

Will AI bring linguistic justice?

Dr Kenneth Y. Wertheim (they/them) Also known as 11250205 11/07/2023



Methods:

- Statistics.
- Literature.
- Lived experiences*.
- Observations*.

Dr Kenneth Wertheim, Lecturer, Centre of Excellence for Data Science & Artificial Intelligence Modelling

Kenneth completed their undergraduate MEng in chemical engineering at Imperial College London, postgraduate MS in chemical engineering at Columbia University, and PhD in bioengineering at the University of Southampton. They have studied or worked in Hong Kong, Australia, and Argentina too. Although the systems theorist is a lecturer at the Centre of Excellence for Data Science, Artificial Intelligence, and Modelling, they work in the fields of systems biology and computational medicine. Their current focus is on neuroblastoma.

Kenneth, who also goes by the name 11250205, identifies as aracial, acultural, and agender: a global citizen without a home country. Motivated by their lived experiences as an outsider on five continents—a feeling accentuated by their being autistic—they advocate social justice in education, especially linguistic justice.

*Disclaimer: In this presentation, all the examples based on my lived experiences and observations are composite stories with fictional elements.



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Main points:

- Languages are not equal.
- Cooperative injustice.
- Distributive injustice.
- Unequal dignity.

Questions:

•How can AI mitigate the problem?

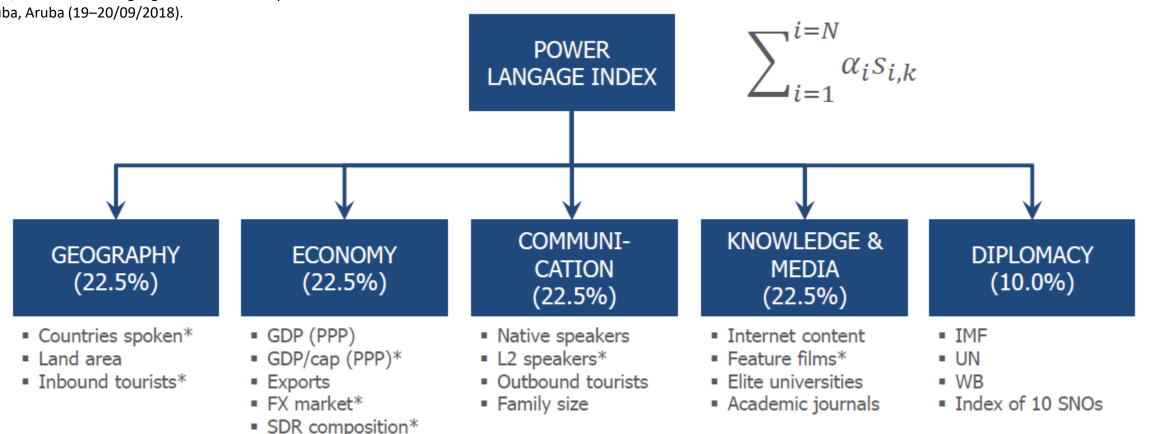
•How can AI not exacerbate the problem?

Languages are not equal.

They were compared in a 2016 study.

Chan, Kai L. "Power language index." *Which are the world's most influential languages* (2016).

Chan, Kai L. "Power language index." University of Aruba, Aruba (19–20/09/2018).



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Chan, Kai L. "Power language index." University of Aruba, Aruba (19–20/09/2018).

Rank	Language	Score	Native	Geography	Economy	Comm.	K&M	Diplomacy
1	English	0.902	446.0	1	1	1	1	1
2	Mandarin	0.403	960.0	6	2	2	3	6
3	French	0.335	80.0	2	6	5	5	1
4	Spanish	0.331	470.0	3	5	3	7	3
5	Arabic	0.274	295.0	4	8	6	19	4
6	Russian	0.242	150.0	5	13	10	8	5
7	German	0.190	92.5	8	3	7	4	8
8	Japanese	0.127	125.0	27	4	22	6	7
9	Portuguese	0.119	215.0	7	19	13	12	9
10	Hindi	0.104	310.0	13	16	8	2	10*

Backed up by other studies, such as this 2020 one.

Moreno-Fernández, Francisco, and Héctor Álvarez Mella. "Reexamining the international importance of languages." *HCIAS Working Papers on Ibero-America* (2022).

Table 7: International Language Index (ILI) 2020

Language	ILI	Native Speakers	HDI	Number of countries	Exports	Translations	UN Status
English	0.433	365,608,750	0.692	54	63,554,132,696,606	1,279,527	1
Chinese	0.383	913,671,000	0.883	4	34,710,318,310,522	20,327	1
Spanish	0.332	438,676,797	0.752	21	14,317,959,556,911	55,322	1
Arabic	0.307	268,895,100	0.681	27	13,487,217,671,148	12,691	1
Russian	0.291	129,945,000	0.792	4	6,024,528,621,260	106,656	1
French	0.288	74,288,780	0.597	29	24,065,118,863,745	231,008	1
German	0.266	83,912,900	0.932	5	24,815,084,608,186	212,572	0
Italian	0.249	59,666,000	0.924	4	10,438,171,949,887	70,538	0
Japanese	0.245	126,237,470	0.919	1	7,705,263,566,594	29,834	0
Swedish	0.242	9,438,000	0.942	2	3,396,298,818,172	40,505	0
Korean	0.241	73,500,000	0.916	2	6,586,182,797,101	4,73	0
Malay	0.224	91,500,326	0.826	4	10,287,950,079,920	231	0
Hindi	0.191	339,000,000	0.645	1	4,633,286,580,505	1,621	0
Portuguese	0.190	223,995,050	0.626	9	4,214,476,832,107	11,692	0
weight		0.25	0.25	0.25		0.09	0.07

>90 % of the indexed scientific articles in the natural sciences are published in English.

More likely to be cited too.

Di Bitetti, Mario S., and Julián A. Ferreras. "Publish (in English) or perish: The effect on citation rate of using languages other than English in scientific publications." Ambio 46 (2017): 121-127.

Ambio 2017, 46:121-127 DOI 10.1007/s13280-016-0820-

REPORT

KUNGL VETENSKAPS-AKADEMIEN CrossMark

Publish (in English) or perish: The effect on citation rate of using languages other than English in scientific publications

Mario S. Di Ritetti, Julián A. Ferreras

Received: 27 February 2016/Revised: 30 May 2016/Accepted: 6 September 2016/Published online: 29 September 2016

Abstract There is a tendency for non-native English lingua franca allows researchers from all over the world to scientists to publish exclusively in English, assuming that communicate in one common language. This simplifies this will make their articles more visible and cited. We things because mastering one foreign language instead of tested this hypothesis by comparing the effect of language three or more allows a researcher familiar with that lanon the number of citations of articles published in six guage (currently English) to communicate and have access natural sciences journals from five countries that publish to information produced by researchers all over the world. papers in either English or other languages. We analyzed However, this situation is unfair, since the outcome of the effect of language (English vs non-English), paper writing in an unfamiliar language is usually far from length, and year of publication on the number of citations. desired (La Madeleine 2007) and, as a result, native Eng-The articles published in English have a higher number of lish-speaking (NES) countries and researchers are at a clear citations than those published in other languages, when the advantage in science communication in a highly competieffect of journal, year of publication, and paper length are tive arena (Ammon 2007). statistically controlled. This may result because English articles are accessible to a larger audience, but other factors their scientific output. For example, Brazilian researchers need to be explored. Universities and scientific institutions with good English writing abilities outperform those with should be aware of this situation and improve the teaching poor ones in terms of published papers, number of citaof English, especially in the natural sciences.

Scientific journals · Scientific literature

This hinderance faced by non-NES researchers affects tions, and h-indices (Vasconcelos et al. 2008). On a global comparison, English proficiency is a good predictor of Keywords English · Lingua franca · Scientific evaluation · publication output in top medical journals, even more than total research spending (Man et al. 2004). Thus, at all levels, from individuals to countries, NES countries have Table 2. Newspaper and magazine production by language.

Language	Number of titles	Percentage of total
English	2499	62.55 %
Spanish	277	6.93 %
German	235	5.88 %
Chinese (Mandarin)	156	3.90 %
Hindi	117	2.93 %
French	95	2.38 %
Polish	44	1.10 %
Russian	38	0.95 %
Italian	36	0.90 %
Portuguese	35	0.88 %

Table 4. Film and video production by language.

Language	Number of titles	Percentage of total
English	158,611	34,89%
Spanish	23,256	5,12%
German	16,523	3,63%
French	15,171	3,34%
Japanese	7,811	1,72%
Italian	4,927	1,08%
Danish	3,967	0,87%
Dutch	3,445	0,76%
Portuguese	3,213	0,71%
Russian	2,715	0,60%
Hindi	2,357	0,52%

Table 3. Scholarly journal production by language.

Language	Number of titles	Percentage of total
English	28,131	45,24%
German	6,848	11,01%
Chinese (Mandarin)	4,047	6,51%
Spanish	3,522	5,66%
French	3,074	4,94%
Japanese	2,149	3,46%
Italian	1,860	2,99%
Polish	1,060	1,70%
Portuguese	1,055	1,70%
Dutch	922	1,48%
Russian	808	1,30%

Table 5. Distribution of languages on the Internet.

Language	Web pages (millions)	Percentage of total
English	1142,5	56,43%
German	156,2	7,71%
French	113,1	5,59%
Japanese	98,3	4,86%
Spanish	59,9	2,96%
Chinese (Mandarin)	48,2	2,38%
Italian	41,1	2,03%
Dutch	38,8	1,92%
Russian	33,7	1,66%
Korean	30,8	1,52%
Portuguese	29,4	1,45%

Table 1. Book publishing by language.

Language	Number of titles	Percentage of total
English	200,698	21,84 %
Chinese (Mandarin)	100,951	10,99 %
German	89,986	9,78 %
Spanish	81,649	8,88 %
Japanese	56,221	6,12 %
Russian	48,619	5,29 %
French	44,224	4,81 %

Other areas of information production too.

Lobachev, Sergey. "Top languages in global information production." Digital Voices: An Open Access Practice Journal 1.1 (2009).

Garbage in, garbage out.

ChatGPT Is Cutting Non-English Languages Out of the AI Revolution

Al chatbots are less fluent in languages other than English, threatening to amplify existing bias in global commerce and innovation.



Despite the technology's limitations, workers around the world are turning to chatbots for help crafting business ideas, drafting corporate emails, and perfecting software code. If the tools continue to work the best in English, they could *increase the pressure to learn the* language on people hoping to earn a spot in the global economy. That could further a spiral of imposition and influence of English that began with the British Empire.

Dave, Paresh. "ChatGPT Is Cutting Non-English Languages Out of the AI Revolution." *Wired*, 31 May 2023.

It further empowers English and devalues the rest.

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'You shall know an object by the company it keeps.' John Rupert Firth.

Because text data sets (sic) also have some other languages mixed in, the models do pick up capability in other languages. Their knowledge just isn't necessarily comprehensive. As researchers at the Center for Democracy and Technology in Washington, DC, explained in a paper this month, because of the dominance of English, "a multilingual model might associate the word dove (sic) in all languages with peace even though the Basque word for dove (sic) ('uso') can be an insult."

The dominance of English raises issues of cooperative injustice, distributive injustice, and unequal dignity.

Van Parijs, Philippe. *Linguistic Justice for Europe and for the World*. Oxford University Press, 2011.

De Schutter, Helder. "Linguistic justice for non-native speakers of English." Language variation. Budapest: Hungarian Academy of Sciences. Retrieved from https://www. efnil. org/documents/conferencepublications/amsterdam-2018/EFNIL2018-14-DeSchutter. pdf. 2019. The dominance of English raises issues of cooperative injustice, distributive injustice, and unequal dignity.

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Cooperative injustice.

The Foreign Service Institute is the United States federal government's primary training institution for employees of the U.S. foreign affairs community.

Based on decades of teaching experience in teaching languages to U.S. diplomats.

Time required to reach "General Professional Proficiency" in a language on the Interagency Language Roundtable (ILR) scale.

U.S. Department of State. "Foreign Language Training - United States Department of State." U.S. Department of State, 02 June 2023, https://www.state.gov/foreign-language-training/.

Category I Languages: 24-30 weeks (600-750 class hours)

l	anguages similar to English.			
	Danish (24 weeks)	Dutch (24 weeks)	French (30 weeks)	
	Italian (24 weeks)	Norwegian (24 weeks)	Portuguese (24 weeks)	
	Romanian (24 weeks)	Spanish (24 weeks)	Swedish (24 weeks)	
(Category II Languages: Approxima	tely 36 weeks (900 class hours)		
	German	Haitian Creole	Indonesian	
	Malay	Swahili		

Category III Languages: Approximately 44 weeks (1100 class hours)

"Hard languages" - Languages with significant linguistic and/or cultural differences from English. This list is not exhaustive.

Albanian	Amharic	Armenian
Azerbaijani	Bengali	Bulgarian
Burmese	Czech	Dari
Estonian	Farsi	Finnish
Georgian	Greek	Hebrew
Hindi	Hungarian	Icelandic
Kazakh	Khmer	Kurdish
Kyrgyz	Lao	Latvian
Lithuanian	Macedonian	Mongolian

Nepali Russian Slovak Serbo-Croatian Sinhala Slovenian Somali Tagalog Tajiki Tamil Telugu Thai Tibetan Turkish Urdu Turkmen Ukrainian Uzbek Vietnamese

Polish

Category IV Languages: 88 weeks (2200 class hours)

"Super-hard languages" – Languages which are exceptionally difficult for native English speakers.

Arabic	Chinese – Cantonese	Chinese – Mandarin
Japanese	Korean	

Linguistic oppression intersects with racism and colonialism.

Cooperative injustice.

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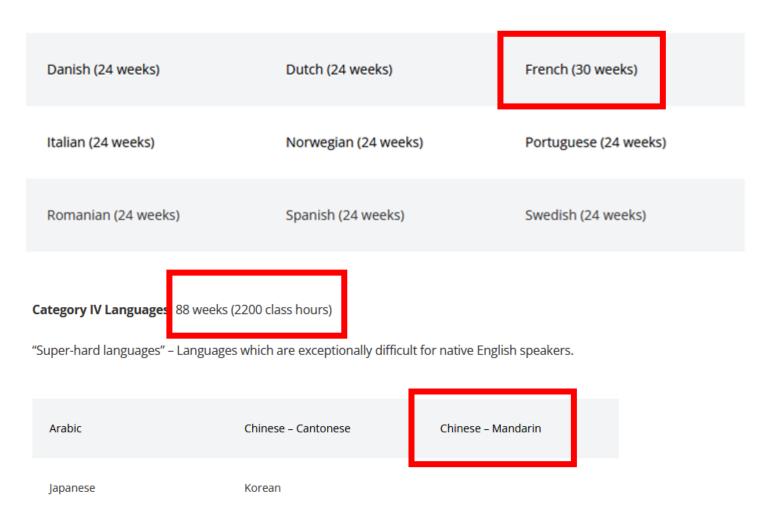
Time required to reach "General Professional Proficiency" in a language on the Interagency Language Roundtable (ILR) scale.

U.S. Department of State. "Foreign Language Training - United States Department of State." U.S. Department of State, 02 June 2023, https://www.state.gov/foreign-language-training/.

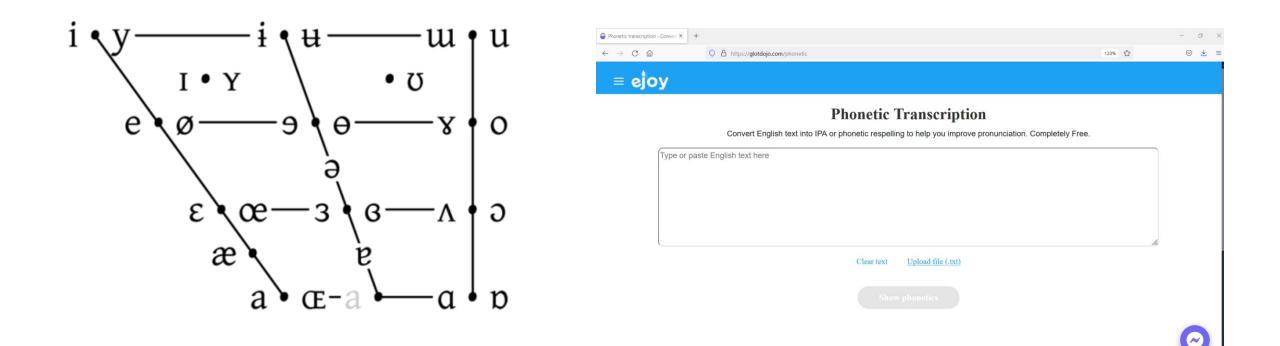
Mandarin is almost four times more difficult than French.

Category I Languages: 24-30 weeks (600-750 class hours)

Languages similar to English.



Let's use AI to democratise the English language.



extremely extremity

Use AI to generate IPA transcriptions for every text document.

/ɪkˈstriːm.li/

/Ik'strem.ə.ti/

English is not a phonetic language.

Linguistic oppression intersects with classism (distributive injustice).

The economic and political opportunities that require proficiency in English are widely spread.

Post-doc position in Computational Systems Biology Posted on Mar 17, 2023 · Ref: 1142 University of Twente Enschede, Netherlands O A https://www.researchgate.net/job/991561_Post-doc_position_in_Computational_Systems_Biology

Post-doc position in Computational Systems Biology

toxicity of drugs. In this research project, titled '*Advanced bioengineering strategy for production of human miniature hearts*', a multidisciplinary team consisting of (developmental) biologists, bioinformaticians, and mathematicians will encapsulate human stem cells in hollow miniature spheres made from hydrogel and use single cell OMICs analysis to make digital twins of the miniature hearts. The digital twins generated in this project allow investigating heart development and predicting the response of the heart to medication.

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We look for a highly motivated, enthusiastic researcher who is driven by curiosity and:

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- Has experience with (mathematical) programming languages, e.g. Python, R, Matlab, etc.
- · Has a strong interest in systems biology;
- Experience with analysis of big data (transcriptomics, proteomics) and / or heart development will be considered a benefit;
- · Is a team player with good communication skills;
- Has demonstrated scientific creativity that has preferably resulted in recent and relevant high- quality scientific publications in international journals
- Is proficient in English, both spoken and written.
- · Has an interest in contributing to the education of Ba-Ma students
- Experience in managing projects and writing project proposals will be considered a benefit.

Outside the Anglosphere, only wealthy parents send their kids to international schools to acquire native-level proficiency in English.

Kim, Hyejin, and Erik Mobrand. "Stealth marketisation: How international school policy is quietly challenging education systems in Asia." *Globalisation, Societies and Education* 17.3 (2019): 310-323.

GLOBALISATION, SOCIETIES AND EDUCATION https://doi.org/10.1080/14767724.2019.1571405



Check for updates

Stealth marketisation: how international school policy is quietly challenging education systems in Asia

Hyejin Kim^a and Erik Mobrand ^{ob}

^aGlobal Studies Programme and Political Science Department, National University of Singapore, Singapore, ^bGraduate School of International Studies, Seoul National University, Seoul, South Korea

ABSTRACT

Across Asia, the international school scene has experienced marketisation and corporatisation. A consequence is that many wealthier families – outside of expatriate communities – view international schools as a desirable choice, and they seek ways to enrol their children in international schools. States have responded to this situation through policies that manage the boundaries between public or national school systems and international schools. States have made compromises in their international school policies – compromises that allow markets to creep into the broader education systems. This mode of market creation is subtle: Neither families nor state agents advocate for 'choice' as a value, nor are there public discourses around international schools in the region celebrating 'choice' in education. The compromises made in international school policy relate to whole education systems and have implications for inequality, citizenship, and national identity.

ARTICLE HISTORY

Received 15 October 2018 Accepted 12 January 2019

KEYWORDS

International schools; education policy; global education industry; marketisation; global policy networks; East and Southeast Asia





• Xi Jinping is right to bring tutoring companies back to earth, but many more measures are needed to make the education system fair to the majority



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- Well-developed critical faculties
- Good powers of concentration
- Production to efficiently manage and schedule the department's workload

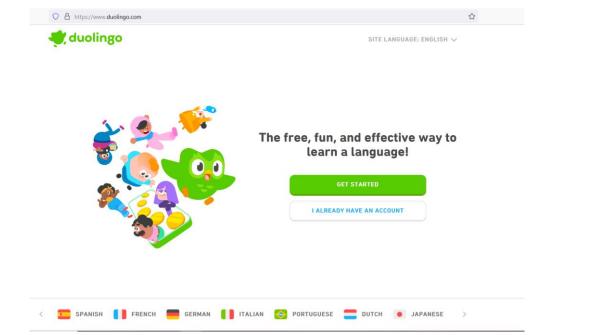
Life at RWS - We work hard together to deliver for our customers; our expertise, professionalism and determination to never let others down drives us to be passionate and serious about what we do, deliver customer value, yet always adding a human touch

As a company focused on connecting people through language, diversity and inclusion are fundamental to our company culture. RWS is an Equal Opportunities

×

Thanks to AI, language learning is getting cheaper and cheaper.

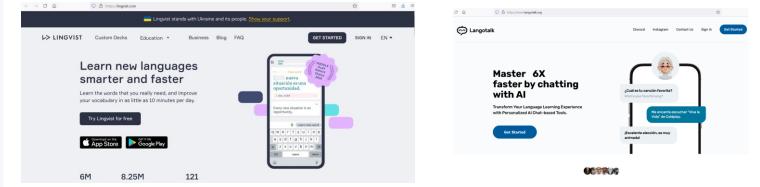






Learning Languages has Never Been this Easy with Al

Language learning has always been an essential skill for personal growth, career advancement, and cultural understanding. However, traditional methods of language learning can be time-consuming and not always effective. With the rapid advancements in technology, artificial intelligence (AI) is revolutionizing the way people learn languages, making the process more accessible, efficient, and enjoyable. In this article, we will explore the impact of At on language learning and floxas popular A-powered cools, techniques, and future trends.



English as a global language is judged by a provincial standard (unequal dignity).

Unequal dignity.

Use of English is justified on the grounds that `everyone speaks it'. In practice, not everyone is given the same respect.

Provincial standard.

INTERNATIONAL JOURNAL OF BILINGUAL EDUCATION AND BILINGUALISM	
2020, VOL. 23, NO. 7, 773–777	
https://doi.org/10.1080/13670050.2020.1778630	



Check for update

ARTICLE COMMENTARY

Introduction to special issue: linguistic racism

Sender Dovchin 💿

School of Education, Curtin University, Perth, Australia

ABSTRACT

Papers in this Special Issue, "Linguistic Racism", focus on the phenomenon of linguistic racism – the ideologies and practices that are utilised to conform, normalise and reformulate an unequal and uneven linguistic power between language users (Skutnabb-Kangas 2015) - directed at culturally and linguistically different (CaLD) or Indigenous backgrounds around the globe. The authors provide multiple ethnographic studies to understand what it means to speak as a racialised subject in the highly diverse societies of the twenty-first century, examining the manners in which one's fundamental human rights are violated, and how one is deprived of both socio-economic and socio-cultural opportunities as a result of their use of language. All of the articles acknowledge the multiple, complex layers of cause and effect that further entrenches linguistic racism into particular social, cultural, ethnic, national and educational contexts that (re)shape the minoritised bilingual speakers' linguistic practices. The Special Issue addresses the effects of critical approaches to current bilingualism theories that break new ground by disclosing the reality that it is not always applicable to commend bilingual diversity without fully acknowledging ongoing, often profoundly entrenched, local constraints.

ARTICLE HISTORY Received 25 May 2020 Accepted 29 May 2020

KEYWORDS

linguistic racism; culturally and linguistically different (CaLD) speakers; international students; Indigenous speakers; bilingual education Some of the hegemonic language ideologies embedded within linguistic racism stigmatise the victims as being linguistically less capable in certain areas of life (Flores and Rosa 2015), as it is commonly accepted that having one particular standardised language is normal, and deviations from the norm are disadvantaged and/or undervalued (Daniels 2018; Piller 2016).

Even these speakers can engage in normative or standardised linguistic practices, and (sic) can still be perceived as engaging in non-standard linguistic practices (Alim 2007).

Composite example: A student with a Japanese accent did well in an English literature exam. Their German classmates accused them of cheating.

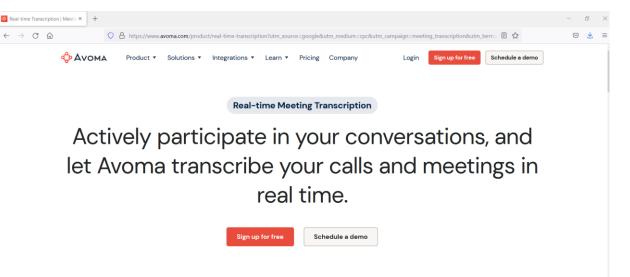
Let's use AI to turn English into a non-racist language.

renaissance

/rəˈneɪ.səns/ /ˈren.ə.sɑːns/ UK US

One word, many pronunciations.

If a British person considers the American accent different and valid, the Nigerian accent should be treated with the same respect too.



Use AI to generate real-time transcriptions, thus putting pressure on the listener.

Use AI to teach different linguistic practices, thus legitimising them.

renaissance

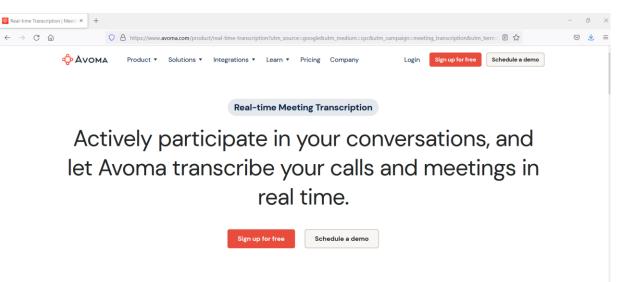
/rəˈneɪ.səns/ /ˈren.ə.sɑːns/ UK US

One word, many pronunciations.

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The country with the most English speakers is China.

Wei, Rining, and Jinzhi Su. "The statistics of English in China: An analysis of the best available data from government sources." *English Today* 28.3 (2012): 10-14.



Use AI to generate real-time transcriptions, thus putting pressure on the listener.

Use AI to teach different linguistic practices, thus legitimising them.

Ability to understand foreign accents is more useful than knowledge of Jane Austen and Henry Miller.

I want your inputs.

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