



BRILL

MNEMOSYNE 78 (2025) 748-755

MNEMOSYNE

A Journal
of
Classical Studies

brill.com/mnem

Herodotus and the Critical Period for Language Acquisition

Edward Nolan | ORCID: 0000-0002-5711-0951

Department of Foreign Languages and Literatures,

National Taiwan University, Taipei, Taiwan

edwardnolan@ntu.edu.tw

Received 5 November 2023 | Accepted 6 December 2023 |

Published online 15 May 2025

The Greek historian Herodotus shows strong interest in foreign languages, demonstrated *inter alia* through his various glosses on Egyptian words (e.g. 2.62.3), his recording of an Egyptian linguistic experiment that determined that the Phrygians were the world's oldest people (2.2.2-3), and his infamously erroneous and naïve insistence that all Persian names end in the letter sigma (1.139). Modern evaluations of Herodotus' linguistic observations range from those which focus on the historian's linguistic incompetence, like Meyer 1892, 192-195 and Harrison 1998, to those which defend his thoughts on language despite a few acknowledged inaccuracies, like Campos Daroca 1992 and Miletto 2008. A third approach, exemplified by Munson 2005, focuses on what Herodotus' treatment of foreign languages reveals about his approach to foreign peoples. Here I propose Herodotus' implicit awareness of an idea associated with modern linguistics.¹ Namely, Herodotus seems to understand that children and infants are better equipped to learn languages than adults, an idea that is comparable to the modern critical period hypothesis about language acquisition. Herodotus demonstrates this understanding through anecdotes about how the Sauromatae came to speak a particular variant of Scythian, the origins of a class of interpreters in Egypt, and the Egyptian king Psammetichus' famous language experiment. While Herodotus does not explicitly advocate the view that infants and children are better language learners than adults, his narrative

1 For another comparison between Herodotus and modern linguistic theories, see Nolan 2021 on language contact in the *Histories*.

depends on this concept in these three examples, showing at least a passive awareness of the linguistic phenomenon.

As it relates to language, the critical period hypothesis proposes that there is a limited window during which humans are uniquely primed to acquire language. Though there are theories regarding both first- and additional-language acquisition, research is primarily able to test and validate the hypothesis regarding second languages and beyond.² The critical period hypothesis was first expressed by Eric Lenneberg:

[A]utomatic acquisition from mere exposure to a given language seems to disappear [after puberty], and foreign languages have to be taught and learned through a conscious and labored effort.³

Scholars of language today still debate the specifics of the critical period hypothesis. Adult learners do not show less proficiency than children in some aspects of language, but what concerns us here is the overarching idea that children before puberty are able to “achieve a proficiency in a second language, phonetics and phonology included, that allows them to be taken for native speakers of that language, while this is extremely rare in adult learners.”⁴ Modern linguists furthermore distinguish between infants, who have not yet learned to speak, and children who must continue to do so until the window closes at adolescence. Herodotus is generally not specific enough about language phenomena to invite a detailed and specific comparison with the modern theory. Nevertheless, what bears noting is Herodotus’ apparent awareness that both infants and children’s language learning ability is superior to that of adult learners. This idea emerges several times in the *Histories* in relation to both first and additional languages.

A first example occurs in Book Four when Herodotus narrates how the Sauromatae came to speak an ‘incorrect’ variety of Scythian. The episode demonstrates adults’ difficulty learning a new language and the ability of children to absorb language from infancy. According to Herodotus, the Sauromatae descend from Amazon mothers and Scythian fathers.⁵ The Scythian husbands are unable to learn the language of their Amazon wives (τὴν δὲ φωνὴν τὴν μὲν τῶν γυναικῶν

2 Hyltenstam 2011, 238.

3 Lenneberg 1967, 176.

4 Hyltenstam 2011, 238.

5 Archaeological evidence for warrior women north of the Black Sea suggests a historical basis for the Amazons that appear in Herodotus and other Greek historians and geographers. See Man 2018, the chapters in Schubert and Weiss 2013, and especially Mayor 2014. For the archaeological evidence, see Apakidze et al. 2009 and Lebedynsky 2009.

οἱ ἄνδρες οὐκ ἔδυνάτο μαθεῖν), while the Amazons acquire the Scythian language only imperfectly (Hdt. 4.114). Specifically, Herodotus states that:

φωνῇ δὲ οἱ Σαυρομάται νομίζουσι Σκυθικῇ, σολοικίζοντες αὐτῇ ἀπὸ τοῦ ἀρχαίου, ἐπεὶ οὐ χρηστῶς ἐξέμαθον αὐτὴν αἱ Ἀμαζόνες.⁶

The Sauromatae use the Scythian language, but they have spoken it badly ever since their origins, because the Amazons did not learn it well.

Crucially, while there is no direct evidence for the children's ability to learn this altered variety of Scythian without difficulties of their own, the sentence's last clause places blame for the Sauromatae's 'bad' Scythian squarely upon the adult Amazons.⁷ Herodotus thus suggests that, while the adults in this example are either unable to learn new languages or can do so only badly, their children (presumably from infancy) learn from the adults without any apparent challenges.⁸

The idea that children are better language learners is also important in Book Two, when the Pharaoh Psammetichus settles in Egypt the Ionian Greek and Carian mercenaries who helped bring him to power. This episode pertains to additional language acquisition, and unlike the other two examples, the language learners are children but not infants. Settling the mercenaries in twin colonies across the Nile from each other, he names this place 'The Camps' and gives Egyptian children to the foreigners to learn their languages (Hdt. 2.154.1). These children are the ancestors of a class of interpreters that Herodotus claims is still part of Egyptian society in his own day:

καὶ δὴ καὶ παῖδας παρέβαλε αὐτοῖσι Αἰγυπτίους τὴν Ἑλλάδα γλώσσαν ἐκδιδάσκεισθαι· ἀπὸ δὲ τούτων ἐκμαθόντων τὴν γλώσσαν οἱ νῦν ἑρμηνέες ἐν Αἰγύπτῳ γεγόνασι.⁹

6 Hdt. 4.117. This and all other translations are by the author.

7 On the nuances of the word σολοικίζω used here, see Nolan 2021, 577. Thomason 2004, 3 identifies this as the earliest attested example of language change through imperfect learning. Discussions of the passage by classical scholars often invoke pidgins and creoles. See Gammage 2009, 164-165 and Munson 2014, 350.

8 Also salient is the fact that the first Sauromatae learn to speak from their mothers instead of their fathers, an example of Herodotean women's role as maintainers of cultural traditions. See Blok 2002, 235; Dewald 1981. See also Hdt. 6.138, where Athenians captured by the Lemnians teach their children Greek language and customs, transforming them into Athenians who beat and claim to rule their Pelasgian counterparts.

9 Hdt. 2.154.2.

And what is more, he gave them Egyptian children to learn Greek. From these ones who learned the language the current interpreters in Egypt are descended.¹⁰

While he does not explicitly theorize about the matter, Herodotus' remarks on this use of children to create a class of interpreters suggests an understanding that children are more capable of learning languages than adults. Through this narrative, Herodotus further supposes that Psammetichus shares this understanding.

A final passage provides more ambiguous evidence for Herodotus' awareness of something akin to a critical period.¹¹ This is the famous story of Psammetichus' experiment to determine the world's oldest people (Hdt. 2.2.1).¹² Psammetichus hypothesizes that, if newborns are kept in isolation, whatever language they speak will be that of the world's first people.¹³ The king gives two newborn children to a herdsman to raise, ordering him to isolate them in an empty hut (Hdt. 2.2.2). The babies are to be kept almost completely isolated, and most importantly, nobody should speak in their presence. Still, the infants have obvious physical needs, and the herdsman is to bring goats to the babies at a designated time to feed them. The infants' first word, *βεχός*, initially puzzles the king (Hdt. 2.2.3). Psammetichus concludes, after discovering that *βεχός* is the Phrygian word for bread, that the Phrygians are the world's oldest

10 For an overview of the historical Psammetichus, see Spalinger 1976; 1978. These interpreters appear again during a list of hereditary Egyptian classes at Hdt. 2.164.1: ἔστι δὲ Αἰγυπτίων ἐπτά γένη, καὶ τούτων οἱ μὲν ἱερεῖς, οἱ δὲ μάχιμοι κεκλέαται, οἱ δὲ βουκόλοι, οἱ δὲ συμβῶται, οἱ δὲ κάπηλοι, οἱ δὲ ἐρμηνεῖς, οἱ δὲ κυβερνήται.

11 Unlike the two previous examples, this incident has been previously linked to the critical period hypothesis, notably by the linguists Feldman, Goldin-Meadow, and Gleitman 1978, as noted by Stevens 2016, 278. However, as Thomas 2007, 12-21 shows, while modern linguists frequently retell the story as a humorous anecdote, often with minor inaccuracies, they primarily do so only to show that the ancients were also interested in the origins of language and to show the superiority of modern linguistics. For example, see Tartter 1986, 556 and Rymer 1994, 4.

12 The story probably also appeared in the work of Herodotus' predecessor Hecataeus and is popular in post-Herodotean Greek literature. See Asheri, Lloyd and Corcella 2007, 242; De Meulenaere 1951, 47; Stevens 2016, 287-291.

13 Several later monarchs are said to have performed versions of the experiment, including the Holy Roman Emperor Frederick II, James IV of Scotland, and the Mughal Emperor Akbar. On the reception of the experiment see Stevens 2016 and Thomas 2007. If children do not encounter language during the critical period, they will struggle to learn any language. However, Senghas and Coppola 2001 show that even in the absence of spoken input they can still learn a sign language or even, with the help of other children, create their own.

people.¹⁴ On the surface, this example could imply that Herodotus believes that infants have an innate knowledge of Phrygian, which is only displaced upon learning a native language. However, Herodotus' story is more plausibly read as a joke in which βερός is the punchline. The babies do not cry out in Phrygian for bread but rather imitate the bleating of their goat caretakers.¹⁵ This pun finds support in comic fragments in which the bleating of sheep is represented by the onomatopoeia *bē*, the sound Herodotus' Greek audience likely associated with bleating and close enough to βερός for jocular purposes. A fragment from the comedian Cratinus reads:

ὁ δ' ἡλίθιος ὥσπερ πρόβατον βῆ βῆ λέγων βαδίζει.¹⁶

The foolish man goes around saying *bē bē* like a sheep.

The mismatch between what the infants have been subsisting on, milk, and what they have supposedly requested, bread, also supports interpreting the account humorously. Why would they ask for bread when they presumably do not even know that it exists?

Construing this passage as a joke provides evidence that Herodotus understood infants to be better than adults at learning languages. In the anecdote, Psammetichus interprets as Phrygian what is really a first vocalization modeled after the babies' goat nurses. While modern linguists do not consider animal communication to constitute language, which they consider a uniquely human phenomenon, the linguistic distinction between humans and non-human animals was less clear for the Greeks when it came to non-Greek languages such as Phrygian and Egyptian.¹⁷ For example, Herodotus (4.183.4) describes a people

14 Phrygian inscriptions support the claim that βερός is the Phrygian word for bread. See Brixhe 1982, 243-244; Haas 1966, 157-172; Orel 1997, 85.

15 Modern scholarship advocating the "joke" interpretation includes Lateiner 1989, 38, Vannicelli 1997, 216, and Miletta 2008, 142. Against this interpretation see Gera 2003, 68-71 and Harrison 1998, 33-34. On the episode see also Campos Daroca 1992, 49-55 and Salmon 1956. See especially Thomas 2010, 197-198, who reads the episode unironically to argue that Herodotus believed in an innate human language. In particular, he argues that Herodotus must have known other versions of the story in which the babies learned their first words from the goats but chose to present an (unironically) innate-language version of the story anyway.

16 Cratinus, fr. 43. Also compare the Homeric *μηγάδας αἶγας*. On puns in the *Histories*, among others see Powell 1937. See Dewald 2006 for humor in Herodotus.

17 While the Greeks were more willing than modern linguists to imagine speaking animals, they still closely associated language and humanity. See Stevens 2016, 278.

in the Libyan desert who shriek like bats.¹⁸ Under this view of language, we may see the babies in Herodotus' story as beginning to acquire a non-human language. Herodotus implies that infants are so primed to learn language that they will even pick it up from animal caregivers in the absence of other input.

These three anecdotes demonstrate children and infants' ability to learn language more effectively than adults, implying an unacknowledged early awareness of something like the critical period. Adults' diminished capacity for language learning is depicted in the difficulties of the Amazon wives and their Scythian husbands in the story of the Sauromatae. The same story, along with that of Psammetichus' experiment, shows infants' great aptitude for language. The Egyptian interpreters' origin story indicates that this aptitude also extends to children beyond infancy and to the acquisition of additional languages. This conclusion raises the question of whether the awareness apparent in Herodotus' narrative stems from uniquely apt observations about language acquisition or whether it is the byproduct of a more general view of the subject among the historian's contemporaries. That Herodotus appears to take this idea for granted, treating it as something unremarkable, suggests the latter. He presents something like the critical period more by implication than by explicit argument. Another factor suggesting the prevalence of this idea during Herodotus' time is his attribution of the knowledge to Psammetichus, when he creates the Egyptian interpreter class, despite his linguistic foolishness, ridiculed in the goat episode. Nevertheless, broader research would be necessary to show more definitively that an idea of something like the critical period is not unique to Herodotus but rather a common belief of his time.¹⁹

Bibliography

Apakidze, J., Govedarica, B., Hänsel, B. and Savva, E.N. (2009). Amazonenmythos im Spiegel der eisenzeitlichen Grabfunde zwischen Pontus und Karpatenbecken. In: J. Apakidze, B. Govedarica, B. Hänsel and E.N. Savva, eds., *Der Schwarzmeerraum vom Äneolithikum bis in die Früheisenzeit (5000-500 v. Chr.)*, Rahden, pp. 253-272.

18 Sometimes the overlap between animal communication and human language could also extend to Greek, as in the case of Ctesias, the late fifth-century-BCE Greek doctor at the court of the Persian King Artaxerxes II, who claimed that there were parrots in India that had the ability to speak human languages including Greek (*FGrH* 688 F 45.8): γλώσσαν ἀνθρωπίνην ἔχει καὶ φωνήν ... διαλέγεσθαι δὲ αὐτὸ ὥσπερ ἀνθρώπων Ἰνδιστί, ἀν δὲ Ἑλληνιστί μάθηι, καὶ Ἑλληνιστί.

19 I would like to acknowledge Sosi Segal Lepejian and Tiffany Wang for reading and providing feedback on this miscellaneum. Thank you also to my anonymous reviewer for the kind feedback.

- Asheri, D., Lloyd, A.B. and Corcella, A. (2007). *A Commentary on Herodotus*. Oxford.
- Blok, J.H. (2002). Women in Herodotus' *Histories*. In: E.J. Bakker, I.J.F. de Jong and H. van Wees, eds., *Brill's Companion to Herodotus*, Leiden/Boston/Cologne, pp. 225-242.
- Brixhe, C. (1982). Palatalisations en grec et en phrygien. *BSL* 77, pp. 209-249.
- Campos Daroca, J. (1992). *Experiencias del lenguaje en las Historias de Heródoto*. Almería.
- De Meulenaere, H. (1951). *Herodotos over de 26ste dynastie (II, 147-III, 15)*. *Bijdrage tot het historisch-kritisch onderzoek van Herodotos' gegevens in het licht van de Egyptische en andere contemporaine bronnen*. Leuven.
- Dewald, C. (1981). Women and Culture in Herodotus' *Histories*. *WS* 8, pp. 93-127.
- Dewald, C. (2006). Humor and Danger. In: C. Dewald and J. Marincola, eds., *The Cambridge Companion to Herodotus*, Cambridge/New York, pp. 145-164.
- Feldman, H., Goldin-Meadow, S. and Gleitman, L. (1978). Beyond Herodotus. The Creation of Language by Linguistically Deprived Deaf Children. In: A. Lock, ed., *Action, Symbol, and Gesture. The Emergence of Language*, London, pp. 351-414.
- Gammage, S. (2009). Herodotus and Language. *Akroterion* 54, pp. 161-169.
- Gera, D.L. (2003). *Ancient Greek Ideas on Speech, Language, and Civilization*. Oxford.
- Haas, O. (1966). *Die phrygischen Sprachdenkmäler*. Sofia.
- Harrison, T. (1998). Herodotus' Conception of Foreign Languages. *Histos* 2, pp. 1-45.
- Hyltenstam, K. (2011). Critical Periods. In: P.C. Hogan, ed., *The Cambridge Encyclopedia of the Language Sciences*, Cambridge, pp. 238-240.
- Lateiner, D. (1989). *The Historical Method of Herodotus*. Toronto.
- Lebedynsky, I. (2009). *Les Amazones. Mythe et réalité des femmes guerrières chez les anciens nomades de la steppe*. Paris.
- Lenneberg, E. (1967). *Biological Foundations of Language*. New York.
- Man, J. (2018). *Searching for the Amazons. The Real Warrior Women of the Ancient World*. New York.
- Mayor, A. (2014). *The Amazons. Lives and Legends of Warrior Women across the Ancient World*. Princeton.
- Meyer, E. (1892). *Forschungen zur alten Geschichte*. Hildesheim.
- Miletti, L. (2008). *Linguaggio e metalinguaggio in Erodoto*. Pisa.
- Munson, R.V. (2005). *Black Doves Speak. Herodotus and the Languages of Barbarians*. Washington, DC/Cambridge, MA.
- Munson, R.V. (2014). Herodotus and Ethnicity. In: J. McNerney, ed., *A Companion to Ethnicity in the Ancient Mediterranean*, Oxford, pp. 341-355.
- Nolan, E. (2021). Athenians, Amazons, and Solecisms. *Language Contact in Herodotus*. *AJP* 142, pp. 571-596.
- Orel, V.E. (1997). *The Language of Phrygians. Description and Analysis*. Delmar/New York.
- Powell, J.E. (1937). Puns in Herodotus. *CR* 51, pp. 103-105.
- Rymer, R. (1994). *Genie. A Scientific Tragedy*. New York.
- Salmon, P. (1956). L'Expérience de Psammétique. *LEC* 24, pp. 321-329.

- Schubert, C. and Weiss, A., eds. (2013). *Amazonen zwischen Griechen und Skythen. Gegenbilder in Mythos und Geschichte*. Berlin.
- Senghas, A. and Coppola, M. (2001). Children Creating Language. How Nicaraguan Sign Language Acquired a Spatial Grammar. *Psychological Science* 12, pp. 323-328.
- Spalinger, A.J. (1976). Psammetichus, King of Egypt. I. *JARCE* 13, pp. 133-147.
- Spalinger, A.J. (1978). Psammetichus, King of Egypt. II. *JARCE* 15, pp. 49-57.
- Stevens, B.E. (2016). Not beyond Herodotus? Psammetichus' Experiment and Modern Thought about Language. In: J. Priestley and V. Zali, eds., *Brill's Companion to the Reception of Herodotus in Antiquity and Beyond*, Leiden, pp. 278-297.
- Tartter, V.C. (1986). *Language Processes*. New York.
- Thomas, M. (2007). The Evergreen Story of Psammetichus' Inquiry into the Origin of Language. *Historiographia Linguistica* 34, pp. 37-62.
- Thomas, O. (2010). Ancient Greek Awareness of Child Language Acquisition. *Glotta* 86, pp. 185-223.
- Thomason, S.G. (2004). Determining Language Contact Effects in Ancient Contact Situations. In: M.Á. Gallego, P.B. de la Peña, E.R. Luján and S.T. Tovar, eds., *Lenguas en contacto. El testimonio escrito*, Madrid, pp. 1-14.
- Vannicelli, P. (1997). L'esperimento linguistico di Psammetico (Herodot. II 2). C'era una volta il frigio. In: R. Gusmani, M. Salvini and P. Vannicelli, eds., *Frigi e frigio. Atti del 1º Simposio internazionale, Roma, 16-17 ottobre 1995*, Rome, pp. 201-217.