

[Author's note:

The following document is the draft of a paper exactly as it was submitted to the journal *Scientific Reports*'s "Matters Arising" vertical, for responses to articles published in said journal. This submission was "desk-rejected" by the senior editor, for the following reason (we quote from the rejection letter):

Our main criterion for consideration of Matters Arising is the degree to which the comment provides interesting and timely scientific criticism and clarification of a Scientific Reports publication. In the present case, while we appreciate the interest of your comments to the community, we do not feel that they advance or clarify understanding of the paper by Ferrara et al. to the extent required for publication in Scientific Reports. Namely, while we appreciate the discussion of whether rongorongo should conceptually be considered or not a true writing system, this point does not necessarily fall within the scope of the Ferrara et al. study, which focused on the origin and dating of rongorongo.

For more discussion, see the following post on Language Log:

[https://languagelog.ldc.upenn.edu/nll/?p=63139.](https://languagelog.ldc.upenn.edu/nll/?p=63139)]

Was *rongorongo* an independent invention of writing?

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Ferrara et al. report on the results of a study of several specimens of *kohau rongorongo*, the enigmatic, undeciphered texts of Easter Island (also known as Rapa Nui). These texts, inscribed on wood—mostly driftwood that washed ashore on the island—may have numbered in the hundreds during the mid 19th century, when the system is known to have been in use. Roughly two dozen inscribed artifacts survive today. Ferrara et al. claim, on the basis of carbon dating, that one of these was inscribed before European contact in the 18th century, and thus represent "one of the few independent inventions of writing in human history". We argue that there is not yet sufficient evidence to regard *rongorongo* as an invention of writing.

It has long been an open question whether *rongorongo* was first developed before or after European contact in the 18th century; if the system was developed after contact, then there is a possibility that its invention was a case of stimulus diffusion [1] rather than an independent invention. Ferrara et al. [2] (henceforth, F24) estimate that the wood used for one tablet, known as tablet D, or Échancrée, is from a tree felled during the 15th century. If the wood (an African species, *Podocarpus latifolius*) somehow made it to Easter Island in the period from the 15th to before the early 18th centuries, and if it was inscribed with glyphs during that period, then clearly *rongorongo* was an independent invention. As the authors admit, the dating of the wood merely provides a *terminus post quem* for this text's creation. Échancrée was not discovered in its archaeological context, and we do not know how or when or how the wood actually reached the island nor when it was inscribed, and F24 provide no specific proposals regarding these matters. While one cannot draw many firm conclusions from such results, they are consistent with F24's proposal that *rongorongo* is yet another instance of a very rare phenomenon in human history: the "pristine" invention of writing by a culture not in contact with any other literate culture.

But is this conjecture warranted? In order to answer that one needs to be much clearer on what this rare event consisted of. Putting Easter Island to one side, writing is known to have been invented in four ancient cultures: Mesopotamia, Egypt, China and Meso-America. It has even been suggested that Egypt may have borrowed the idea (though not the details) of writing from Mesopotamia [3]. Some would add the Indus Valley as a possible fifth site of invention, but thus far nobody has convincingly demonstrated that the cryptically short Indus Valley texts were a true writing system.

But what does "true writing system" mean? Humans have invented hundreds if not thousands of symbol systems that convey some sort of meaning, but what is rare was the discovery that one could use symbols not for their meaning but for their sound. The first step of this process is the so-called *rebus principle*, whereby one can write "I can see you" as    , and this principle ultimately lead scribes to discover that a word can be decomposed into a sequence of semantically-meaningless units of sound, units that can be used to organize a writing system. This realization—in some sense the discovery of phonology itself—was made in every one of the pristine inventions mentioned above, and it is this discovery that has so rarely occurred in human history. All of these ancient systems were *mixed* systems in that they had symbols used for their meaning, or to represent individual words, but they also had symbols that were used for their sound(s). Indeed, as DeFrancis [4] argues, there is no way to construct a true writing system without being able to notate phonological information—if by writing one means the ability to notate in graphical form basically anything one might say out loud.

Now there are some who take a more *inclusivist* view of writing opposed to the *exclusivist* view that we sketched in the previous paragraph. Powell [5], for example, defines writing as “a system of markings with a conventional reference that communicates information”, a definition that does not even mention the notion “language”. On that definition, writing could include mathematical or musical notation, road signs, or Ikea assembly instructions, and thus there have been hundreds if not thousands of “writing systems” that have been invented, some by non-literate cultures. But if one adopts this broad view of what writing constitutes, then the pristine invention of “writing” was not rare at all.

This brings us back to *rongorongo* and F24's central thesis. To date it has not been demonstrated that *rongorongo* was a writing system in the exclusivist sense discussed above. Many researchers have attempted to decipher *rongorongo* as a mixed semantic-phonetic system along the lines of Sumerian, Egyptian, Ancient Chinese, or Mayan. Yet no one has yet succeeded in proposing more than tentative suggestions about possible interpretations of a handful of *rongorongo* glyphs.

The most recent attempt is by Davletshin [6], who uses evidence from “cross-readings” (cases where different glyphs are inter-substitutable in identical environments, and where one finds multiple instances of these patterns) to suggest that the language underlying the system was “East Polynesian”. Yet the set of proposed readings is very small, and many of them seem equivocal at best. As Davletshin himself notes, *rongorongo* presents as ideal a situation as a would-be decipherer could hope for. There is a lot of text—several thousand glyphs spread over a few dozen tablets, all of it digitized; we know what language the islanders spoke, and we know a lot about its structure; and, a great deal is known from ethnographic studies about how the texts were used. If the system was a true writing system in the exclusivist sense, why has it been so resistant to decipherment? If on the other hand it was some sort of mnemonic system—like Dakota winter counts, Australian message sticks or Lukasa memory boards [7]—then any attempt to decipher it as a semantic-phonetic writing system is bound to fail.

So while F24 might be correct that *rongorongo* was invented prior to European contact and therefore could not have been inspired by outside influences, nothing in their demonstration proves that its invention falls into the category of rare invention that characterized the known invention of writing in Mesopotamia, Egypt, China, or Meso-America. F24 see *rongorongo* as a parallel to these inventions, and while they may well believe that *rongorongo* does indeed fit that bill, the evidence provided is not sufficient to justify this claim. If and when the system is successfully deciphered as a true writing system, then and only then will that claim be justified.

References

[1] Langdon, R. and Fischer, S. R. 1996. Easter Island's 'deed of cession' of 1770 and the origin of its *Rongorongo* script. *The Journal of the Polynesian Society* **105**, 109–124.

[2] Ferrara, S. et al. 2024. The invention of writing on Rapa Nui (Easter Island). New radiocarbon dates on the Rongorongo script. *Scientific Reports* **14**, 2794.

[3] Daniels, P. 2006. Three models of script transfer. *Word* **57**, 371–378.

[4] DeFrancis, J. 1989. *Visible Speech: The Diverse Oneness of Writing Systems*. Honolulu: University of Hawaii Press.

[5] Powell, B. 2009. *Writing: Theory and History of the Technology of Civilization*. Chichester: Wiley-Blackwell.

[6] Davletshin, A, 2022. The script of Rapa Nui (Easter Island) is logosyllabic, the language is East Polynesian: Evidence from cross-readings. *The Journal of the Polynesian Society* **131**, 185–220.

[7] Sproat, R. 2023. *Symbols: An Evolutionary History from the Stone Age to the Future*. Cham, Switzerland: Springer Nature.

Author contributions

KG & RS contributed equally to the analysis, writing, and review of the manuscript text.

Additional information

The authors declare no competing interests.

Data availability

No datasets were generated or analyzed during the current study.