assembly of physical systems) having an additional feature, let us say "life". A social system, in turn, is an assembly of biological systems (life forms) having a further additional feature — which we might call "value": it is what defines membership; so, an assembly of life forms with a membership hierarchy. So a social system is a system of a third order of complexity, because it is social and biological and physical. We could then think of a semiotic system as being of a fourth order of complexity, being semiotic and social and biological and physical: meaning is socially constructed, biologically activated and exchanged through physical channels.

But this picture has to be reconciled with another: that of the two orders of phenomena which make up the world which we inhabit. Here "semiotic" contrasts with "material": phenomena of matter, and phenomena of meaning. George Williams puts it like this:

Evolutionary biologists ... work with two more or less incommensurable domains: that of information and that of matter ... These two domains will never be brought together in any kind of the sense usually implied by the term "reductionism". You can speak of galaxies and particles of dust in the same terms, because they both have mass and charge and length and width. You can't do that with information and matter. Information doesn't have mass or charge or length in millimeters. Likewise, matter doesn't have bytes. You can't measure so much gold in so many bytes. It doesn't have redundancy, or fidelity, or any of the other descriptors we apply to information. This dearth of shared descriptors makes matter and information two separate domains of existence, which have to be discussed separately, in their own terms [5, p. 43].

But "information" a special kind of meaning — the kind that can be measured. [5, p. 51] Most higher-order meaning cannot be measured, or at least cannot be quantified; it can sometimes be graded in terms of value. So we will prefer the opposition of "matter" and "meaning", the realm of the material and the realm of the semiotic.

The four types of system then appear as different mixes of the semiotic and the material, ranging from physical systems, which are organizations of material phenomena, to semiotic systems, which are organizations of meaning. (We are using "semiotic" in both these taxonomic contexts, but not with any danger of ambiguity). Biological systems are largely material — except that they are organized by genes, and at a certain point in evolution by neurons, which are semiotic phenomena; and with social systems the meaning component comes to predominate. But even semiotic systems are grounded in material processes; and on the other hand in post-Newtonian physics quantum systems are interpreted as systems of meaning. Meaning needs matter to realize it; at the same time, matter needs meaning to organize it.

Human history is a continuing interplay of the material and the semiotic, as modes of action — ways of doing and of being. The balance between the two is constantly shifting (presumably the "information society" is one in which the semiotic mode of exchange predominates over the material). This is the context in which language needs to be understood.

Of all human semiotic systems, language is the greatest source of power. Its potential is indefinitely large. People might characterize it as matching in scope all our material systems — always able to keep up with the changes in the material conditions of our existence. But putting it like that over privileges the material: it spells a technology driven view of the human condition. Language is not a passive reflex and all human processes however they are manifested, whether in our consciousness, our material frames, or in the physical world around us, are the outcome of forces which are both material and semiotic at the same time. Semiotic energy is a necessary concomitant, or complement, of material energy in bringing about changes in the world.

Whether or not language matches the scope of all other human semiotic systems must be left open to question. Some people claim that it does; they would say that anything that can be meant in any way at all can also be meant in language. In this view, the scope of semantics (the meaning potential of language) is equivalent to the whole of human semiosis. Some semiotic systems may be incommensurable with language; witness the sometimes far-fetched attempts to represent the meaning of a work of art in language [2, c. 147]. But while the question is important, and deserves to be tackled much more subtly and fundamentally than this rather simplistic formulation suggests, it is not necessary for me to try and resolve it here. All that needs to be said in the present context is that other human semiotics are dependent on the premise that their users also have language. Language is a prerequisite; but there is no need to insist that language can mean it all. The crucial question is: how does language achieve what it does? What must language be like such that we are able to do with it all the things that we do? [3, p. 105]

The simplest account of a semiotic system is as a set of signs. When we represent it like that we can see that it is not complete: we do not know how we get into the system. There must be a condition of entry: let us say "control point". At control point, the system is entered: one or the other option must be chosen. Other than at control point, the system cannot be entered. Note that 'control point' is itself a semiotic feature, though no doubt realized materially.

Some semiotic systems are minimal. A language, obviously, is not; it is vastly more complicated. The question is: how? In what ways is a language more complex than a minimal system of signs? We need to spell out the kinds of additional complexity which could transform a simple sign system into a language. The system is "thickened" along a number of different dimensions. If we posed the question in these terms, with the thought that language could be built up by expansion from a simple system of signs, we might recognize four dimensions along which such expansion would be taking place: signs may be combined, to form larger signs (syntagmatic complexity); signs may be uncoupled, to create new

pairings (realizational complexity); signs may be layered, one cycling into another (stratificational complexity); signs may be networked, in relations of dependence (paradigmatic complexity).

Signs may be combined. We do not usually make just one meaning and stop there, like a traffic light. Meanings follow quickly one after another, each setting up a new context for the next. In this way, larger meanings are built up out of combinations of smaller ones: minimal signs — words, or even parts of words. These are all "signs", in the sense that they are units, or unities, of meaning.

Signs may be uncoupled. We are not bound by a fixed one-to-one mapping between a content and an expression. A given content may come to be realized by a different expression, or a given expression may realize a new content; and in this way new signs are being created, since variation of this kind tends to open up new meanings — new pairings are unlikely to take on if they are not in some way expanding the total resource. Then, putting this feature together with the last means that the domain of the content is not limited by the form of the expression: thus, in English, the content 'POLARITY: positive/negative' is typically realized as a small fragment attached to a word. Signs may be layered. We are not restricted to a single semiotic cycle. The expression of one content comes to be, at the same time, the content of another expression [4, p. 17].

Signs may be networked. We do not construct meaning out of sign systems that are unrelated to each other. Systems are organized together in the form of networks, in such a way that some are dependent on others for their condition of entry. Some sets of options, on the other hand, may share the same entry condition but be independent of each other. It is this organization in system networks that makes it possible for a language to expand its meaning potential more or less indefinitely. When we observe the way very small children develop their powers of meaning, we can see all these different kinds of complexity emerging. Children's first language-like semiotic system, which we labeled "protolanguage" when we observed and described it thirty years ago, begins as a collection of simple signs. These signs soon come to be organized into minimal systems. But they are not yet combined, nor are they yet layered or uncoupled. All these types of complexity, including the network, develop together as the necessary condition for the move from protolanguage to mother tongue. Not that they have somehow to be put in place in advance, as this formulation might imply; rather, they are essential features of our evolved human semiotic, and children take them up as they come to construe language in its new, post-infancy form.

Thus, it is through this "thickening" of its meaning-making resources that human language has evolved. What has been called the "architecture" of language is the organization of these resources within a space defined by a small number of interrelated vectors, those of stratification, met a function, and the two compositional axes (syntagmatic and paradigmatic); all, in turn, predicated on the vector of instantiation (the relation between an instance and the system that lies behind it) which is based on memory and is a feature of all systematic behavior. In some ways "architecture" is a misleading metaphor, because it is too static; if we want a spatial metaphor of this kind we might perhaps think more in terms of town

planning, with its conception of a spatial layout defined by the movement of people, or "traffic flow". The organization of language is likewise defined by the movement of meanings.

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