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Why do people give credit to pseudoscientific name etymologies?

Mariann Slíz
ELTE Eötvös Loránd University, Budapest, Hungary

Kitti Hauber
ELTE Eötvös Loránd University, Budapest, Hungary
HUN-REN Hungarian Research Centre for Linguistics

Dávid Wendl
ELTE Eötvös Loránd University, Budapest, Hungary

Abstract: Name etymologies often appear in pseudoscientific texts as evidence supporting non-scientific views concerning the origin of languages. The paper introduces research examining considerations that govern laypeople's decisions to believe certain etymologies. This research is based on a questionnaire containing Hungarian toponyms with alternative etymologies (the scientific one and two false interpretations). The informants were Hungarian high school students. Their task was to select the most credible interpretations and identify the factors behind their decisions. The research results may promote a scientific understanding of naive scientific thinking and the exploration of some causes behind the success of pseudoscientific name interpretations.
Keywords: pseudoscience, etymology, naive scientific thinking, questionnaire.

1. Introduction

Pseudoscientific works (i.e. works that formulate theories or assumptions and/or use methods that are erroneously communicated as scientific) appear in all fields of science. In the case of linguistics, history and archaeology, prehistory is the central area of pseudoscientific interest, at least in Hungary. Self-proclaimed researchers often base their arguments on etymological solutions that do not follow the methods and principles of scientific etymology. Among the linguistic elements analysed using pseudoscientific approaches, place names and personal names are found in large numbers, as they play an essential role in narratives focusing on Hungarians' heroic past.

Recently, Réka Imreh (2014, 2015, 2019; Spolárné Imreh 2022) have provided a thorough overview of the function of these pseudoscientific name interpretations (we deliberately do not call them etymologies) and their role in these narratives. However, no survey has been conducted on which tools or explanation details

convince laypeople. The research of the Onomastic Student Study Circle of ELTE Eötvös Loránd University (Budapest, Hungary)[1] intends to fill this gap – at least partially, as a first step: the central intention of our questionnaire survey among Hungarian high school students is to reveal the criteria according to which these students choose between etymological interpretations of the selected place names. In the following, we briefly introduce the most relevant characteristics of pseudoscientific name interpretations, present our research methods, and finally highlight some aspects covered in the research, showing our study results.

2. The main characteristics of pseudoscientific name interpretations

Pseudoscientific name interpretations typically serve ideological purposes (for an overview of their possible goals and functions in a historical overview with ample data, see Imreh 2019: 53–60). Their authors are typically aware of linguistic methods and results but largely ignorant of their details they misinterpret and misapply or consciously refuse to apply them.

At the same time, pseudoscience does not aim to undermine the general belief in the authority of science since it also depends on the survival and spread of society's trust in science. On the contrary, to appear reliable, it assumes the guise of science, imitating its methods and external characteristics. Pseudoscientific authors will use scientific-like terms. Still, these terms (usually their own creations) are imprecise, and their meaning is typically undefined. Their use is often restricted to a single author, or if used by several authors, they frequently have different meanings. Like scientific texts, pseudoscientific ones also refer to works that appear to be scientific literature. Still, their references do not follow professional norms. The works cited are pseudoscientific, taken from non-scientific works (e.g. fiction) or do not exist. Pseudoscientific texts prefer to cite authorities whose authority is either based on their extra-scientific greatness (e.g. significant historical figures) or they misuse doctoral titles and create bogus affiliations. The argumentation of pseudoscientific texts is typically heuristic, based on intuitions, associations and everyday experience (e.g. Komoróczy 1976; Veszelszki and Falyuna 2019: 40–41; Falyuna 2022: 132–135; Falyuna and Krekó 2022: 18–19; Kutrovácz 2022: 36).

In the 21st century, the internet is increasingly becoming the primary source of scientific information (or presumed scientific data). Open access and the easy and rapid exchange of information between recipients results in the unhindered spread of pseudoscientific views. Due to their (mostly) short length, plain language, simple statements and suggestive titles, such content is much more appealing than complex, prosaic, voluminous content based on detailed and complicated scientific reasoning and abundant, accurate data. In addition, a wide range of different considerations, beliefs, ideologies, motivations, etc. – both social and individual – may also be behind

[1] Project leader: Mariann Slíz. Members of the Onomastic Student Study Circle who participated in the project: Roland József Balogh, Eszter Fazekas, Kitti Hauber, Julianna Péteri, Viktória Simon, Dóra Steinmacher, Kornél József Szabados, Adél Szenohradszki, Dávid Wendl.

the content we give credit to (Boudry and Braeckman 2011: 6–7; Boudry et al. 2015: 1181–1182; Gelfert 2018: 111; Veszelszki and Falyuna 2019: 40–41).

3. The aim and method of the research

Our research aims to explore the basis for declaring an explanation reliable when faced with a choice between several solutions communicated as equally scientific. Although we study this in the context of the etymology of Hungarian place names we selected ourselves, our results can also be interpreted in a more general context, since most of the factors we investigate appear in all pseudoscientific texts.

We provided a questionnaire to 17–18-year-old high school students at four research sites (i.e. in four towns in different parts of Hungary): the Premontrei Szent Norbert High School in Gödöllő, the Herman Ottó High School in Miskolc, the Türr István High School and College in Pápa, and the Perczel Mór High School and College in Siófok.

The paper questionnaires were filled in during the 2019/2020 school year, followed by electronic data entry and annotation in the 2020/2021 school year. A detailed evaluation is currently underway. Completing the anonymous questionnaires was supervised by teachers in the classroom, with parental consent. Of the 367 respondents, 29% completed the questionnaire in Gödöllő, 28% in Miskolc, 24% in Siófok and 19% in Pápa. 59% were male, 40% female and 1% did not respond.

The questionnaire contained the etymologies of 11 real Hungarian place names. First, students had to choose the interpretation they regarded as correct from three possible explanations. In all cases, one of the choices was the correct etymology. The other two were from some pseudoscientific source or an explanation created by us since self-created content was needed to reflect all the aspects to be included in the scope of the study.

The purpose of the study was not to assess the proportion of students who chose the correct etymology; we were interested in the reasoning behind their choice. Therefore, the previous sub-task was followed by an open-ended question: "Why do you think this is the correct answer?" Several factors could be selected at once, and space was provided for individual short responses in addition to those listed.

As a third sub-task, respondents were asked to indicate on a four-point Likert scale how confident they were in their choice. This could provide valuable information for understanding the relative roles of the different factors.

4. Results

4.1. The impact of paracomparative linguistic affinity theories

Pseudoscientific place-name and personal-name etymologies are most typically found in paracomparative language affinity theories[2] as evidence of the ancient, non-Finno-Ugric origin of the Hungarian language (for a thorough analysis of these,

[2] Language affinity theories that contradict the etymological "formula" of a language in

see Spolárné Imreh 2022). The interpretations of *Dera-patak,* one of the place names in the study, were therefore linked to various languages frequently mentioned in para-comparative theories of linguistic affinity to reveal how convincing they were to the data providers. The three possible interpretations were as follows:

> "1. The Sumerian word *dera* means 'black valley'. Later, Hungarians fleeing from the Turkish conquest from the south of Hungary took the name with them to Székely Land, where it was often given to mountain streams in the mountains.
> 2. The name comes from the Japanese language, where the word *tera* means 'shrine'. In Hungarian, the phoneme *t* became voiced. In many religions, including Japanese Buddhism, water is believed to have soul-cleansing powers.
> 3. The word *dera* is derived from Persian (*darjä,* originally meaning 'sea, lake, stream') and was transmitted from Ottoman (*dere* 'valley, torrential stream, drying bed of a mountain stream') to Hungarian through Serbian (*dera* 'stream, ravine, valley')."[3]

The absolute majority of the respondents (65.3%) selected the scientific etymology (the 3rd one) and were the most confident (average certainty of 2.5 on the four-point Likert scale). Less encouraging, however, is that nearly a third of the respondents (29.8%) chose the Sumerian interpretation, with only a slightly lower average certainty (2.4). Few students were convinced by the Japanese interpretation (4.9%, moderate confidence: 1.9).

In the second sub-task, the following factors influencing the decision could be chosen:

> "1. the dry and scientific nature of the wording
> 2. the sounding of the word because it is appropriate to the given language
> 3. the meaning of the word on which the name is based
> 4. the relationship between Hungarian and the given language
> 5. Other: ..."[4]

Of the factors marked by those who chose Sumerian as an explanation, the relationship between the two given languages was the most convincing, at 27%

question developed and canonised by the community of linguists using scientific methods (see Hegedűs 2002: 397, 400).

[3] The language of the questionnaire was Hungarian. The original interpretations are as follows: "1. A sumér *dera* szó jelentése 'fekete völgy'. Később a török hódítás elől menekülő délvidéki magyarok vitték magukkal e nevet a Székelyföldre, s az ottani havasokban gyakran adták hegyi patakoknak. 2. A név a japán nyelvből származik, amelyben a *tera* szó 'szentély'-t jelent. A magyarban a *t* hang zöngésedett. A víznek számos vallásban, így a japán buddhizmusban is lélektisztító erőt tulajdonítanak. 3. A *dera* szó a perzsából (*darjä,* eredeti jelentése: 'tenger, tó, folyam') kiindulva az oszmánon át (*dere* 'völgy, záporpatak, hegyi patak kiszáradó medre') szerb közvetítéssel (*dera* 'patak, szakadék, völgy') került a magyarba."

[4] In Hungarian: "1. A megfogalmazás száraz és tudományos volta. 2. A szó hangzása, mert megfelel az adott nyelvének. 3. A név alapjául szolgáló szó jelentése. 4. A magyar és az adott nyelv kapcsolata. Egyéb: …"

(39 responses);[5] those who accepted this view have undoubtedly encountered Sumerian-Hungarian affinity theories before and presumably find them plausible. This is all the more likely because the meaning of the etymon was the most convincing factor in the case of the other two interpretations (50% of the responses marked for the Japanese origin [11 responses] and 32% for the scientific etymology [101 responses]). At the same time, the relationship between the languages was only the third most convincing factor for the Japanese origin (14%, 3 responses) and the second for the scientific etymology (24%, 77 responses). However, a significant portion of those who preferred the Sumerian explanation chose not the Sumerian origin but the meaning of the etymon (23% of the responses) as an influencing factor, 35% of the responses were connected to one of the other two factors and 15% to other factors. These results reveal that the choice of Sumerian etymology alone does not necessarily imply total identification with Sumerian-Hungarian affinity theories.

The number and variety of responses in the "other" category are also worth noting. 59 respondents wrote textual comments next to the three interpretations, representing only 16% of the respondents. Most comments related to the train of thought, typically referring to the basis on which the respondents excluded the other two interpretations. Compared to the four factors provided by us, these comments distinguish seven new sets of factors: guessing; emotional aspects (e.g. "I like the Japanese people and language"); plausibility (e.g. "I ruled out the others because they don't sound plausible"); formal aspects related to the wording of the explanation (e.g. too complicated; "because the bracketed solution is typical of a dictionary"); the logic of the argument (e.g. "it seemed the most logical answer"); persuasive/unpersuasive historical or geographical information; knowledge or lack of it (e.g. "I cannot decide because all the origins seem plausible without proper background knowledge"; "I know the origin of the name"). As we can see, a significant part of these is based on intuition or an emotional approach.

Let us compare the average number of factors respondents indicated for each interpretation of origin (the total number of responses to the factors in Subtask 2 divided by the number of respondents who chose that interpretation in Subtask 1). We reach the following picture:

Table 1. Number of responses per capita for the factors influencing the choice between the interpretations of the name *Dera-patak*

Interpretations	Number of factor responses per capita
1. from Sumerian	1,31
2. from Japanese	1,22
3. scientific etymology	1,32

This suggests that the respondents typically did not weigh up several factors before deciding, with the majority basing their decision on only one factor.

[5] Since more than one factor could be selected, 100% in this section is not the total number of respondents but the total number of responses they marked.

4.2. The impact of the authorities cited

Since a characteristic feature of pseudoscientific texts is the imprecise reference to (typically non-scientific) authorities to support their arguments, we examined the influence of the author or work cited on the respondents' decision concerning another place name in the questionnaire, *Pilismarót*. We, therefore, added an imprecise reference to each of the three name interpretations:

> "1. Before the Hungarian conquest of the Carpathian Basin, it [the place] was named after the Khazar chieftain who ruled in Bihar and was called *Ménmarót* by the Hungarians because he kept several wives. (Hungarian Anonymous)
> 2. The place was famous for its cobblers, who used tannic acid to finely burn animal skins. (Dr. Géza Tóth)
> 3. From the Czech personal name *Moravec,* meaning 'Moravian', or the Polish personal name *Morawiec,* or from the Old Hungarian ethnonym *marót* meaning 'Moravian' (Földrajzi nevek etimológiai szótára 'Etymological Dictionary of Geographical Names')."[6]

The scientific etymology, in this case, was also the third one. Here, we have deliberately not given the author's name, Lajos Kiss, since we were interested in how convincing a dictionary (FNESz., presumably unknown to most of them) could be for the respondents. Interpretation 1 related to Hungarian Anonymous, whose 13th-century Gesta Hungarorum on the Hungarian conquest was long considered historically authentic and essential to understanding the nation's early history. We hypothesised that many laypeople – having not read the work and not knowing the results of scientific works refuting the authenticity of most events and people described in it – still consider Anonymous an authentic and authoritative source. In interpretation 2, we referred to a person we had invented. The choice of a typical Hungarian surname and a first name, also not uncommon among older men, was intended to fit the stereotype we had assumed about scientists (older, serious men).

The title *Dr.* completes the name: although its use in references in the humanities is not customary or may even be considered a norm violation, it suggests professional authority to laypeople not familiar with unwritten scientific norms. Especially when started with a capital letter: in our experience, there is a great deal of uncertainty among laypeople about the difference between *dr.* and *Dr.* Although the difference is purely orthographic, the public associates a difference in value with it, obviously considering the capitalised version more significant.[7]

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[6] In Hungarian: "1. A honfoglalás előtt a Biharban uralkodó kazár vezérről kapta a nevét, akit *Ménmarót*-nak neveztek a magyarok, mert több asszonyt is tartott. (Anonymus) 2. A hely híres volt a vargáiról, akik csersavat használtak, hogy finomra MARják az állatbőrt. (Dr. Tóth Géza) 3. A 'morva' jelentésű cseh *Moravec,* illetve lengyel *Morawiec* személynévből, vagy pedig a szintén 'morva' jelentésű régi magyar *marót* népnévből ered. (Földrajzi nevek etimológiai szótára)"

[7] Cf. e.g. a post on the consultative website on orthography of the Hungarian Academy

On the one hand, the results are encouraging: 71.4% of the respondents (260 people) chose the correct etymology with a relatively high degree of confidence (2.52 average certainty). On the other hand, a not insignificant proportion of respondents, almost one-fifth (19.2%, 70 respondents), accepted the interpretation by Anonymous, and there were 34 students (9.3%) who found the interpretation of the nonexistent Dr. Géza Tóth the most appropriate.

Of course, it does not follow that the reference convinced all of them. This was the most decisive factor for those who chose the correct etymology, with 37% of responses (124).[8] For the interpretation linked to Anonymous, it was only the second most substantial factor (32%, 27 responses), with the first being the persuasiveness of the historical information (37%, 31 responses). However, since this (in fact, not credible) historical information also comes from Anonymous, the two options can be combined; thus, the influence of Anonymous must have been powerful indeed (69%, 58 responses). As a counter-example, it should be noted that among the self-written comments, one explained that Anonymous was not a reliable source. Yet another respondent correctly indicated that there are no such accurate sources from the time of the conquest. In the case of Dr. Géza Tóth's interpretation (the least preferred option), the source was considered authentic in almost a third of the responses (29%, 10 responses). Dr. Tóth was thus much less convincing (but still worthy of consideration) than Anonymous or the dictionary.

We also examined the comments under the "other" option. Compared to the previous place name, 22 respondents (only 6% of all the respondents) used this option. Their responses can be ranked into the groups of factors described above: guessing, emotional aspects, credibility, formal aspects of the wording of the interpretation, logic of the argument, knowledge or lack of it.

The average number of factors that respondents indicated for each interpretation does not differ significantly from the previous place name (Table 2). This confirms what we have seen previously, i.e. that the majority of respondents took few, mostly only one factor into account when making their choice.

Table 2. Number of responses per capita for the factors influencing the choice between the interpretations of the name *Pilismarót*

Interpretations	Number of factor responses per capita
1. by Hungarian Anonymous	1,20
2. by Dr. Géza Tóth	1,03
3. scientific etymology	1,28

of Sciences written by a linguist about this topic: https://helyesiras.mta.hu/helyesiras/blog/show/kisdoktor-vagy-nagydoktor (accessed August 14, 2023). See also the comments below the post, some of which were apparently not impressed by the scientific argument.

[8] In the second sub-task, the following factors influencing the decision could be chosen: the persuasiveness of the source, the similarity of sounding, the persuasiveness of historical information; because the explanation clearly defines the origin of the word; other.

5. Conclusion

As we have seen, most respondents chose the correct etymology in both cases, while about a third (34.7% in the first example and 28.6% in the second) chose the other two. While the factors under investigation (relations between languages and authority) did indeed play a significant role in the respondents' decision, it also showed that the influence of pseudoscientific theories that we may have prematurely assumed does not always underlie the choices. It has also been shown that the lay public may be inclined to believe even a nonexistent person claiming to be an authority, let alone a historical authority traditionally considered credible by public opinion, even if science has since revealed its unreliability. This reiterates the huge need for more effective communication of science and greater integration of the modes of operation of science and pseudoscience, scientific reasoning, and the history of language and names into public education.

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