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	Sommario/riassunto	For millennia humans have used visible marks to communicate information. Modern examples of conventional graphical symbols include written language, and non-linguistic symbol systems such as mathematical symbology or traffic signs. The latter kinds of symbols convey information without reference to language. This book presents the first systematic study of graphical symbol systems, including a history of graphical symbols from the Paleolithic onwards, a taxonomy

of non-linguistic systems – systems that are not tied to spoken language – and a survey of more than 25 such systems. One important feature of many non-linguistic systems is that, as in written language, symbols may be combined into complex "messages" if the information the system represents is itself complex. To illustrate, the author presents an in-depth comparison of two systems that had very similar functions, but very different structure: European heraldry and Japanese kamon. Writing first appeared in Mesopotamia about 5,000 years ago and is believed to have evolved from a previous non-linguistic accounting system. The exact mechanism is unknown, but crucial was the discovery that symbols can represent the sounds of words, not just the meanings. The book presents a novel neurologically-inspired hypothesis that writing evolved in an institutional context in which symbols were "dictated", thus driving an association between symbol and sound, and provides a computational simulation to support this hypothesis. The author further discusses some common fallacies about writing and non-linguistic systems, and how these relate to widely cited claims about statistical "evidence" for one or another system being writing. The book ends with some thoughts about the future of graphical symbol systems. The intended audience includes students, researchers, lecturers, professionals and scientists from fields like Natural Language Processing, Machine Learning, Archaeology and Semiotics, as well as general readers interested in language and/or writing systems and symbol systems. Richard Sproat is a Research Scientist at Google working on Deep Learning. He has a long-standing interest in writing systems and other graphical symbol systems.