

TRACING THE DEVELOPMENT OF WRITING: A DESCRIPTIVE STUDY
OF SCRIPT SYSTEMSSajid Ali^{*1}, Muhammad Muzammil², Subhan Ahmed³^{*1,2,3} Department of English, University of Lahore, Pakistan¹Sajida1a2l9457@yahoo.com, ²mmuzammil954@gmail.com**Keywords**

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Abstract

This study explores the historical development of writing systems, tracing their evolution from primitive pictograms to alphabetic scripts that underpin many modern languages. It offers a descriptive analysis of the key transitions that shaped writing practices across diverse societies and cultures. By examining historical, cultural, and technological influences, the research highlights the ways in which human communication has been symbolically represented through scripts over time. The study also engages with Chomsky's proposition of Universal Grammar (1960), considering whether the origins of writing systems can be linked to a shared cognitive foundation for language. In doing so, it contributes to understanding writing as both a cultural artifact and a cognitive process, offering insights into the complex interplay between linguistic universals and diverse script traditions.

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INTRODUCTION

Like emoticons, comics, word games, and computer symbols today, pictograms are the ancestors of writing systems. At least four ancient civilizations can be linked to the development of the semiotic concept of pictographic writing systems: Mesopotamia (c. 3400– 3100 BC), Egypt (c. 3250 BC), China (1200 BC), and lowland Mesoamerica (c. 500 BC). The foundation of literacy and the capacity to record, transmit, and preserve information were expressed in the earliest coherent texts of Sumerian archaic (pre-cuneiform) writing and Egyptian hieroglyphs. This was not an abrupt invention, but rather the gradual emergence of earlier traditions of symbol systems into "proto-writing" prior to the evolution of true writing systems. An important milestone in the history of writing systems is the Greek invention of the

alphabet, which highlights the variety and evolution of many writing systems according to the specific language they represent. With each writing system having its own distinct evolution and traits, the history of writing reflects the cultural and technological developments of human civilizations. Universal Grammar Theory is named for Noam Chomsky's belief that all language structures, consistent with the laws of language (grammar), are universally recognized by humans during infancy. Chomsky also championed the idea that all languages could be learned at a young age, regardless of whether an individual is exposed to certain aspects of the language or not, because they are universally similar at their foundations.

Writing systems play a crucial role in human communication by providing a visual representation

of verbal and nonverbal communication. Systematic and composite schemes of language compositions are essential components of human communication in various ways; first, they provide a permanent repository of information; on second, facilitate the transmission of knowledge across generations and cultures; and on third, its evolutionary aspect over the time can meet the changing needs of society. Amongst these patterns are logographic, ideographic, and alphabetic systems.

Pictograms or pictographs, are the graphic symbols that convey meanings through their pictorial resemblance to physical objects. They have been integral to early forms of writing and were used by ancient civilizations such as the Chinese, Sumerian,

Egyptian, and Mayan who primarily had used early prototypes of inscriptions for recording ideas, keeping track of business transactions, and transmitting knowledge.

The earliest known writing system is the cuneiform script, which developed in Mesopotamia around 3400 B.C writing systems underwent drastic changes in form from transcribing spoken language into more accurately handling the data in more abstract terms of systems and techniques. For example, above picture shows the Pictographs, the precursor to cuneiform writing on the early tablets, where signs were written vertically. The hand on the upper right means "to receive" and dots along the top are number.



Examination of the earliest known pictographic symbols and their usage



Examples of Sumerian and Egyptian writing

Sumerian cuneiform sign



Meaning

ox

sun

to go

water

Egyptian hieroglyph



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The earliest known form of pictographic goes all the way back to Stone Age, Aurignacian Era dated back approximately in 2,500,000BCE-10,000BCE. Symbols date back to ancient civilizations such as the Chinese and Sumerian-Babylonian, with some estimates suggesting Chinese pictography may date as far back as the 15th century B.C.E. These early written symbols were based on pictographs, which were pictures resembling what they signified, represented physical objects and were used to communicate ideas. They originated in around 9000 BC in cultures everywhere, including ancient civilizations like Mesopotamia (present Iraq) and Ancient Egypt. That writing system, invented by

the Sumerians, the first people to use cuneiform, emerged in Mesopotamia around 3500BCE. Later on, Cuneiform started functioning phonetically (representing a sound) and semantically (representing a meaning such as an object or concept) rather than only representing objects directly as a picture which were mainly used for record-keeping, legal contracts and religious texts. Egyptian people developed their own system of writing called hieroglyphics which described pictures and symbols. In early writings, Egyptians 'using shapes stood for words- for example, a picture of a sheep represented the word sheep.

Cuneiform: From pictograph to Assyrian				
original pictograph	pictograph in position of later cuneiform	early Babylonian	Assyrian	original or derived meaning
				bird
				fish
				donkey
				ox
				sun, day
				grain
				orchard
				to plow, to till
				boomerang, to throw, to throw down
				to stand, to go

The Ancient Script of Mesopotamia: Cuneiform
Cuneiform and hieroglyphic scripts are two ancient writing systems that have been studied and deciphered in modern times. Cuneiform Script, the script of Sumerians, Babylonians, and Assyrians, which are the emerged civilizations of Mesopotamia, used primarily for writing in the Akkadian language in 3200BCE until the 1st century CE.. It consists of

wedge-shaped signs arranged in a cursive, right-to-left manner. Cuneiform has been deciphered through the work of scholars such as Jean-Jacques de Morgan and Irving Finkel, who compared the shapes and signs in cuneiform inscriptions with those in other known writing systems. Unlike Hieroglyphic, cuneiform includes 600signs which

could had the capacity to form words or represent words or concepts.

1. Hieroglyphic: The Enigmatic and Enchanting Script of Ancient Egypt

Hieroglyphic script is called 'sacred carvings' in ancient Egypt from around 3200BCE until the 4th century CE, is a system of pictorial signs with the combinations of pictograms, ideograms, and phonetic symbols, used mainly for formal texts. Hieroglyphs were used alongside the hieratic script which was used for writing on papyrus for the

purpose of primarily inscribing on stone monuments, temples, and tombs for practical and ritualistic purposes. The study of these ancient writing systems continues to provide valuable insights into the history and culture of the ancient Middle East and Egypt.

2. Pictograms to Ideograms:

Initially, cuneiform was a pictographic system where each symbol represented a specific object. Over time, it evolved into a system of ideograms, where symbols represented concepts or ideas.

3. Syllabic and Logographic:



The representation of a wider range of words and concepts in Cuneiform developed into syllabic component with symbols. All of the great Mesopotamian civilizations used cuneiform until it was abandoned in favour of the alphabetic pattern at some point after 100 BCE, including Sumerians, Akkadian, Babylonian, Elamite, Hatti, Hittite, Assyrian and Hurrian and ideograms, which represent ideas. Some of the best known picture writing systems of ideographic or early mnemonic

symbols include the Jiahu symbols, carved on tortoise shells in Jiahu around 6600 BCE, the Vinča symbols (Tărtăria tablets) around 5300 BCE, and the Early Indus script around 3100 BCE. Pictographs have undergone significant evolution throughout history and are still widely used today in various fields. They often originate as literal drawings of what they depict but can gradually become more abstract.

4. From Pictograms to Ideograms in China:



(Image of Ideogram)

The earliest known inscriptions, hardly containing 10 to 60 characters, incised on the pieces of bones and tortoise shell, genuinely, had been utilizing for oracular divination, (oracle bones of ox scapulae or shoulder blades or turtle plastrons or, under shells to which diviners interpreted as responses from the spirits), dated from the Shang Dynasty (18th-12th century BC). But onward to 1400BC, highly

developed system similar to present day writing system, included to about 2,500 to 3,000 characters. The earliest graphs resembled for example a man standing figure and a woman with kneeling figure were in fact the basic characters or graphs were considered ideographs reprinting ideas than to representing the structures of a language.

5. Pictography in Mesoamerican's petroglyphs:



(Image of pictogram)

The earliest script of Mesoamerica, pictographs, rock art and petro glyphs amongst Olmec civilization in visual communication, was not reformed as were cuneiform or hieroglyphs script. Similar to cuneiform and hieroglyphs, stone, symbols and other artefacts flourished in Gulf region of Mexico, significant for its cultural which were used for religious rituals, record keeping and other social purposes. According to Jessie Kratz,

2019, National Park Services define paintings of images and designs on rocks or in caves as pictographs which used plants and minerals that were ground up and mixed up with liquid and applied with sticks, fingers or hands. Given image shows such scenario; however, such pictograms could survive for little over time elements due to fragile nature of these creations.



(Image of Petro glyphs)

6. Mayan glyphs:



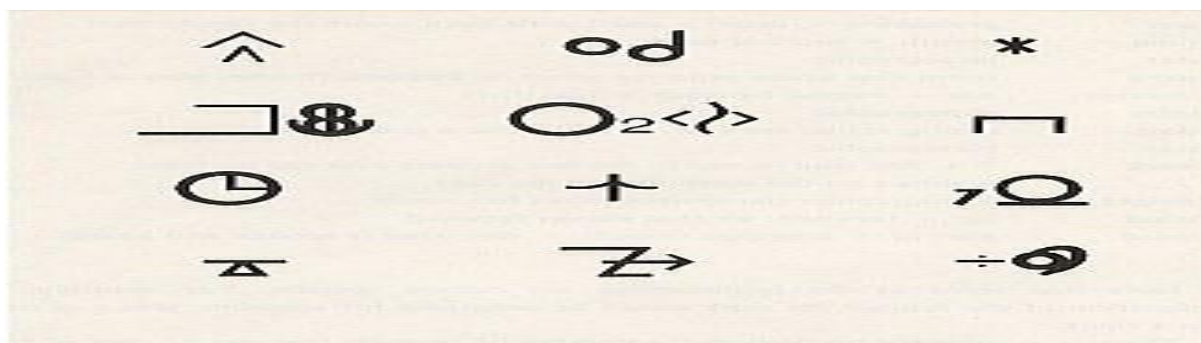
Image of Glyph representing both sounds and ideas

Similar to Hieroglyphs, the writing system used by the ancient Maya civilization, exhibit ideographic characteristics and combines logograms (signs representing words or ideas) and syllabograms (signs representing sounds) which today is no longer in its original form largely manipulated and replaced by Latin alphabet during the Colonial Period, but

still spoken. Efforts are to be made to preserve and promote the its writing systems. Owing writing numerals, more complex calculations for tracking the movement of celestial bodies and keeping track of the passage of time helped the scholar better understand the Mayan script found on stone carvings and stelae.

8. Blissymbols:

A constructed ideographic script called as Semantography, consisting of several hundred basic symbols which primarily represented the concepts in augmentative and alternative symbols.



(Examples of Bliss symbols: son, song, star, store, summer, table, time, tree, week, wind, word)

However, this writing system is different from major writing systems of the world that characters do not respond to all sounds of any spoken language. Charles K Bliss in 1965 published on Semantography which highly helped the children with handicapped in pre-reading communication.

9. IConji:

A constructed ideographic script used primarily in social networking. Ideographic systems are valued not only for their communicative functions but also for their artistic and cultural significance. They can be found in various historical and contemporary contexts, such as in ancient Near eastern cuneiform scripts, Old Persian cuneiform inscriptions, and modern constructed systems like Blissymbols and IConji.



(Image of Old Persian Cuneiform next to immortal Persian soldier in Persepolis, Iran)

Iconji is a pictographic communication type based on an open, visual vocabulary of characters with built-in translations. In modern day, its application is in Apple IOS (iPod, iPad), social networking supports such as Facebook, Twitter, Messenger.

The impact of culture on the evolution of writing systems

The impact of culture on the evolution of writing systems can be observed in various ways, as writing systems are influenced by cultural factors such as language, orthography, economic status, milieu, educational system, diglossia, multilingualism, and multi literacy. Some key aspects of the relationship between culture and writing systems include:

Functional Needs

Keeping the repository of names, dates, histories, events, treaties, laws of yields and so on were the major concerns of the development of writing system. Another strong reason involved behind that development was the perseverance and transmission

of culture which communicated, histories, philosophies, religions through writings.

Communication and Cultural Transmission

Learning the future generation about their ancestral experiences and knowledge, in fact, serve nations to keep them alive through cultural perseverance and transmission.

Identity and Cohesion

It is a universally admitted fact to show the nation representation, integrity and their identity is possible in the fostering sense of identity in repositories only which written scripts can easily convey.

Evolution and Adaptation

The developments of writing in various regions have clearly demonstrated the cultural impact in the form of borrowing, assimilation, and diffuse. For instance, the Arabic script is a descendant of Semitic scripts used in many Middle East languages.

Limitations

First and foremost limitation is found in the relationship between spoken sounds and written symbols or letters that vary from country to country or even within the country among regions which also shows the relationship of language and orthography. For instance, The writing system of Japanese language is a proportionate combination of logographic Kanji characters and syllable hiragana and katakana characters (Keiko Koda & Annette M Zehler, 2008). Furthermore, increased technologies owing to combination of mono lingualism and networks of global trade languages have led the half of the world speaking one of only 13 languages.

Influence of technological advancements on the development of writing systems

Innovations in technology have greatly impacted the evolution of writing systems. The creation of the pen, printing press, computer, and mobile phone has transformed both the content of writing and the methods used to produce it. The progression of writing systems has significantly altered how individuals perceive and retain information. As technology advances swiftly, the assessment and use of cognitive processes are expected to evolve and become increasingly automated.

Examples of Cultural Impact

The need to explore more symbols in writing were due to the following reasons:

I. Ancient Mesopotamia:

Cuneiform writing was closely linked to the administrative and religious practices of Mesopotamian civilization which was in its wedge-shaped symbols.

II. Ancient Egypt:

Hieroglyphics, used for religious texts, royal inscriptions, and everyday communication in ancient Egypt was in intricate symbols and hieratic script.

III. Ancient China:

Logographic writing in Chinese reflects the cultural emphasis on vocabulary and the meaning of words exist in its complex characters,

IV. Greek Alphabet:

The Greek alphabet was adapted to represent the sounds of the Greek language and culture which was evolved from the Phoenician alphabet.

V. Arabic Writing:

The Arabic script reflects the cultural values and aesthetic preferences of Arabic-speaking societies which exist in its elegant calligraphy.

In essence, the development of writing systems is a forceful process shaped by the back-and-forth of practical needs, cultural values, and linguistic features. Writing systems aid as not just tools for communication but also as mirrors that reflect the cultural setting in which they evolve. The study (Rana, M. S. 2025) examines the progression of writing systems from ancient pictographs to contemporary alphabets, emphasizing the significant transformation in human communication. This research utilizes a two-dimensional approach. One aspect analyzes different historical definitions of writing systems, while the other focuses on the various types of writing system development. To convey information, early societies utilized pictographic images, which are simple drawings that depict real objects. As time progressed, these evolved into ideographic systems, where symbols conveyed abstract concepts, and eventually transformed into logographic systems, where characters represented complete words. The emergence of syllabic scripts signified a transition towards phonetic notation, with symbols assigned to complete syllables. The advent of alphabetic systems, particularly the Phoenician alphabet, introduced symbols that represented distinct phonemes, simplifying writing and making it more accessible. The Greek modification, which included vowels, established the foundation for many modern alphabets, such as Latin and Cyrillic. This evolution from specific imagery to abstract phonetic symbols highlights humanity's desire for more effective and accurate written communication.

The book "Writing Systems and Their Use" by Meletis, D., and Dürscheid, C. (2022) offers a detailed examination of the multidisciplinary domain of grapholinguistics, addressing issues

related to both the structure and application of writing systems by integrating linguistic perspectives with psycholinguistic and sociolinguistic viewpoints. Key concepts and ideas are defined and explored using a wide range of writing systems, establishing a comparative framework that is helpful for analyzing any writing system.

Daniels, P. T. (2017) approaches the study of writing systems through a syllabic lens, resulting in a five-category typology that aids in exploring the historical evolution of writing. The five categories of writing systems include logosyllabary, syllabary, abjad, alphabet, and abugida. While it is possible that some or all contemporary West African syllabaries originated through stimulus diffusion, this is highly improbable for syllabaries such as those found in the Caroline Islands and Alaska. The Greek alphabet was the first, and it played a crucial role in shaping Western Civilization. The names of the first two letters in the Greek alphabet, alpha and beta, are the source of the word alphabet. Abjad is an Arabic term that includes the first four characters of its writing system. In an abugida, each symbol denotes a consonant followed by the vowel /a/ or represents a standalone vowel. The academic field that focuses on writing systems is called philology, which examines texts in all their intricacies.

Writing systems, as noted by Sebba (2009), have garnered relatively limited interest from sociolinguists, despite clear links to significant sociolinguistic topics, including ethnicity and identity. Indeed, while there exists considerable research on writing systems approached from a sociolinguistic angle, there is no established framework for a 'sociolinguistics of writing systems' that allows for the examination and comparison of various case studies from social and cultural perspectives. This article aims to discuss and examine the literature on the sociolinguistics of both writing systems and orthographies, drawing from literacy studies that conceptualize writing systems as social practices. The paper examines the phases of writing system evolution where social and cultural factors often have an impact: the initial selection of a script, the time during which the orthography and/or script is created, and after it has become a recognized system in regular usage.

Furthermore, there is an examination of the ways in which social and cultural factors impact and often obstruct attempts to reform writing systems. A writing system consists of a specific set of symbols known as a script, along with the guidelines that dictate how the script represents a specific language. Writing systems can typically be divided based on how their symbols operate within these guidelines, with the most prevalent categories being alphabets, syllabaries, and logographies. Alphabets utilize symbols referred to as letters that align with spoken phonemes. Abjads tend to include only consonant letters, whereas pure alphabets encompass letters for both vowels and consonants. Abugidas employ characters that represent consonant-vowel combinations. Syllabaries feature symbols known as syllabograms that denote syllables or moras. Logographies consist of characters that symbolize meaningful units, such as words or morphemes. Generally, alphabets contain fewer than 100 symbols, while syllabaries and logographies might consist of hundreds or even thousands of symbols, respectively. Writing systems also incorporate punctuation to facilitate understanding and convey extra meaning, including aspects typically expressed verbally like rhythm, tone, pitch, accent, inflection, or intonation.

The first applications of writing were to record agricultural exchanges and agreements in ancient Sumer, but it quickly extended to finance, religion, governance, and legal matters. Writing facilitated the dissemination of these social practices and their related knowledge, leading to an increased centralization of political authority.

Conclusion

Our present shift in social medium appears to revert us to our early past, when images were more effective than verbal language in expressing ideas and concepts. A notable universal characteristic of all writing systems is their lasting quality, as exemplified by the Chinese script, which has remained largely ideographic over time. The primary advantage of writing is that it offers a means for societies to document information, share knowledge, and transform social representations. To gain a more comprehensive overview of the main

findings concerning the evolution of writing systems, it is essential to examine the shift from proto-writing to established writing systems, the progressive transcription of spoken language, the lasting qualities of these systems, and the societal advantages of writing for recording and disseminating information. This overview should also highlight the fact that writing systems have emerged intermittently, unevenly, and gradually, with true writing systems having their origins in proto-writing. Writing systems exhibit both universal and culturally specific aspects in their development. From the use of clay tokens in accounting to the invention of pictographic signs and eventually to alphabets, writing systems have undergone significant transformations globally. This evolution illustrates a slow transition from representing concrete objects to expressing abstract concepts and phonetic sounds. A remarkable commonality among writing systems is their stability; for instance, the Chinese character has maintained its ideographic nature for thousands of years. Nonetheless, there are also unique cultural traits in the development of writing systems. For example, there is a distinct evolution in the Mesoamerican writing system and the Chinese script, each developing independently and retaining unique characteristics, like the enduring nature of the Mesoamerican system and the ideographic essence of the Chinese script. The emergence of alphabetic writing represents a significant cultural achievement, with the first genuine alphabetic writing for Semitic languages appearing around 2000 BCE. In summary, the progression of writing systems reveals both evident cultural advancements such as the unique attributes of the Chinese and Mesoamerican writing systems and universal trends like the transition from pictographs to alphabets and the consistency of writing systems. This research article seeks to enhance our comprehension of the complex and evolving nature of writing systems, illuminating the various paths that different cultures have followed in their pursuit of effective communication through written symbols, including the influences of Mesopotamia (between 3400 and 3100 BCE), Egypt (circa 3250 BCE), China (1200 BCE), and the lowland regions of Mesoamerica (by

500 BCE). The above discussion reflects the findings of emerging all languages from a single one, i.e. the concept of Universal Grammar (UG) that all languages of the world could have a common ancestor which needs to be explored through a deep study of anthropological, syntactic, social and historical investigations. It carries one of the basic thought of UG that all languages are similar at their core, which supports the second proposition that humans can understand the similarities in language even if they are not exposed to the other language. This study simply provides the identified symbols in writing for comparison and the psychological prove that why humans understand each others' symbolic communication as shared through various apps like Whatsapp, Instagram and other sources which develops in them the sense of unity and global imaging while writing from distant places in the world.

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