

Scripts in Contact: Transmission of the First Alphabets

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Abstract. The alphabet is a type of notation which breaks language into small units, attempting to represent its phonological and/or phonetic repertoire. Given that writing is a way of thinking, based on a cognitive activity that requires mental procedures, the aim of this paper is to propose the architecture of the spelling process, described in cognitive and psycholinguistic studies, as a model for the transmission of the alphabet(s).

For this purpose, the reflection is focused on the so-called first alphabets in writing systems' history, i.e., Greek, Anatolian, Italic, and Iberian alphabets, introducing the new linguistic and archeological approaches which allow an earlier date and a less decisive role for the Greeks in the alphabets' introduction.


Ancient literatures' evidence about the teaching of writing and reading are found to match with the current results of cognitive studies about the dynamics of oral reproduction, word recognition, and written reproduction. The peculiarities of Asia minor alphabets, which are still unsolved, will be addressed and framed within the spelling process model.

1. Introduction

Currently, the alphabet is more widespread than any other system of written language.

In company with Chinese characters, the alphabet provides the forms by which all living languages are written: whether Arabic, Bengali, Cyrillic, Devanagari, Greek, Hebrew, Javanese, Latin, or Tibetan or any

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other alphabetic forms, they derive from a common source in the Sinai in the second millennium BC¹ Semitic languages, indeed those in use in the Sinai Peninsula, were the first to be written in alphabetic script².

In spite of this variety in contemporary visual appearance, which is the result of centuries of specialized adaptations,³ all alphabetic forms share a similar structural property: they consist of about twenty-four to thirty signs used to represent the sounds of spoken language. The phonetic principle is at best an approximation, because, while oral forms are continually evolving, the tenacity of the alphabet tends to endure any changes. However, it must be said that no other writing system has the capacity to represent the sound of spoken language with such efficiency and adaptability.

Writing has been associated with evolutionary theory since eighteenth century.

In the late nineteenth century, Isaac Taylor proposed that writing progressed from pictorial and pictographic, through logographic and syllabic forms of writing, to a final and more efficient alphabetic system.

Taylor's scheme was systematized by Ignace Gelb (1963), in his gradualistic and unievolutionary models of script development.⁴ That view implied that writing starts in a pictographic form, then develops first into logographic and then into syllabic writing, and eventually the alphabet is created.

This was the traditional answer to the question of origins, which was directly related to the classification of writing into pictographic (signs as pictorial images of objects or events), syllabic (signs correspond to syllables), and alphabetic (signs correspond to sound segments). This classification recalled the typological classification of languages of that period, into isolating, agglutinative, and inflected.⁵

Afterwards, studies on writing systems began to reconsider the evolutionary "principle of economy aiming at the expression of linguistic

1. To be more precise, all modern natural writing systems derive from either Egyptian hieroglyphs, or from Chinese characters.

2. However, it must be recognised that the acrophonic principle, the decisive turning point for the linguistic notation of signs, has been used since Egyptian hieroglyphs and Sumerian cuneiform attestations (late fourth millennium BC).

3. In many cases such adaptations were fostered by the accurate dedication of Christian missionaries, as for the Gothic alphabet, invented by the Bishop Wulfila in the third century AD.

4. This model was the product of its time, and it was championed by other scholars too (Damerow, 1999; Schmandt-Besserat, 1992; Michalowski, 1993).

5. The comparison between these two classifications is drawn by Cardona (1981, p. 21), who arguably doubted the linguistic classification.

forms by the smallest number of signs” (ibid., p. 69) and the classification of writing.⁶

However, from the archaeological and historical point of view the prevailing opinion seemed to retain the paradigm of a Western supremacy, which saw the alphabet as an introduction made by the Greeks before the eighth century BC (Carpenter, 1933).

2. The First Alphabets and Their Relations

Gelb’s study sowed the seeds for the twentieth century Eurocentric view on the Greek alphabet as civilizing mark in human evolution⁷.

The classicist Eric Havelock (1976; 1982) promoted the idea of Western supremacy linked to alphabetic writing, while the anthropologist Jack Goody (1968) supported the idea of a connection between the alphabet and literacy, reinforcing the consequent formulation that non-alphabetic cultures and predecessors in the Near East who used other forms of writing were distant and cognitively inferior in comparison to the Greeks.⁸

According to the communis opinio, the alphabet was introduced to Greece through the Phoenicians around the eighth century BC (contra Ullman, 1934). Recently, new discoveries and archeological evidence have revealed trade contacts between the Aegean and Eastern Mediterranean (Broodbank, 2013, pp. 870–1314), showing that the necessary infrastructure for transmission of the alphabet was already in place long before the traditional date of its introduction. Linguistic and epigraphic, but here we should called them graphemic and graphematics, studies (Waal, 2018; 2020) have shown that the only argument for a late introduction is the absence of evidence, an *argumentum ex silentio*.

Nowadays a new approach, which allows an earlier date for the introduction of the alphabet and a less decisive role for the Greeks in the transmission, helps to understand relations between the first alphabetic scripts.

What remain still unaddressed are some peculiarities of the Asia minor alphabets that constitute arguments for the Greek thesis.

6. A comprehensive description of all the typological classification of writing is in Borgwaldt and Joyce (2011, pp. 2–6).

7. The idea of evaluating writing systems is quite still common among scholars, as Meletis (2018; 2020, pp. 197–215) illustrates in detail.

8. The “literacy thesis” was promoted by Goody and Watt (1963), Halverson (1992) and Ong (1982), and was based on Havelock’s statements about the cognitive revolution arising from alphabetic literacy.

The still unsolved enigmas are, for instance, the Carian graphemes, which resembled Greek graphemes with deviant sound values, and the Etruscan sibilants signs.

The first case constitutes a clear anomaly in the Anatolian context, for which the “chaos hypothesis” has been proposed: in the adaptation, an arbitrary assignment of phonetic values from Greek graphemes to Carian graphemes took place, maintaining only the external shape of signs. This hypothesis is frustrating and does not clarify why some letters preserve their Greek phonetic value while others did not.⁹

The second case shows the most evident problem with the thesis of the Greek role as intermediate. Etruscan retained both the *sigma* and the *san* letter for the fricative value [s],¹⁰ whereas none of the Greek alphabets contain both these letters (Bonfante and Bonfante, 2002, p. 45).

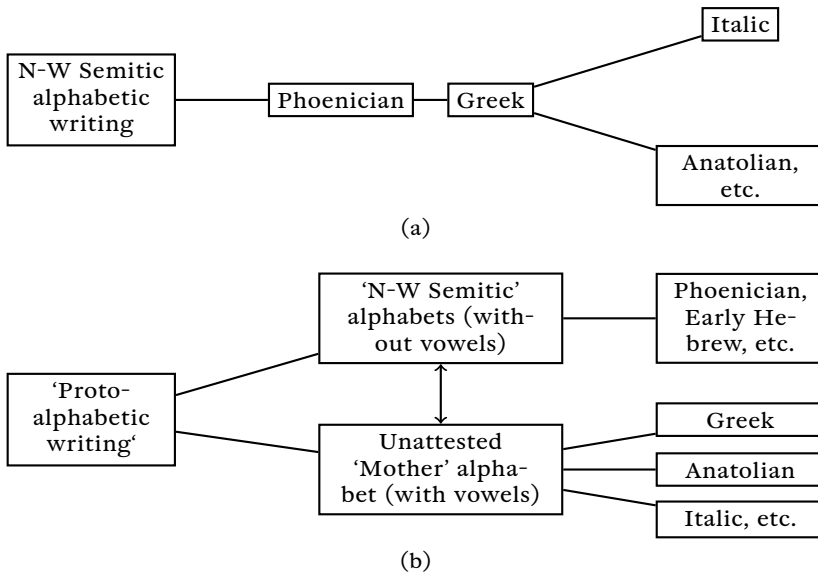


FIGURE 1. (a) Current paradigm simplified. (b) Alternative model simplified (Waal, 2020, p. 119)

These facts are hard to reconcile with the current paradigm. A different scenario (Fig. 1) has been suggested, in which the Anatolian, Italic, and Iberian alphabets did not derive from the Greek alphabet.

9. Car. Ψ [n] / Gr. Ψ, Car. Ν Μ [m] / Gr. Μ, Car. Φ Γ [r] / Gr. Ρ, Car. Ϟ [t] / Gr. Τ, but also Car. Α / Gr. Α, Car. Ο / Gr. Ο, Car. Μ / Gr. Μ [s], Car. Υ / Gr. Υ.

10. Etr. Μ (< «san») and Etr. Σ (< «sigma») for [s].

3. The Alphabet and the Written/Oral Language Relation

The way in which languages are put into writing varies from language to language.

In alphabetical systems the characters tend to refer to minimal units of the sound system, whether they are phonemes or phones. This is the underlying principle that identifies the alphabet from other writing systems.

Notwithstanding that, it is crucial to repeat that no pure writing system exists (Coulmas, 1996), and that differentiating writing systems intends to reassume the relation between linguistic elements (sounds), orthographic elements (signs), and metaphorical referents (“meant” meaning).¹¹

Gelb (1963) saw writing as a contribution to social change, which would necessarily end with mass literacy. In this view he conceived the evolution of writing in a functionalist way: driven by utility and maximization, the best writing system will be the one most efficient to note the language and the one most accessible to the population. Some similarities can be noted between these assumptions and the linguistic economy concept of the nineteenth century.

In the theory of George Kingsley Zipf (1949),¹² any uneconomical change, involving more effort than benefits in terms of communication, will be removed or avoided. In the same direction, André Martinet’s language economy principle (1955) aims at least effort for a particular purpose, seeking a balance between efficient communication and natural human inertia.

The comparison between writing and language evolution is not the main purpose of this paper, but it can be observed that writing systems’ studies has changed their conception of teleological reading in accordance with and on the basis of a different interpretation of linguistic change: Martinet rejected the teleological evolution of languages and preferred a causal explanation of economy, stated by the well-known dictum that “languages change because they function”.

11. With “metaphoric referent” I am trying to reassume the concept of “competenza semantica mediata dal segno scrittorio” (Marazzi, 2016, p. 1) proposed by many pioneering works of linguists (Crump, 1990; Gaur, 1992), semiotics (Harris, 1995; Rotman, 1995), and graphic designers (Kress and Leeuwen, 1996) that proposed a broader view of writing. Given the fact that writing does not record language in its linguistic entirety, writing must be studied separately from its relation to speech (Derrida, 1976, pp. 30–59). Within this view writing is “any systematized graphic activity that creates sites of interpretation” (Rotman, 1995, p. 390).

12. The so-called Principle of Least Effort states that economy is a criterion regulating aspects of human behaviour as well as linguistic evolution. Economy has been considered a factor in phonetic changes too (Sweet, 1888; Passy, 1890; Vendryes, 1939).

Writing is an artefact, a τέχνη. The term τέχνη is derived from IE *teḱ- “to produce,” *te-tḱ- “to build, to timber” (Beekes and van Beek, 2010, p. 1476).

The idea of τέχνη naturally came to denote the artistic capacity for producing artefact. Writing is a techné, so it can be evaluated for its utility.

The widespread use of the alphabet, nowadays the Roman alphabet, cannot be taken as evidence that is the best system because “the spread of a technology is driven by many factors in addition to utility, such as power (market dominance) and ignorance (limited information)” (Coulmas, 2009, p. 8). Moreover and as a consequence of this view, the diversity of coexisting writing systems is often overlooked as mere phases of their evolution.¹³

More recently, classifications of scripts have been proposed by Borgwaldt and Joyce (2011), Daniels (2006; 2018), and Gnanadesikan (2017). They agree upon separating the proper alphabets from scripts that note consonants only, “abjads,” and scripts that note vowels with diacritical marks, “abugidas”. This criterion makes distinctions mainly in the notation of phonemic repertoire.

The early alphabets—Greek, Lycian, Lydian, Carian, and Phrygian—are difficult to fit into this classification, or into the functional model of evolution, because “the alphabetic principle has no magic power which influences the destiny of other forms of writing; as Cuneiform Hittite shows, in the development of writing there is no necessary tendency towards an increasingly exact phonetic rendering of speech” (Morpurgo-Davies, 1986, p. 63). Moreover, vowels’ notation appears to differ in any language and within each language.¹⁴

4. The Transmission

From an anthropological point of view, the alphabet is a very nice example of transmitted tradition through space and time.

For centuries the dominant view here was that the imitation, μίμησις, makes the chain of transmission possible.

Now it is proposed that what makes tradition live is not a general purpose of imitation because cultural transmission is partial, selective, and not faithful. “Some traditions live on in spite of this, because they tap into widespread and basic cognitive preferences. These attractive

13. This kind of argument is often expressed when no writing standard is found. Nowadays in sociolinguistics studies the concept of “standard” itself is debated: the same reasoning should be useful in graphematic studies.

14. Emblematic is the case of Carian defective vocalic notation.

traditions spread, not by being better retained or more accurately transferred, but because they are transmitted over and over” (Morin, 2016). This approach offered the chance to see the predominant role of the alphabet in the story of writing; in particular in the first millennium in Greece, Italy, and Anatolia this kind of annotation has been adapted every time to each different cultural environments. This point reinforces the assumption that transmission means adaptation, and because “linguistic interpretation of graphic symbols always began in the context of and for a particular language” (Coulmas, 2009), in the adaption process there must be some visible linguistic reasons.

In our context, thanks to the lexical root structure of Semitic languages, Semitic alphabets do not need vowel graphemes. Indoeuropean languages, on the contrary, need vowels’ graphemes to mark morphemic contrasts.

From ancient literature, only two pieces of evidence explain the mode of transmission.

Dionysius of Halicarnassus (Περὶ τῶν Ἀττικῶν ῥητόρων, II, 52):

Πρῶτον μὲν τὰ ὀνόματα τῶν στοιχείων τῆς φωνῆς ἀναλαμβάνομεν, ἃ καλεῖται γράμματα· ἔπειτα <τοὺς> τύπους τε αὐτῶν καὶ δυνάμεις¹⁵

and Quintilianus (*Istitutio Oratoria* I, 1, 24-5):

Neque enim mihi illud saltern placet, quod fieri in plurimis video, ut literarum nomina et contextum prius quam formas parvuli discant. obstat hoc agnitioni earum non intendentibus mox animum ad ipsos ductus, dum antecedentem memoriam sequuntur.¹⁶

From these two reports it can be observed that teaching was at first conducted orally, repeating letters’ names, called γράμματα, then visually¹⁷ writing letters’ shapes and, at the same time, orally repeating their

15. “At first we learn the names of sounds’ elements, which are called letters. Then we learn their shapes and sound values”.

16. “At any rate I am not satisfied with the course, which I note is usually adopted, of teaching small children the names and order of the letters before their shapes. Such a practice makes them slow to recognize the letters, since they do not pay attention to their actual shape, preferring to be guided by what they have already learned by rote.”

17. In a process that now can be defined as “graphomotor”. Lambert-Quémart explained very well the different stages of the writing production: “word writing research involves the study of two essential processes, spelling processing and graphomotor processing. Spelling processes refer to the cognitive mechanisms by which words are transcribed into written form while adhering to the orthographic norms of the language. Graphomotor processing is generally defined as the processes involved in letter writing: allographic selection, allograph adaptation in writing support and muscle adjustment of motor programs” (Lambert and Quémart, 2019, p. 9).

sounds. As its name, alpha-bet,¹⁸ implies, it likely that this is the method commonly used in antiquity.¹⁹ It can be deduced that the underlying cognitive processes, both in the spelling and in the visual and motoric composition, have been responsible for the transmission of alphabetic scripts.

From the cognitive point of view, some recent studies on dysgraphia in alphabetic and logographic writing systems, especially Chinese (Bi, Han, Weekes, and Shu, 2007; Law, 1994; Weekes, Yin, Su, and Chen, 2006), have been used to categorize the mistakes in syllabographic and logographic writing systems in old texts.

For our context, recently this has been done for Hittite and Luwian, Anatolian languages of second millennium BC (Cotticelli-Kurras, Pisaniello, and Rizza, 2018).

5. The Spelling Process

Here I will apply this theoretical framework, based upon Caramazza and Miceli (1990),²⁰ on contact and then transmission of scripts, which in this case are alphabets. Therein lies the meaning of the title “scripts in contact”: the contact that must occurred in writers of more than one language, undoubtedly including one Semitic and one Indoeuropean language.

The contact must have included the writer as well as the speaker to facilitate language contact/transmission. Halliwell (1945, p. 174) wrote expressly about the speaker’s mind as centre of the contact, because “is individuals who respond to and influence one another... Individuals are the dynamic centers of the process of interaction”. Weinreich (1953, p. 6) made the same allusion, which Orioles (2008, p. XVII) highlighted.

The schematic representation of the spelling process reported in Caramazza and Miceli (1990, p. 245), in the case of scripts in contact, must be adapted at the moment of transmission of the alphabet between (at least) two different languages, then different phonologies.

18. Unlike the consistent references to ποινικήα / φοινικήα, an adjective that stands for a noun to designate the Phoenician letters, the name ἀλφάβητον is not attested before the Hellenistic period although the adjective ἀναλφάβητος “illiterate” occurs already in the fourth century BC (Jeffery, 1990, p. 40).

19. Regarding Greek alphabet’s learning, Andreas Willi draw the same conclusion: “we may thus assume that Greek pupils already in classical times learned the canonical letter names together with, or even before, the corresponding letter shapes, just as it was the case in later centuries according to Dionysius of Halicarnassus (*Dem.* 52.2.) and Quintilianus (1.1.24)” (2008: 403).

20. This paper was the pioneer of the field, as well as Paillard (1990), Rapp and Caramazza (1997), Rapp and Kong (2002), Nottbusch (2008).

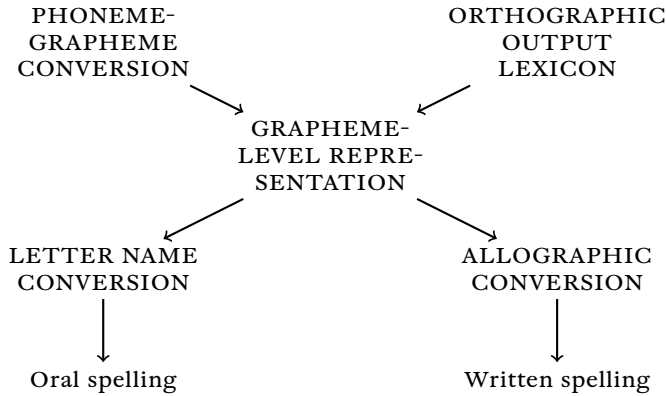


FIGURE 2. The architecture of the spelling process (Caramazza and Miceli, 1990, p. 245)

The first part is the core moment of the transmission that allows the same script to represent another language. This is the moment when the linguistic fit of the script actually proves itself, or, as Florian Coulmas put it best when he wrote, “when, early in the history of writing, graphical marks were given a linguistic interpretation, all writing systems developed a linguistic fit” (2009, p. 12).

The phoneme-grapheme conversion occurs in the reading moment of letters’ names.

Since ancient literatures, Quintilianus’ *litterarum nomina* and Dionysius’ τὰ ὀνόματα τῶν στοιχείων τῆς φωνῆς, also placed this action at the beginning of the learning process, the architecture of the spelling process can be considered as a well-corresponding scheme for the ancient model of teaching.

The orthographic output lexicon occurs when the lexical letters’ names are memorized in the short-term memory (STM).²¹ These two steps constitute the first moment of the teaching method which appeared in ancient sources as discussed previously.²²

The grapheme-level representation corresponds with the visually representation of letters’ names, as perceived aurally and then memorized in the STM. The letters of the Greek alphabet maintain unaltered

21. A storage memory characterized by limited capacity and brief duration. For the main three models of verbal short-term memory see Baddeley (1983; 1986), Besner (1987), and Monsell (1987).

22. The same learning process seems to have been used for the Hebrew alphabet, as Aaron Demsky put it, “there can be no doubt that learning the linear alphabet, by writing the letters in a standard sequence and repeating their names, is the key to alphabetic literacy” (Demsky, 2015, p. 23).

the sequence of the Phoenician signary. This is one of the more solid arguments in favour of the Phoenician origin of the Greek alphabet, which maintain letters' names even if they are meaningless in Greek (Bourgiannis, 2018, p. 238).

In this moment the letters' names have been transmitted as they were in the Semitic language of origin;²³ then these names have then been taken as loanwords, words adopted from one language and incorporated in another one without any translation.²⁴

It is precisely the absence of word meaning that could have disrupted the lexical orthography and then the phonological processing (Houghton and Zorzi, 2003, p. 120)²⁵ of the acrophonic value that results. According to a scholion on Dionysius Thrax (Willi, 2008, p. 404), the indeclinability of the letter names was so strongly felt as non-Greek to encourage a purpose to make the letter names easy to learn for children. The feature of alphabetic writing, which in principle provides more than one way by which a word may be spelled or read, here should have played a great role in the transmission.

Returning to the scheme (Fig. 2), the second part, below the grapheme-level representation, represents the moment of the (re)production.

There we can distinguish the oral and written output.

For the written output, it can admit a "graphemic buffer" (Günter and Ludwig, 1994, p. 1084), a failure of the STM that temporarily holds graphemic representations for subsequent spelling processes as allographic conversion. This intermediate step can explain many cases of allography in the first alphabets.

For instance, the Carian alphabet presents a number very high of letters in comparison to other Anatolian alphabets, about 34/35 different

23. As consequence of the predominant phonetic interpretation of alphabetic scripts, focus has been on the sounds denoted by the letters, instead of their names. This was the ratio for the absence of translation for the Semitic letter names too, "because the acrophonic principle was so useful, it was out of the question to translate the Semitic names" (Willi, 2008, p. 412). This observation again held the possibility of an oral transmission of the then-called alphabet as a poem or a song, learned by heart and only in Hellenistic times studied by the increased interest in various aspects of language and writing, which arose from the spread of literacy in Greece.

24. The Phoenician names were indeed only superficially hellenized, adding -α in names ending in a final consonant (*ʔalp* < ἄλφα, *bēt* < βῆτα) or simplifying not-admitted consonantal groups (*gaml* < γάμμα).

25. George Houghton and Marco Zorzi stated that the final spelling is determined by the combined output of both sound-to-spelling conversion and frequency-sensitive lexical route. In this regard, nonword or lower-frequency words differ in spelling regularity: "it is worth noting that the disruption of lexical orthographic and phonological processing in semantic dementia appears to be tightly linked to the loss of word meaning" (2003).

letters (cfr. Adiego Lajara, 2018, p. 12). This singular trait of Carian is indeed the attestation of different local varieties, for which Ignasi Adiego Lajara (2013) illustrated the epigraphic ratio in the unity underlying these local varieties, explaining all the cases of allography, which otherwise would constitute arguments for a notably high number of letters for the Carian alphabet.

For the final written output, the pronunciation of letters' names are analyzed, through the phonological mediation of the writer's language, and stored in a graphemic output lexicon (GOL), a long-term memory for words in which spelling is now acquired.²⁶

The GOL determines the written output and implementation in comparison to the script model (S1).

In our case we should assume that phonological mediation produced the different sound value for the same letters in the languages involved. This phenomenon is particularly clear for vowels' signs between Lycian and Greek.

Phoenician	Greek	Lycian	
𐤀	A	𐤁	𐤂
	[a]	[a]	[ã]
𐤁	E	𐤃	𐤄
		[e]	[ẽ]
	[e]	E	
		[i]	

FIGURE 3. Vocalic signs in Phoenician, Greek and Lycian alphabet

From Fig. 3 it can be observed that signs for [a], [e] and [i] are morpho-graphically equal, but these similarities in shapes are not reflected nor maintained by the oral output of these languages.²⁷ The comparison between Greek adaptation and Lycian adaptation serves as an example of how the phonological mediation of the writer's L1 influences in the spelling process.

For instance, the case of the arrow grapheme, also used in Phrygian and Lydian, has been indicated as [æ] due to the correspondence in Greek: Lyc. ↑ / Gr. α (*El[puw]eti*, Ἐλπόατις; *Erttimeli*, Ἀρτέμηλις; *Huzeimi*,

26. Here all learned spellings are stored, ready to be written down. Once the spelling is learned through the phonological mediation and memorized, it is not likely to change. This is the reason why orthographic mistakes are the hardest to not repeat.

27. Except for [a] signs, which are in all these alphabets equal both in shape and in sound.

᾽Οσάιμις); Lyc. ↑ / Gr. ε (*Tikeukēprē*, Τισευσέμβρα; *Xesñtedi*, Κεσίνδηλις); Lyc. ↑ / Gr. η (*Erttimeli*, Ἀρτέμηλις; *Xesñtedi*, Κεσίνδηλις)²⁸.

However, the context of the contact should have been Asia minor, and consequently the phonology to take into consideration should be Anatolian Greek. Claude Brixhe (1987, p. 49) studied the vocalism of Anatolian Greek and highlighted the alternation between α, ε and η as case of hypercorrection due to an “influence de l’école”.

This explanation permits the retention of a more common vocalic value [e] for Lyc. ↑, taking into consideration that the Greek correspondences were easily alternated and that, because ε and ι were often used as if they were interchangeable,²⁹ Greek α seemed nearer to [e] than ε itself.³⁰

Returning to the spelling process scheme (Fig. 2), the oral output comprises two different inputs: auditory and visual. Recently attention has been focused on the STM in the phonological coding.

Baddeley (1986) proposed a model for the storage of oral material which comprises a phonological storage called phonological short-term store (PSTS) and an articulatory loop.

The scheme in Nickels, Howard, and Best (1997, p. 162) presents Baddeley’s model combined with the two different kinds of input (Fig. 4).

At first we can admit the auditory input, through which the phonological information gains direct access to the phonological short-term store (PSTS) which is responsible for the speech output lexicon (SOL); whereas verbal material through visual input, must be re-coded by the articulatory loop in order to be held in the PSTS.

Once these new alphabets³¹ acquired a certain degree of complexity, they became more and more associated with the language (Coulmas, 2003), and, at this point, the adaptation would involve the addition of new signs for phonemes and/or phones that were still not represented, either with the creation of signs or with modification or implementation of signs that are already part of the alphabet, and this case can be the proof of the links between graphomotor processing and spelling during

28. Here the Greek versions of Lycian names are written with the (plausible) prosodic notation, in accordance to Greek prosodic laws. This editorial choice has been made in order to express, with the most cautious attitude, both how Greek wrote Lycian names (for this reason we used Greek alphabet and not IPA characters) and how Greek could have read them, given the fact that stress is highly distinctive and involved in phonology.

29. For instance Μιννέαν/Μεννέαν, εἰρις/ἰερεῖς, εἶσεν/εἶσιν, πυήσε/πυήσει, χάρεν/χάριν, τρές/τρίς.

30. Adiego Lajara (2018) more accurately defines the adaptation of writing systems, using Boisson’s “principe de stabilité” for his analysis.

31. They can be defined as “new” due to the fact that no writing system ever came into existence independent of a particular language (Damerow, 2006, Gnanadesikan, 2009).

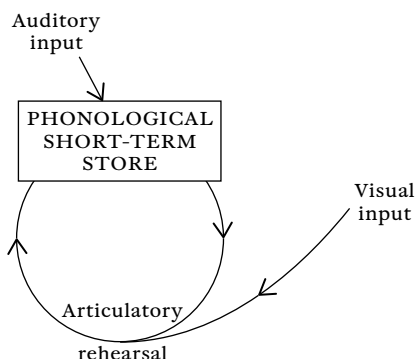


FIGURE 4. PSTM model for oral spelling (Nickels, Howard, and Best, 1997, p. 162)

the learning of writing.³² Moreover, between oral and written spelling there are reciprocal relations: the written language cannot ignore the spoken language, perhaps because of the practices of reading aloud and of dictation. In this continuously renewed relationship, written and oral spelling can influence each other.

6. Conclusion

Ignace Gelb, even though he attached great importance to alphabetic script, recognized its autonomy from language and, at the same time, its inadequacy to represent the spoken language:

Even the alphabet, the most developed form of writing, is full of inconsistencies in the relations between sign and sound. [...] However, the general statement that full writing expresses speech should not be taken to mean that it expresses nothing else but speech. (Gelb, 1963, p. 15)

The aim of this paper was to frame and explain the transmission of the very first alphabetic scripts into the more recent results of cognitive and psycholinguistic studies about word production and recognition, phonological, and written spelling in order to highlight the role of teaching and learning process for the transmission of the alphabet and to support the most recent arguments for an independent origin of non-Greek alphabets.

For the sake of this purpose, the focus has been made on the linguistic counterpart of alphabetic signs.

For the inherent phonetic nature of the alphabet, there must be some linguistic reason for its evolution. Goody (1968) defined writing as “the

32. I am referring to the Carian signs β [m.b/m.p], δ [n.d/n.t], and γ [n.k], which could be the graphemic reduplication of, respectively, signs b [b], d [d], k [k] (cf. Adiego Lajara, forthcoming).

technology of the intellect,” while the alphabet, for what has been described up to now, could be called “the technology of the language” but always considering that, with the invention of the alphabet, writing did not lose its autonomy and did not place itself purely at the service of the spoken language.

References

- Adiego Lajara, I.X. (2013). “Unity and Diversity in the Carian Alphabet.” In: *Euploia. La Lycie et la Carie antiques. Dynamiques des territoires, échanges et identités. Actes du colloque de Bordeaux, 5–7 novembre 2009*. Bordeaux: Ausonius, pp. 17–28.
- (2018). “Local Adaptations of the Alphabet among the Non-Greek Peoples of Anatolia.” In: *Studi Micenei ed Egeo-anatolici, Supplemento 1*. Rome: Quasar, pp. 145–162.
- (forthcoming). “Consonant clusters, defective notation of vowels and syllable structure in Caromemphite.”
- Baddeley, A.D. (1983). “Working memory.” In: *Philosophical Transactions of the Royal Society of London* 302, pp. 311–324.
- (1986). *Working memory*. Oxford: Oxford University Press.
- Beekes, R. and L. van Beek (2010). *Etymological Dictionary of Greek*. Leiden: Brill.
- Besner, D. (1987). “Phonology, lexical access in reading, and articulatory suppression: A critical review.” In: *Quarterly Journal of Experimental Psychology* 39, pp. 467–478.
- Bi, Y. et al. (2007). “The interaction between semantic and the nonsemantic systems in reading: Evidence from Chinese.” In: *Neuropsychologia* 45, pp. 2660–2673.
- Bonfante, G. and F. Bonfante (2002). *The Etruscan Language: An introduction*. 2nd ed. Manchester: Manchester University Press.
- Borgwaldt, S.R. and T. Joyce (2011). *Typology of Writing Systems*. Amsterdam: John Benjamins.
- Bourgiannis, G. (2018). “The Transmission of the Alphabet to the Aegean.” In: *Change, Continuity and Connectivity. North-Eastern Mediterranean at the turn of the Bronze Age and in the early Iron Age*. Ed. by Ł. Niesiołowski-Spanò and M. Węcowski. Wiesbaden: Harrassowitz Verlag, pp. 235–257.
- Brixhe, C. (1987). *Essai sur le grec anatolien au début de notre ère*. Nancy: Presses universitaires de Nancy.
- Broodbank, C. (2013). *The Making of the Middle Sea. A history of the Mediterranean from the beginning to the emergence of the classical world*. London: Thames & Hudson.
- Caramazza, A. and G. Miceli (1990). “The structure of graphemic representations.” In: *Cognition* 37, pp. 243–297.

- Cardona, G.R. (1981). *Antropologia della scrittura*. Turin: Loescher.
- Carpenter, R. (1933). "The antiquity of the Greek alphabet." In: *American Journal of Archaeology* 37, pp. 8–29.
- Cotticelli-Kurras, P., V. Pisaniello, and A. Rizza (2018). "Writing in Focus: mistakes as traces of cognitive behavior and more... in some Anatolian languages of the 2nd millennium BCE." In: *64^e Rencontre Assyriologique Internationale, Innsbruck*. Gladbeck: PeWe-Verlag.
- Coulmas, F. (1996). *The Blackwell encyclopedia of writing systems*. Oxford: Blackwell.
- (2003). *Writing Systems. An Introduction to their Linguistic Analysis*. Cambridge: Cambridge University Press.
- (2009). "Evaluating merit—the evolution of writing reconsidered." In: *Writing Systems Research* 1, pp. 5–17.
- Crump, T. (1990). *The Anthropology of Numbers*. Cambridge: Cambridge University Press.
- Damerow, P. (1999). *The Origins of Writing as a Problem of Historical Epistemology*. Berlin: Max-Planck-Institut für Wissenschaftsgeschichte.
- (2006). "The Origins of Writing as a Problem of Historical Epistemology." In: *Cuneiform Digital Library Journal* 1, pp. 1–10.
- Daniels, P. (2006). "On "Beyond alphabets"." In: *Written Language and Literacy* 9.1, pp. 7–24.
- (2018). *An exploration of writing*. Bristol: Equinox.
- Demsky, A. (2015). "The Interface of Oral and Written Traditions in Ancient Israel: The Case of Abecedaries." In: *Origins of the Alphabet: Proceedings of the First Polis Institute Interdisciplinary Conference*. Ed. by C. Rico and C. Attucci. Newcastle upon Tyne, England: Cambridge Scholars Press, pp. 23–31.
- Derrida, J. (1976). *Of grammatology*. Delhi: Motilal Banarsidass.
- Gaur, A. (1992). *A History of Writing*. New York: Charles Scribner's.
- Gelb, I. (1963). *A Study of Writing*. Chicago: The University of Chicago Press.
- Gnanadesikan, A.E. (2009). *The writing revolution: Cuneiform to the internet*. Malden, MA: Wiley-Blackwell.
- (2017). "Towards a typology of phonemic scripts." In: *Writing Systems Research* 9.1, pp. 14–35.
- Goody, J. (1968). *Literacy in Traditional Societies*. Cambridge: Cambridge University Press.
- Goody, J. and I. Watt (1963). "The Consequences of Literacy." In: *Comparative Studies in Society and History* 5.3, pp. 304–345.
- Günter, H. and O. Ludwig (1994). *Schrift und Schriftlichkeit / Writing and its Use. Ein interdisziplinäres Handbuch internationaler Forschung*. Berlin: De Gruyter.
- Halliwell, A.I. (1945). "Sociopsychological Aspects of Acculturation." In: *The Science of Man in the World Crisis*. Ed. by R. Linton. New York: Columbia University Press, pp. 171–200.

- Halverson, J. (1992). "Goody and the implosion of the literacy thesis." In: *Man* 27, pp. 301–317.
- Harris, R. (1995). *Signs of Writing*. New York: Routledge.
- Havelock, E.A. (1976). *Origins of Western Literacy*. Toronto: Ontario Institute for Studies in Education.
- (1982). *The literate revolution in Greece and its cultural consequences*. Princeton: Princeton University Press.
- Houghton, G. and M. Zorzi (2003). "Normal and impaired spelling in a Connectionist dual-route architecture." In: *Cognitive Neuropsychology* 20.2, pp. 115–162.
- Jeffery, L.H. (1990). *The Local Scripts of Archaic Greece*. Oxford: Clarendon Press.
- Kress, G. and T. van Leeuwen (1996). *Reading Images: The Grammar of Visual Design*. New York: Routledge.
- Lambert, E. and P. Quémart (2019). "Introduction to the special issue on the dynamics of written word production: methods, models and processing units." In: *Reading and Writing* 32, pp. 1–12.
- Law, S.P. (1994). "The structure of orthographic representations of Chinese characters: From the perspective of the cognitive neuropsychological approach." In: *Bulletin of Institute of History and Philology* 65, pp. 81–130.
- Marazzi, M. (2016). "Le relazioni fra lingua e scrittura nelle civiltà dello spazio iscritto [Relations between language and writing in ancient literate societies]." In: *Actes sémiotiques* 119, pp. 1–21.
- Martinet, A. (1955). *Économie des changements phonétiques. Traité de phonologie diachronique*. Bern: Francke.
- Meletis, D. (2018). "What is natural in writing? Prolegomena to a Natural Grapholinguistics." In: *Written Language and Literacy* 21.1, pp. 52–88.
- (2020). *The Nature of Writing. A Theory of Grapholinguistics*. Vol. 3. Grapholinguistics and Its Applications. Brest: Fluxus Editions.
- Michalowski, P. (1993). "Tokenism." In: *American Anthropologist* 95, pp. 996–999.
- Monsell, S. (1987). "On the relation between lexical input and output pathways for speech." In: *Language perception and production: Common processes in listening, speaking, reading and writing*. Ed. by D.A. Allport et al. London: Academic Press.
- Morin, O. (2016). *How Traditions live and dies*. Oxford: Oxford University Press.
- Morpurgo-Davies, A. (1986). "Forms of writing in the ancient Mediterranean world." In: *The Written Word. Literacy in Transition*. Ed. by G. Baumann. Oxford: Oxford University Press, pp. 55–77.
- Nickels, L., D. Howard, and W. Best (1997). "Fractionating the Articulatory Loop: Dissociations and Associations in Phonological Recoding in Aphasia." In: *Brain and Language* 56, pp. 161–182.

- Nottbusch, G. (2008). *Handschriftliche Sprachproduktion: Sprachstrukturelle und ontogenetische Aspekte*. Tübingen: Niemeyer.
- Ong, W. (1982). *Orality and Literacy: The Technology of the word*. New York: Methuen.
- Orioles, V. (2008). "Premessa [Introduction]." In: *Lingue in contatto [Languages in Contact]*. Ed. by U. Weinreich. Torino-Novara: Utet, pp. ix–lxxiv.
- Paillard, J. (1990). "L'écriture: le cerveau, l'œil et la main, *Actes du colloque international du Centre National de la Recherche Scientifique, Paris, Collège de France 2, 3 et 4 Mai 1988*." In: *Bibliologia* 10, pp. 23–51.
- Passy, P. (1890). *Étude sur les changements phonétiques et leurs caractères généraux*. Paris: Firmin-Didot.
- Rapp, B. and A. Caramazza (1997). "From graphemes to abstract letter shapes: Levels of representation in written spelling." In: *Journal of Experimental Psychology: Human Perception and Performance* 23.4, pp. 1130–1152.
- Rapp, B. and D. Kong (2002). "Revealing the component functions of the graphemic buffer." In: *Brain and Language* 83, pp. 112–114.
- Rotman, B. (1995). "Thinking Dia-Grams: Mathematics, Writing, and Virtual Reality." In: *South Atlantic Quarterly* 94.2, pp. 389–415.
- Schmandt-Besserat, D. (1992). *Before Writing: From Counting to Cuneiform*. Austin: University of Texas Press.
- Sweet, H. (1888). *A history of English sounds from the earliest period*. Oxford: Clarendon Press.
- Ullman, B.L. (1934). "How old is the Greek alphabet?" In: *American Journal of Archaeology* 38.3, pp. 359–381.
- Vendryes, J. (1939). "Parler par économie." In: *Mélanges de linguistique offerts à Charles Bally*. Genève: Georg & C^{ie}, pp. 49–62.
- Waal, W. (2018). "On the "Phoenician letters": The case for an early transmission of the Greek alphabet from an archaeological, epigraphic, and linguistic perspective." In: *Aegean Studies* 1, pp. 83–125.
- (2020). "Mother or sister? Rethinking the origin of the Greek alphabet and its relation to the other "western" alphabets." In: *Understanding Relations Between Scripts II. Early Alphabets*. Ed. by P.J. Boyes and P.M. Steele. Oxford: Oxbow Books, pp. 109–124.
- Weekes, B. et al. (2006). "The cognitive neuropsychology of reading and writing in Chinese." In: *Language and Linguistics* 7.3, pp. 595–617.
- Weinreich, U. (1953). *Languages in contact*. New York: Linguistic Circle of New York.
- Willi, A. (2008). "Cows, Houses, Hooks: The Graeco-Semitic Letter Names as a Chapter in the History of the Alphabet." In: *The Classical Quarterly* 58.2, pp. 401–423.
- Zipf, G.K. (1949). *Human Behavior and the Principle of Least Effort*. Cambridge, MA: Addison-Wesley.