

# The Future of Text

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The speakers at the next Future of Text Symposium will be asked three questions: What is text? What is the number one thing we can learn from the past? Where do you see the future of text going? I find these questions very interesting, so I will deal with them here.

## Concept of Text

What is text? The word “text” stems from the craftsmanship-related verbs “to web” (Latin *texere*), “to build,” and “to carpenter” (Sanskrit *taksati*, Ancient Greek *tex*) [1].

[1] Maximilian Scherner: *Text* in ‘Historisches Wörterbuch der Philosophie’, Schwabe u. Co. AG Verlag, Basel, 1998, Volume 10, p. 1038.

Let us return to this first, accurate intuition and redefine “text” in modern terms: the noun “text” means an articulated symbolic figure. A symbol is a unit of mental reference, and a text is not a bunch of symbols but an articulated series of symbols, that is, a collection of symbols which refer to each other. This definition is meant as a bijective assertion: if something is text, then it is an articulated symbolic structure, and if something is an articulated symbolic structure, then it is text.

Natural language productions are text. To uncover the text, one can perform a syntactic analysis of the sentences and a morphological analysis of the words. The text is the resulting figure which consists of symbols, such as speech parts and lexemes that refer to each other (e.g., the subject of this sentence is that word, which consists of this lexeme plus this termination). However, natural language productions also carry semantic text. For example, a sentence can state that a woman has a particular characteristic. That sentence can be reduced to a text consisting of symbols (for her, the characteristic, and its

assignment to her) that relate to each other. Note that the semantic text of a natural language expression is not unique; each can be analyzed by applying many different symbols and relationships. This ambiguity corresponds to the vagueness of meaning in natural language. In contrast, formal languages have a unique semantic text which corresponds to the syntactic text. Consequently, formal languages are unambiguous, and their processing can be automated.

Beyond language, other phenomena, such as science, are based on text. Scientific knowledge is not merely linguistic. A theory can be described in many different human and artificial languages, and what constitutes a theory is not its linguistic expression but its meaning. The linguistic expression is simply the interface of the theory. Thus, science can be expressed in prose, mathematical language, and computer algorithms. This does not result in three independent knowledge spheres but in one knowledge sphere: the unique text built by all language productions.

The ancient Indian and Greek words for “text” were also used as verbs. Let us restore this usage. To text is to handle with text. It is a special skill that must be learned and can be perfected and passed down to the next generation. For millennia, to text has been a handicraft. Let us also make it into a science and engineering to prepare for the huge challenges humankind will face.

## Past

The number one thing we can learn from the past is that text shapes civilization in crucial ways. The first ancient civilizations rose long before the invention of written language but surely not before the invention of the text form of hierarchy, which enabled a ruler to organize a city-state for the first time. An early, crude iteration of the text form of algorithms permitted the emergence of complex cities based on the division of labor. The development of key text forms is a very slow process that still continues today. For example, the concept of money has evolved for millennia and is still advancing toward becoming a pure text form as an interchange unit.

Even more importantly, text empowers civilization. For example, text enables science. In mathematical studies in ancient Greece, science was born as knowledge about pure text forms. The next big step in science did not occur until the emergence of modern physics three centuries ago. Then, scientists began using the text of knowledge in new ways. They were no longer content with continually extending and complicating the text of knowledge. Instead, they emphasized clear, short sentences, formalized them with mathematical language, and tested them against reality. Moreover, scientists strove to simplify the whole text of knowledge, discovering more general laws. Modern physics changed how science handled the text of knowledge, and an explosion of knowledge and technological applications resulted.

Text empowers not only knowledge but also human collaboration and cohabitation. For example, the European Union has established an unprecedented, decade-long period of peace in a historically belligerent region. This has been achieved through treaties, democratic rule, and diplomacy, all of which are text-based phenomena.

## Future

I see that the future of text lies in its computerization, especially in the construction of a global computer network as a universal text system. Let’s call it the World Wide Text.

As this name suggests, the World Wide Text will be the successor to the World Wide Web. While the Web consists of a collection of linked webpages, the World Wide Text will consist of a single text repository and text engine. More precisely, it will be perceived and act as a single entity but be implemented as a massively distributed computer network.

The World Wide Text system will be capable of storing and manipulating text at a global scale for numerous purposes. Text is not only writings but also knowledge and algorithms, so the World Wide Text

will include all human writings, knowledge, and software. This integrated system's applications will be scientific, legal, journalistic, diplomatic, personal, and more.

Let's take a look at some examples of these applications. Through digitization, all communication media will converge in the World Wide Text. Instant messaging, books, telephone, television, and other media will no longer be separate technologies as mixed-message forms develop. All information, including reflexive information, will be available in real time from a single source. Tailored, proactive informing will become the leading norm. Readers will not merely consume pre-built content but determine what and how content is presented.

The World Wide Text will be groundbreaking in science. Each discipline will first gather and store its own knowledge in a central repository and then increasingly formalize its knowledge. Many disciplines now mere battlefields for different approaches will advance as they abandon prose and move to formal languages. Even more importantly, the World Wide Text can lead science to definitively overcome the problem of fragmentation. Fragmentation arises when particular persons or groups own particular knowledge. If, instead, practitioners put knowledge in a shared, central repository, then all facts and theories could be evaluated and applied by other disciplines. Disciplines will no longer use private languages no-one else understands but translate their specific language productions to the universal text structure that everyone understands and computers can process. New scientific disciplines transversal to other disciplines will arise, such as the study of methodological issues (which concerns all disciplines and cannot flourish in a fragmented landscape).

The World Wide Text will have similar effects on all of human text production. Gradually, text will no longer consist of chunks physically separated, incompatible and expressed in different languages, notations, and diagrams. Instead, text will consist of a single, integrated unit that can be automatically converted into a myriad of different presentations.

The World Wide Text will have the same kinds of effects as all improvements in text technology. As the written word and the printing press did in the past, the World Wide Text will deepen human understanding, empower human capabilities, and improve human coexistence.

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