



## Struggle of languages for domination in science

**Abstract:** The article contains a reconstruction of the struggle for linguistic dominance in global science over the centuries. In the beginning, the author presents various contexts of the role that Latin played in science in previous centuries. Then he presents the importance of French and German in this regard and the reasons for their decline. In turn, he analyzes the phenomenon of the dominance of English in contemporary global science; from its genesis through its increasing status to nearly its monopoly. What follows is the discussion of the controversies related to the primacy of the English language in scientific discourse: the accompanying epistemological and cultural invasion related to Anglo-Saxon values and the marginalization of native languages. The author also shows the distortion of content, ideas, thoughts and style when translating scientific texts from native languages into English, in order to adapt them to the assumptions of Western culture. However, there are also the views the essence of which is the conviction that publishing in English allows scientists to participate in global science and gain global visibility, as well as those that assume that modern scientific English has got rid of its imperial values and has a neutral nature, it is simply a form of international communication. In conclusion, the author expresses his belief that regardless of the language of publishing, scientists can maintain such values as passion and academic freedom.

**Keywords:** science, research, language, domination, English language supremacy

Science has been always an international and intercultural space. The exchange of scientific ideas between universities and researchers from different parts of the world has determined and excellerated the development of societies. Yet, science is always some kind of a “battle field” of contradictory paradigms, theories, approaches and views, including languages as well. What is undertaken by me in this article is a reconstruction of the struggle

of languages for the domination in science. From its beginning, science has been articulated not only in local native languages but also in the “global one” – the language of science, and in the course of history various language aspired to receive such a status.

According to Michale D. Gordon, Latin is “the most persistent archetype of scientific language” (Gordon, 2015, p. 24). The domination of Latin between the 13<sup>th</sup> and 15<sup>th</sup> centuries is indisputable. Shahid Abrar-ul-Hassan puts it in the following way: “By the end of the 14<sup>th</sup> century, Europe had 30 major universities including Prague, Florence, Vienna, Oxford, Paris, Rome, Lisbon, and Cologne, in the regions where several different languages were spoken (...) It was intriguing that these medieval universities were situated across multilingual Europe but were linked through one language, that was Latin, as the language of emerging academia and scholarship” (Abrar-ul-Hassan, 2021, p. 2). This author is convinced that the domination of Latin in this time was related to political, social and cultural factors but, first of all, to power of the Pope and the Church as well as to “the prevalence of Latin manuscripts to document the existing knowledge” (Abrar-ul-Hassan, 2021, p. 2).

Sietske Fransen emphasizes that Latin was “the hegemonic language for science, hugely important for international communication and exchange in the seventeenth-century scientific community” (Sietske, 2017, p. 635). Moreover, Philipp Roelli writes: “theoretical scientific works were nearly universally written in Latin until the first years of the eighteenth century (...)” (Roelli, 2021, p. 338).

Latin has gradually lost its influence in science in such countries as Germany, French or Italy. One of the external factors of this process was related to the Reformation. Martin Luther’s translation of the Bible into German in 1522 had a symbolic and real meaning in this respect. Generally speaking, as Stanisław Kot puts it: “The Reformation (...) put emphasis (...) on the need to read in the mother tongue” (Kot, 1934, p. 219). This had an impact on the development of writing in vernacular native languages. Kirsi-Maria Nummilla writes: “The ideas of the Lutheran Reformation were spread, above all, by means of texts and as a result of translation into vernaculars. The circulation of Reformation ideas could be seen as textual networks (...)” (Nummilla, 2019, p. 11). This included not only the religious sphere, but also literature, and to some extent science, especially because “particularly important centres for the spread of Lutheranism were the universities of large towns, such as Königsberg University in Prussia and Cambridge in England” (Numilla, 2019, p. 14). Thus, the Reformation had an impact on the creation of an intellectual

culture in national languages. However, it is also necessary to quote Britt-Louise Gunnarsson's words that "The Reformation, with its Bible translation, had of course paved the way for the use of the vernacular in the Northern Europe back in the sixteenth century, but in science Latin retained its hold into the eighteenth" (Gunnarsson, 2011, p. 6).

Even in 1765, Latin was recognized by Denis Diderot in his "Encyclopaedia" as the fundamental language of science: "The Latin language is an indispensable necessity: it is a language of the Catholic Church (...), as much for philosophy and theology as for jurisprudence and medicine. It is moreover (...) the common language of all scholars of Europe, the use of which – it perhaps is to be hoped – will become even more (...) widespread, in order to facilitate further the communication of the respective luminaries of the various nations which today cultivate the sciences" (Roelli, 2021, p. 340).

At the end of the 17<sup>th</sup> century, French began to play a more important role in science. Yet even earlier, for example, Descartes (1596–1650) wrote only in French. French was also used as a language of international diplomacy and the French life style was disseminated in Europe (Roelli, 2021, p. 343). It is stressed that "the influence of French culture was such that in many areas French became the language of the educated: in Russia the aristocracy adopted French as the language of conversation and correspondence, reserving Russian for communication with the lower classes" (Lingua Franca, 2010, pp. 13–14). In 1751, Jean Le Rond D'Alambert wrote: "As our language [French] had spread throughout Europe, we thought it was time to replace Latin language with it (...) which had been the language of our scholars" (Roelli, 2021, p. 344). In comparison to French, Latin was criticized for its lack of flexibility; Voltaire wrote in 1753: "French which is the common language of Europe and which has been enriched with all these new and necessary expressions is much more appropriate than Latin for spreading all this new knowledge throughout the world" (Roelli, 2021, 348). In the 18<sup>th</sup> century, French was the main language of intellectual life, including natural sciences (Gordon, 2015, p. 16). This resulted from an international position of France and from its role as a cultural and scientific centre of Europe (Wright, 2006, p. 38).

Yet, also the "intrinsic quality" of the French language was emphasized in an attempt to explain its domination. A French writer and translator Antoine de Rivarol (1753–1801) wrote: "what distinguishes our language from ancient and modern languages is the order and the construction of the sentence. [...] The French syntax is incorruptible. From this that admirable clarity results, the eternal foundation of our language. *That which is not clear is not French;*

that which is not clear is still English, Italian, Greek, or Latin” (Gordon, 2015, p. 17).

However, in those times not all enthusiastically assessed the emerging domination of French and the persistent supremacy of Latin in science. A famous German philosopher and mathematician Gottfried Wilhelm Leibniz (1646–1716) wrote two important texts in defense of the German language in science. He expressed his regret that German had to participate in science in difficult competition with French and Latin. He felt that using foreign languages causes developmental stagnation of the German language (Stickel, 2004, p. 11). He argued that the over-extensive use of Latin has “a detrimental effect both among the scholars and on the Nation itself” (Stickel, 2004, p. 15).

The gradual displacement of Latin as the superior language of science was typical not only of France but also of Germany as well as of England. As a result, at the end of the 19<sup>th</sup> century, three languages, Latin, French and German, were used in science, with two aspirational languages Russian and Italian in the background (Roelli, 2021, pp. 346–347).

The role of German science in the second half of the 19<sup>th</sup> century was so profound that Thomas Huxley wrote in 1869: “Ask the man who is investigating any question profoundly and thoroughly – be it historical, philosophical, physical, literary, or theological; who is trying to make himself master of any subject (...) whether he is not compelled to read half a dozen times as many German as English books” (Ammon, 2004, p. 159).

Interestingly, when in 1924 Albert Einstein received from a famous (in the future) Indian physicist Satyendra Nath Bos an article in English, he translated it into German and published it in the prestigious magazine *Zeitschrift für Physik* (Wong, 2007, p. 302)<sup>1</sup>. Generally, according to Michael D. Gordon, at the beginning of the 20<sup>th</sup> century, there were three languages with the well-established scientific nomenclature (Gordon, 2015, pp. 110–111).

Due to the lack of agreement to establish one language of science, artificial languages were constructed. A French scientist Louis Couturat (1868–1914), one of the creators of the artificial language Ido wrote in 1910: “the solution by national languages is the real chimera and utopia; and the solution by artificial languages seems the only practical option” (Gordon, 2015, p. 111). Moreover, the authors of the Esperanto textbooks expressed their conviction in 1907: “This is perhaps the most practical step taken towards the standardiza-

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<sup>1</sup> <https://europepmc.org/article/pmc/pmc1852753>, On science and English, Min-Liang Wong, EMBO reports VOL 8 | NO 4 | 2007.

tion of technical terms, which is so badly needed in all branches of science. A universal language offers the best solution to the vexed question, because it starts with a clean sheet. Once a term has been admitted by the competent committee for a particular branch of science into the technical Esperanto vocabulary of that science, it becomes universal, because it has no pre-existent rivals (...)" (Gordon, 2015, p. 126). However, artificial languages were not successful, none of them has been accepted as a universal language of science.

What has been observed since the third decade of the 20<sup>th</sup> century is the growing dominance of the English language in science. Michael D. Gordon wrote: "On New Year's Day, 2012, science reached the end of its Latin". On this day "The International Code of Botanical Nomenclature", which manages official record of plants species, gave up its previous long-lasting requirement for the necessity to describe every new discovered plant exclusively in Latin; henceforth also the English language could be used (Gordon, 2015, p. 293).

What is the source of the present overwhelming domination of English in science? Many linguists stress that it is not related to its "intrinsic" features. They are sure that English is not better for science than Latin, German, French or Chinese (Englander, 2014, p. 4). According to Michael D. Gordon, "English does not possess specific qualities that make it particularly well suited for scientific research". On the other hand, the same author quotes the German scientist Max Talmey's view that English is "far richer, far more expressive than any other language" (Gordon, 2015, p. 306). The hypothesis of "inner superiority" of English as a language of science relates to its assumed features; it is considered to be "clearer", easier to be learned and "more objective" than other languages (Guardiano, Favilla, Calaresu 2007, 33). It could be recalled that in 1886 a Scottish phonetician Alexander Melville Bell, the inventor of the phone, stated: "no language could be invented for international use that would surpass English, in grammatical simplicity and in general fitness" (Gordon, 2015, p. 296).

Therefore, it is obvious that in the 20<sup>th</sup> century French gradually lost its enormous status and respect; it was not anymore "the automatic choice for the official language of international organizations" (Wright, 2006, p. 39). What is more, there is growing anxiety in France, not only in science but in the whole society that the defensive position of the French language will ultimately contest the traditional French identity. Adam Robinson writes that for the French "their language defines and shapes both the personal and national identity (...). It has been lovingly and deliberately crafted over centuries by kings, by the Revolution, by emperors and by the Republic as an instrument

of political unity (...)” (Adamson, 2007, p. XVI). Thus, in this context the globalization process accompanied by the growing domination of the English language is in France perceived negatively.

Most authors agree that the main factors of the English language domination result not from “the intrinsic dynamics in the field of science itself, but from socio-economic and political factors” (Hamel, 2007, p. 56). Whereas the decline of French as the language of science occurred a decade after decade, there are more clear reasons for the loss of that status by German. Its fall began after World War I. It was deepened during the rule of German Nazism and World War II. Gerhard Stickel wrote in 2004: “The more English develops into the dominant or even exclusive language of science in Germany (...), the more the German language will lose in value (...): important matters must be said and written in English” (Stockel, 2004, p. 16). He is also convinced that the domination of the English language “develops towards a Euro-English monolinguality and monotony, with languages such as German existing only as backward idioms in folkloristic niches” (Stickel, 2004, p. 16). It should be added that international aspiration of the Russian language was definitively deligitimized by Stalinism, the Cold War and the compulsory teaching of it in socialist countries.

According to Rainer Enrique Hamel, the most important factor in the growing importance of the English language in science was related to the increasing economic and political role of the United States of America in the world (Hamel, 2007, p. 56). Certainly, it was correlated with the increased role of this country in other areas of international life: tourism, business, diplomacy and popular culture. The dissemination of the English language in science is a part of a very broad “language tendency”, currently encompassing the global world (Melosik, 2013).

Because of all the factors mentioned above, as early as in 1953, Theodore H. Savory was able to write: “English shows signs of becoming the language of science” (Roelli, 2007, 347). The 1990s are characterized by the phenomenon called “tsunamis of scientific English” (Gordon, 2015, p. 7). Contemporary science speaks mostly in English. Scientific publications are mostly published in English and conferences are also conducted in English.

As a consequence of this phenomenon, there is an “increasing linguistic hierarchization and the loss of domain for lower ranking languages (...); once English is declared the only international language for science, all other languages not only lose international status but are menaced in their own territories” (Hamel, 2007, p. 64).

Generally, I can agree at least partially with Peter Altbach when he writes: “Indeed, national academic systems enthusiastically welcome English as a contributor to internationalizing, competing, and becoming »world class«. But the domination by English moves world science toward hegemony led by the main English-speaking academic systems and creates difficulties for scholars and universities that do not use English” (Altbach, 2007, p. 2).

Ahmed W. Waheed emphasizes that “hiper-centrality and the imposition of English as the language for the communication of research raises significant hurdles for the periphery scholars (...). It provides western scholars with a comfortable linguistic platform” (Waheed, 2020, pp. 172–173). Yet on the other hand, Scott Montgomery says that “being competent in English does not force these scientists to abandon their mother tongue, whether at home or in the hallways, but makes them feel they are participating members in the international community of their discipline” (Montgomery, 2009, p. 12).

Thus, there is an alternative interpretation of the relationship in science between English and native languages. It is sometimes assumed that translation of scientific work from “small languages” into English empowers the local science, because it shows its achievements to the world. Therefore, the globalization of the English language might not be related to scientific/cultural imperialism but to the creation of a positive form of research cooperation. The proponents of such an approach are sure that English is playing “a central role in empowering the subjugated and marginalized”, giving them an opportunity of “global presence” and “expression of local identity” (Crystal, 2003, p. 24). As David Crystal says: “Languages of identity need to be maintained. Access to the emerging global language – widely perceived as a language of opportunity and empowerment – needs to be guaranteed” (Crystal, 2003, p. 28). Moreover, some research shows that in certain disciplines scientists from non-English societies publish the same article both in English and in the local language (Pérez-Llantada, 2020, p. 366). Davide Simone Giannoni is convinced that English becomes for researchers from the Third World countries an important instrument of participation in the “global struggle for recognition” (Giannoni, 2010, p. 37).

What is more, currently many scientists consider the English language as the universal, culturally and politically neutral language of international scientific communication. Robert B. Kaplan writes that science promotes the common language because “it uses a common set of methods and measurement standards, and is cumulative and self-referential” (Kaplan, 2001,

p. 14). It is often stressed that English just embodies today this common language. Rainer Enrique Hamel is sure that the global reliability of English results from a conviction that it does not belong in science to one country or group of countries. It seems to represent internationality itself (Hamel, 2007, p. 63). Davide Simone Giannoni as well expresses his conviction that in the academic world there is the growing internationalization of English as a generally applicable language, “free of national or culture-specific connotations” (Giannoni, 2010, p. 35).

In his interesting considerations, Martian A. Kayman reconstructs an approach which is based on the belief that at present English is not saturated with the “imperial history” and imperial values. Now, in its relations with various cultures, it assumes the role of a post-imperial world language (Kayman, 2004, pp. 7–8). In such a situation, English becomes a “»practical« language, divorced from its cultural history”, it seems to be like a typewriter or computer available to anyone. Martin A. Kayman considers the argument that English can become “a technology, a tool, a simple instrument”, “the language of communication par excellence” (Kayman, 2004, p. 10, 13), that it can be “valued primarily in terms of »appropriateness to the situation«” (Kayman, 2004, p. 14). Proponents of the neutrality of the English language certainly would accept such assumptions.

However, the domination of international science by global English brings controversy regarding translation. Lawrence Venuti writes that the translation process “invisibly inscribes foreign texts with British and American values and provides readers with the narcissistic experience of recognizing their own culture in a cultural other” (Bielsa, 2011, p. 211). He says that there is a “violent effect of translation” – “the reconstitution of a foreign text in accordance with values, beliefs, and representations that preexist in the translating language and culture” (Venuti, 2008, p. 14). Thus, in translation there is a “rewriting” of original thoughts “in the terms that belong to the receiving culture” (Bielsa, 2011, p. 205).

It is often stressed that one of the purposes of translation, rarely invoked, is its ethnocentric adaptation to the culture of destination. To describe the ethnocentric deformation of the text during translation in order to erase its strangeness, Antoine Berman uses the concept of “normalization”. He distinguished various ways of interference into the text: rationalization, clarification, expansion, qualitative and quantitative impoverishment, destruction of rhythm and networks of signification, as well as “linguistic patterning” and idioms (Goui and Seddiki, 2019, p. 198).



Lawrence Venuti “has produced a critique of what he defines as domesticating translation, which is based on making a translated text read fluently, as if it was an original, thus rendering translation invisible (...) with the translators’ crucial intervention in the foreign text, and to create a recognizable, even familiar, cultural other” (Bielsa, 2011, p. 205). Sometimes these interventions change very important ideas and thoughts of the author.

Lawrence Venuti says critically that the most important goal of translation into the English is to get “fluency”, which “becomes the authoritative strategy for translating whether the foreign text was literary or scientific/technical, humanistic or pragmatic (...)” (Venuti, 2008, p. 6). It seems that translation is to prepare the text for the receivers as a “ready to read” and ready to understand (Venuti, 2008, p. 12). Lawrence Venuti writes about it as follows: “A fluent translation is immediately recognizable and intelligible, »familiarized«, domesticated and not »discordantly« foreign, capable of giving the reader unobstructed »access to great thoughts«, to what is »present in the original« (...) Translated text seem to be »natural«, that is not translated” (Venuti, 2008, p. 5).

In the case of translating texts from very distant cultures, the problem of deformation of the text in translation is much more important. Sometimes a deep cultural adaptation of the translated text to the rules of the English language and culture is consciously proposed. Ming Dong Gu’s view is a good example here: “There is a problem that often embarrasses Chinese translators: A Chinese text is faithfully translated into a Western language, but it does not go smoothly, and certainly does not appeal to the Western reader. As a consequence, we often notice that many <<faithful>> translations of Chinese texts are simply ignored, while less faithful (...) have greater appeal to the English reader (...)”. Ming Dong Gu states directly that a translator should “turn the text into a text readily accessible to recognize by Western reader through the medium of translation”. “Only when a Chinese text is naturalized and achieves a translucence in the Western language can one say that successful translation has been done. Such a translation is more than mere transmission of the content of the originals (...)” (Gu, 2014, p. 13). Thus, there is here a conscious rejection of the commonly accepted idea of the invisibility of translators; they seem to become co-authors.

There are many strong critics of English supremacy in science as well as in the contemporary world. For example, John M. Swales calls English in the academic world as “*Tyrannosaurus Rex*”; he writes about its triumphalism and proposes publishing in local languages (Swales, 1997, pp. 373–382).

Many authors, in their expression of negative feelings towards English, use abusive words such as “Hydra”, “Trojan Horse”, “Cuckoo”, “Killer Language” or “Lingua Frankensteinia” (Hultgren, 2020, p. 25). Davide Simone Giannoni is sure that “even in highly-developed nations, smaller academic languages are under threat and should be treated as endangered systems that deserve protection (...)” (Giannoni, 2010, p. 35). W. Wayt Gibb writes that the results of important research in the Third World countries are “lost science” because they are not published in English (Tardy, 2004, p. 252).

Moreover, Abram de Swam emphasizes that “English may now be a universal medium of social science, it certainly is not a neutral medium – on the contrary, it favors American ideas, and American authors” (Swam, 2001, p. 78). One of the German authors stated: “Since every language affords a different point of view onto reality and offers individual patterns of argumentation, this leads to a spiritual impoverishment if teaching and research are hemmed into English” (Gordon, 2015, p. 314). Miguel Siguan sheds light on a different context: “But the generalization of the use of a language as a means of scientific communication leads to the generalization of its use as a means of scientific production. This is where the problem arises. English is not a perfect language, and exclusively rational instrument, but a language inscribed within a cultural tradition”. For disciplines that are based on their “cultural or linguistic tradition”, it can result in crucially negative consequences (Siguan, 2001, p. 68).

In my article, an attempt was made to reconstruct some ambivalences pertaining to the struggle of languages for dominance in science over the centuries. In my conclusions, I want to support David Crystal’s conviction: “A language does not become a global language because of its intrinsic structural properties, or because of the size of its vocabulary, or because it has been a vehicle of a great literature in the past, or because it was once associated with a great culture or religion” (Crystal, 2003, p. 9). Certainly, as I have tried to show, there has been a centuries-old language struggle in science, with changing configurations of relations between various languages. Yet at present, the domination of the English language in science seems to be impregnable. It seems that it is possible to maintain academic freedom and scientific passion, regardless of the language in which ideas and research results are published (Melosik, 2020).

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