


# A Linguistic Explanation of Information <sup>†</sup>

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**Abstract:** We can tentatively extend the idea of semiotics and linguistics to consider that matter itself is its own symbol, which is also its own language. Matter itself has a symbol and a meaning. Matter is a noun and a verb at once. The entire world is a language. Information is a state where language is not understood or where it is prior to being interpreted. Once it is interpreted or understood, it is a language. At this level, we can find that, in fact, the information is a specific form of language and is a subset of language, and not the opposite.

**Keywords:** information; signal; symbol; language; generalized language; matter-language; media language

## 1. Information Is the Signal

In 1948, Shannon created the theory of information, giving the definition of information and the elimination of information uncertainty. Another famous definition of Wiener is “information is information, neither material nor energy”. These are classical definitions of information. According to the definition of Shannon’s information, the study of information is not for the language or meaning of information but only for information encoding, and the mathematics of this coding form. Therefore, his study on information is to give up the meaning of the information, caring only about the signal and the encoding of the signal.

In semiotics, the definition of symbols contains two parts: In these two parts, if we are clear about the meaning of these two parts, this symbol is considered a language. If we do not understand this symbol, i.e., we only understand the symbol form, then this symbol is a signal. Therefore, Shannon’s information is essentially a theory of signals. Similarly, to a Chinese speaker, if he does not know an English word but only the alphabets constituting it, this word is only a symbol, i.e., a signal, for him.

Shannon’s handling of information is similar to communication with an unfamiliar foreign language, which contains statistics, statistical probability, and the compression encoding on this basis. Understanding the meaning of these foreign languages is another problem. The mathematical understanding of the probability and alphabetical combination of “letters” appearing in this foreign language and optimization compression and re-encoding is what the theory of information aims at.

Therefore, the information theory of Shannon is essentially a theory of signals. In this context, information refers to the signal that we are not very clear about. In other words, information is a foreign language letter for which we have no interpretation. Before it is interpreted, it is called a signal; after interpreting, it becomes a meaningful language.

The view of Wiener is not the same. Wiener believes that information constitutes a presence and existence, and this presence is not a substance nor energy and is, instead another form of existence other distinguished from matter and energy.

We can extend the theory of semiotics and linguistics to conjecture that matter itself is its own symbol, which is also its own language. Matter itself has a symbol and has meaning [1]. Matter is simultaneously a noun and a verb. Matter contains the effects and changes that can occur and the related presence, variation, and effects under certain conditions, especially when there is action between other substances or energy. According



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to Einstein's theory, matter and energy can be converted, and the substances we explore here also include the composite concept of matter and energy.

Therefore, matter itself is its own language; I have analyzed and developed this concept and reasoning in my own monograph "Generalized theory of language" and "world and words". The definition of the symbol and meaning in semiotics cannot fully characterize matter, because the symbols describe matter in terms of a noun. Matter is a verb; the world itself is also a verb.

Our understanding of the world and matter is to constantly separate variables and differences from phenomena, continuously defining new subobjects and symbols and words from differences and variables. In such a process, we constantly reduce the world and phenomena and decompose it morphologically and structurally, from molecules and atoms to basic particles. This dismantling process aims to understand matter from the relationships and functions of these subobjects. Alternatively, we are always accompanied by a double understanding of definition and reasoning of a substance symbol and its relationship with other substance symbols. The ability of these substance objects and changes is their attribute, which is their meaning. They constitute matter-language; the symbols are integrated with their meaning; and the nouns are at the same time verbs. Therefore, the language itself constitutes a statement. For such a substance object, its ability to function is its attribute. Information is the existence, attribute, and changes of a substance. We can only read the changes in the action of other substances by the attributes and effects of it. Therefore, the information we can read directly includes those certain variables. At this point, information has virtual properties and is not a real object, because we need to read for changes between at least two substance units where material is the real foundation, and we only read material variations of some attributes. Therefore, the nature of information is the attribute of material energy, but the information we read is a variable that changes this substance–energy attribute. Information is expressed as a variable. It is quantified in the variable of the vector attribute. On this level, it can be abstract. Shannon uses information as a variable, which is defined as bits. A bit means a variable. This variable has two states. We define the two states as 0 or 1. The earlier telegraph system would define it as a long signal. Moreover, China's ancient philosophy defines it as yin or yang. From this perspective, we can also understand the views of Wiener, which is that information is neither substance nor energy. In fact, its phenotype is a variable of material energy. Its essence is the properties of material energy and the effects, as well as changes in attributes and effects.

## 2. Matter-Language and Media Language

Only by understanding that matter is its own symbol and language and that the nouns are also verbs can we understand that the world's substance is its own matter-language. The most basic particles, combined with each other forming a more complex structure, constitute the structure and organization of the entire world as its most basic letters, and its combination forms words, sentences, paragraphs, articles, and novels. Moreover, information is this language phenomenon and part of the structure. It is part of such a complex language system.

In contrast, human language is first built in the modeling, reference to and decipherment of the matter-language. Physics and chemistry are symbolic models for the decipherment and construction of the language of the material world. Moreover, human language, whether words, graphics, or music, are symbolic languages in the media; its medium can be replaced. Its effect, whether written by hand or the text on the computer screen, is equivalent. The songs on the tape and the songs on the disc are equivalent. This language can be replaced, migrate on the medium, and can be copied. It is only dependent on the substance as a carrier. We call it a media language [1]. Moreover, matter-language is by itself; it cannot migrate. Its language is the same as its material structure. The media language cannot be separated from the material carrier, but it is a more advanced language

structure built on a substance medium. As in the radio, the sound signal is modulated as the radio wave.

After these analyses, we reveal the language attributes of the entire world. We are interpreting the world. We use substances to create our narrative as a medium. The entire world is a language. Information is a state where language is not understood or that is prior to being interpreted. Once it is interpreted or understood, it is a language.

At this level, we can find that, in fact, information is a specific form of language and is a subset of language; it is not the opposite of language.

### 3. Information Is a Subset of Languages

Therefore, we can think that information is a subset of languages and a specific form of language. Shannon's theory of information is misleading in that it abandons the meaning of information and focuses instead on the mathematical problems of the coded form of information, thereby causing incompleteness and a lack of information. In fact, his theory of information should be considered as a mathematical problem of signals.

Based on previous analyses, we can understand that what we currently call information is a general media language based on electromagnetic bits signal communication, where image, sound, text, chemical equations, mathematical formulas, and digits are encoded into electromagnetic bits. More generalized information comes from the corresponding source matter-language and media language. In other words, based on matter energy, the changes and variable of constitute a derived information (variable) universe, which is the same as substance energy or even spacetime. Information itself is the material energy and spatial and time variable of the universe. This is the generalized form of information and its phenotype. The more basic root of information is the attributes and effects of material energy and time and space. This essence is implicated in the relationship and variation between matter, energy, and spaces. We can only observe the phenomena; the essence is the implicit attributes and relationship found according to the phenomenon.

Therefore, information is not a new thing, but information technology is, and society is formed around information. The information itself is a subset of the language of this concept.

Our understanding of language and symbols has suffered from stagnation. When we extend the language perspective to all substances and the entire world, we find that the concept of information is no longer blurred, and the entire world and information are compatible in this system of a generalized theory of language.

At the same time, the information stored and spread, whether on a disk, radio wave, or semiconductor, is the same image. The essence of this image file is a variable, and this variable can be saved in any carrier; this variable needs to be decoded, appearing on the computer screen or printed onto physical surfaces. We can understand information stored and spread in our technical devices; in fact, the variable coding invisible from our naked eye can be interpreted in accordance with the rule of codes.

Information on the information device is a media language. Part of this information comes from capturing and encoding translations of matter-language, such as using the camera or some information from similar computer programs independently. In the current state of information technology, the binary bits are selected as the most basic structure. We choose binary, only because the binary state is technical and economically easier to implement.

### 4. Information Is the Language

Therefore, we believe that some of the previous information philosophy concepts have misunderstandings. In other words, information philosophy is part of a larger language philosophical system based on a generalized theory of language. At the same time, this generalized theory of language also reveals that regarding information as an element independent of matter and energy is incorrect. The reason is that the properties, use, and

changes of matter and energy are sources of information, albeit sharing the same structure and occurring simultaneously. There is no information without matter, energy, and changes.

Wiener in his *Cybernetics* recognizes that the essence of automatic control is the communication problem within the system, and the nature of communication is language [2]. However, people have not learned the nature of the language and the language nature of the world at that time.

From the above discussion, it is not difficult to understand that the entire world can be traced to the properties and effect of the most basic unit of material and energy, which is the most basic unit of matter-language. On this basis, the material layer is constructed, the structure and organization of the world constitutes a layer of matter-language and describes the world itself, including our media language; this article is also built on media constructed on the foundation of these ideas.

With the research and development of artificial intelligence, the concept of the existing theory of information, especially the concept of information itself, has restricted our understanding of the world and intelligence. Therefore, we have developed a generalized theory of language to explain the world, interpret information, explain intelligence, and make some predictions on this basis. The relevant concepts and theories have been discussed and published in previous works. However, we believe that it is necessary to reiterate and emphasize the concept of this article. We use language to interpret information with a complete generalized theory of language and not the contrary.

It is time to proceed beyond the theory of information.

I dedicate this work to researchers of information and information philosophy, and I am grateful for Shannon and Wiener.

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