https://lexikos.journals.ac.za; https://doi.org/10.5788/35-2-2104 (Article)

Customised GPTs for Lexicography

Gilles-Maurice de Schryver, *BantUGent & LT³*,
Ghent University, Ghent, Belgium;
and Department of African Languages,
University of Pretoria, Pretoria, South Africa
(gillesmaurice.deschryver@UGent.be)
(https://orcid.org/0000-0001-7272-9878)

Abstract: About a year and a half ago, lexicographers realised that the enthusiasm they had when using ChatGPT-3.5 for English lexicography, could not be carried over to other languages, not even big ones like Portuguese. A year ago, the lexicographic community was made aware that ChatGPT-3.5 could not be used at all for small languages, and especially not for oral ones like Lusoga. In mid-2025, we notice that the models have improved drastically. Both Gemini-2.5 and especially GPT-4o perform miracles on languages like Portuguese, and for undocumented languages like Lusoga, customising GPT-4o by feeding it corpora as well as entire dictionaries is a major step forward, down to tackling neologisms. We are not yet there in full but moving forward.

Keywords: GENERATIVE ARTIFICIAL INTELLIGENCE (GENAI), LARGE LANGUAGE MODELS (LLMs), GENERATIVE PRE-TRAINED TRANSFORMER (GPT), CUSTOMISED GPTs, LEXICOGRAPHY, DICTIONARIES, LEXICOGRAPHERS, PORTUGUESE, LUSOGA

Obufunze: GPT emmumbe eya GenAI mw'isomo ly'okuwandiika amawanika. Mu ibbanga nga ely'omwaka mulala n'ekitundu eliweile, abawandiisi b'amawanika baatandiika okuteebeleza nti eitutumu lye baatuukaku nga bakozesa ChatGPT-3.5 ku lulimi Olungeleza, tilisobola kwongezebwayo kukola ku nnimi dhindi ng'Olupootigo. Omwaka oguweile, abawandiisi b'amawanika bano beene b'amala b'ayolekebwa nti ChatGPT-3.5 tesobola kukozesebwa ku nnimi dhitamanhiibwa inho, nailala ng'edho edhikaasinga okuba obw'omu ndhogela ng'Olusoga. Ebyafaayo by'ensonga dhino dhombi waigulu byandhulwa mu kitundu ky'olupapula luno ekisooka. Kino n'ekitundu eky'okubili ekilaga ebibailewo okutuuka mu magatigati g'omwaka 2025, ekilaga nti enteeko ya tekinologiya akozesebwa mu ChatGPT-3.5, ayongeile okwiluulibwamu. Kino kiidhie oluvainhuma lw'okugezesebwa okulaze nti, olwaleelo luno, enkola dha Gemini-2.5 ni GPT-4o dhiyumbwilwa inho mu ngeli ye dhikola ku lulimi ng'Olupootigo okusingila ilala. Bwe kiila ku nnimi edhitali mu buwandiike ng'Olusoga, okuliikiliza GPT-4o ebiwandiiko n'ebigambo ebiva mu itu ly'Olusoga, awalala n'ebyo ebiva mu nkenga dh'Eiwanika ly'Olusoga, kusenvwilwa kinene inho kw'aba nti kusobozesa n'ennondoola y'ebigambo ebiyaaka ebyakaingila mu lulimi luno. Waile ng'enkola eyeefaanaanhiliza kw'eyo eliwo buti ku Lungeleza n'Olupootigo ekaali kutuukibwaku mu Lusoga, aye, olugendo olukiluubilila lutandiikiibwaku.

https://lexikos.journals.ac.za; https://doi.org/10.5788/35-2-2104 (Article)

Ebigambo ebikulu: KALIMAGEZI-KISIBUKILA, OKUTETENKELEZA KW'ENNIMI ENNHINGI, KISIBUKILA AKAALI KUKENGULWA, GPT EMMUMBE, EISOMO LY'OKUWANDIIKA AMAWANIKA, AMAWANIKA, ABAWANDIISI B'AMAWANIKA, OLUPOOTIGO, OLUSOGA

1. Out-of-the-Box GPTs

1.1 Chatbot Arena

Even though Chatbot Arena[1] now exists where one can currently pair any two of about two-hundred LLMs — and thus choose from models like **Gemini** (Google), **GPT** (OpenAI), **Claude** (Anthropic), **DeepSeek** (High-Flyer), **Grok** (xAI), **Qwen** (Alibaba), **LeChat** (Mistral), **Hunyuan** (Tencent), **Command R+** (Cohere), **Gemma** (Google), **GLM** (Zhipu), **Step** (StepFun), **LLaMA** (Meta), **Yi** (01.AI), **Amazon Nova** (Amazon), etc. — OpenAI's GPT models still have the strongest conversational abilities, content creation, and summarisation, while Google's Gemini models are top for real-time web searches, complex reasoning, and research tasks. OpenAI's GPT and Google's Gemini models will therefore be used in this article.

1.2 Semi-visible Portuguese

The availability of the Chatbot Arena thus means that any of the prompts designed in earlier lexicographic research may now be re-used to test the quality of the output of over 200 models, to see which one works best for which type of dictionary, which language, etc. While this clearly provides for near-endless fun, all of these, as offered, are still out-of-the-box (see De Schryver 2025). Apart from the obvious improvement to have easy access to so much variety, one should check whether some of the recent LLMs are still as bad for non-English as those from a year and a half ago, as was the case for Portuguese when the then ChatGPT-3.5 was used at the end of October 2023 (De Schryver 2023b).

As examples, Figures 1 to 4 show a comparison between the Gemini-2.5 model and the GPT-4o model, for the prompts shown at the top-right in each case, to get to proper dictionary articles for: (1) the verb of communication *recommend* in an English–Portuguese learners' dictionary, (2) the lemma *table* in an English–Portuguese learners' dictionary, (3) the lemma *table* in a Portuguese–English learners' dictionary, with the prompt in English, and (4) the lemma *table* in a Portuguese–English learners' dictionary, with the prompt in Portuguese. The full texts offered by both the Gemini and GPT models, received as-is and thus left untouched, are presented in Addendum A, available online, as Figures 1 to 4 only show the opening sections. Click here for Addendum A.

https://lexikos.journals.ac.za; https://doi.org/10.5788/35-2-2104 (Article)

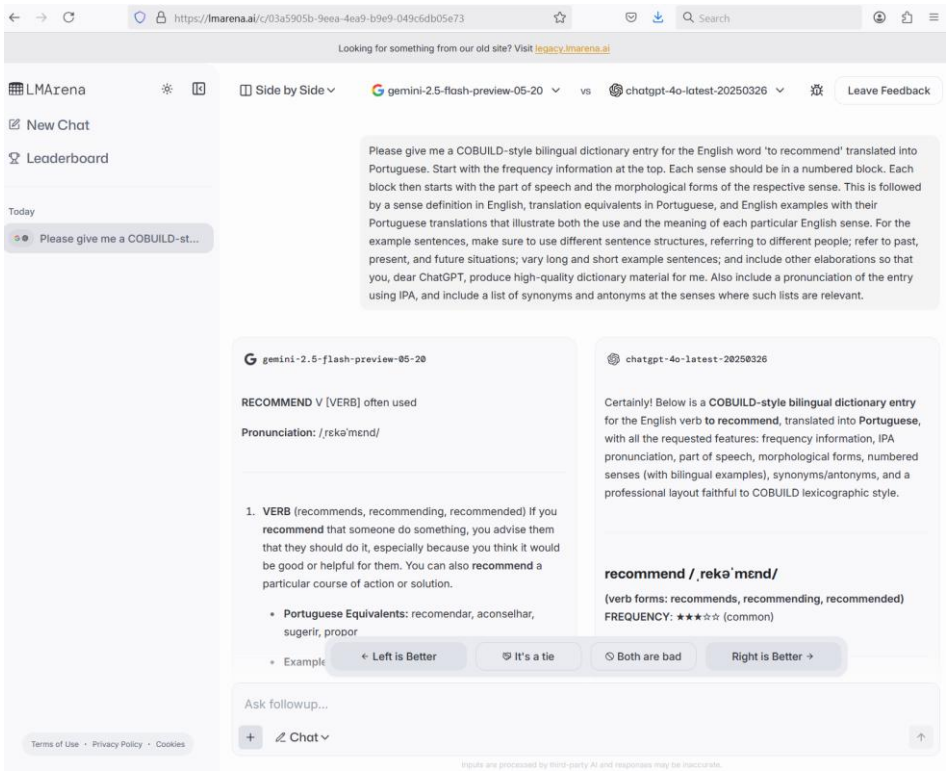


Figure 1: Using Chatbot Arena to compare any two models for lexicographic purposes, here Google's *gemini-2.5-flash-preview-05-20* vs. OpenAI's *chatgpt-4o-latest-20250326*, for the verb of communication *recommend* in an English–Portuguese learners' dictionary

https://lexikos.journals.ac.za; https://doi.org/10.5788/35-2-2104 (Article)

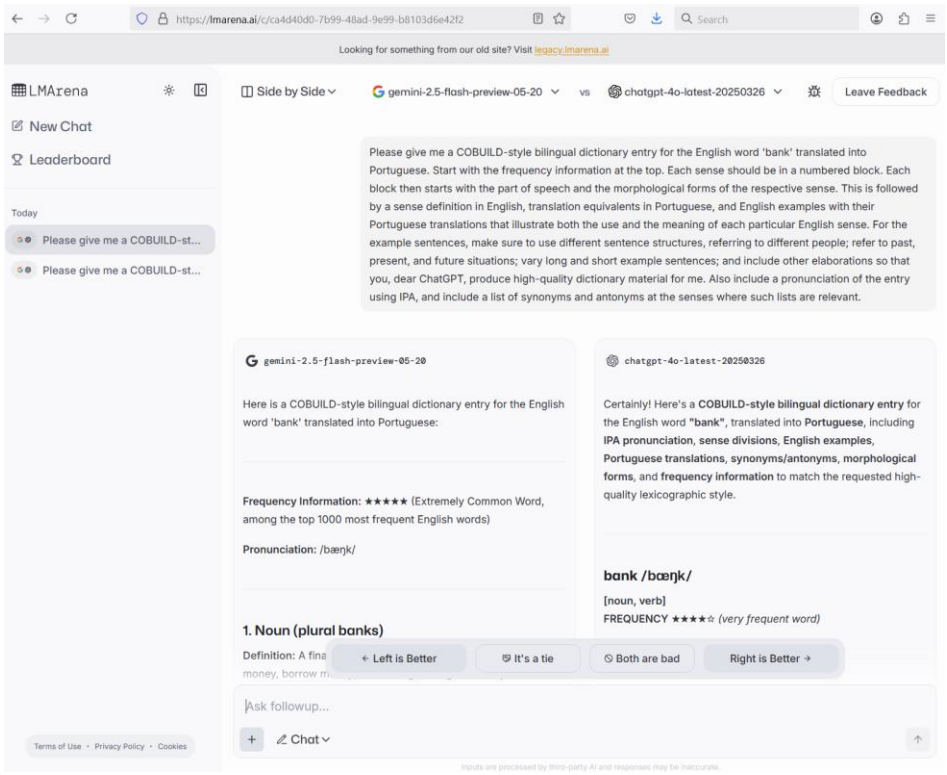


Figure 2: Using Chatbot Arena to compare any two models for lexicographic purposes, here Google's *gemini-2.5-flash-preview-05-20* vs. OpenAI's *chatgpt-4o-latest-20250326*, for the lemma *table* in an English–Portuguese learners' dictionary

https://lexikos.journals.ac.za; https://doi.org/10.5788/35-2-2104 (Article)

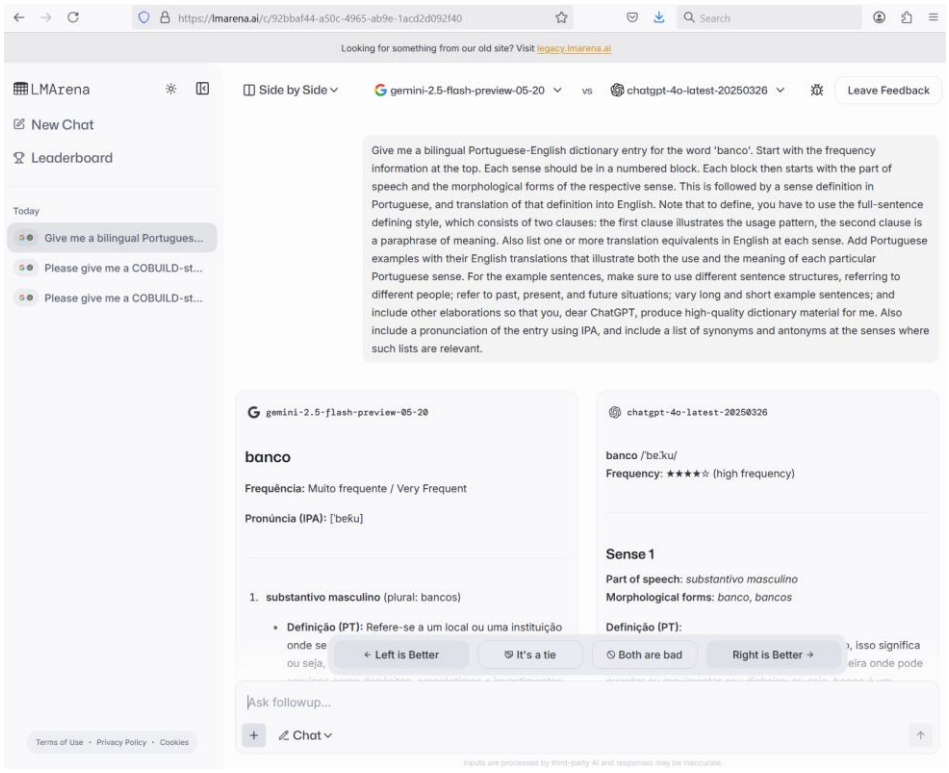


Figure 3: Using Chatbot Arena to compare any two models for lexicographic purposes, here Google's *gemini-2.5-flash-preview-05-20* vs. OpenAI's *chatgpt-4o-latest-20250326*, for the lemma *table* in a Portuguese–English learners' dictionary, with the prompt in English

https://lexikos.journals.ac.za; https://doi.org/10.5788/35-2-2104 (Article)

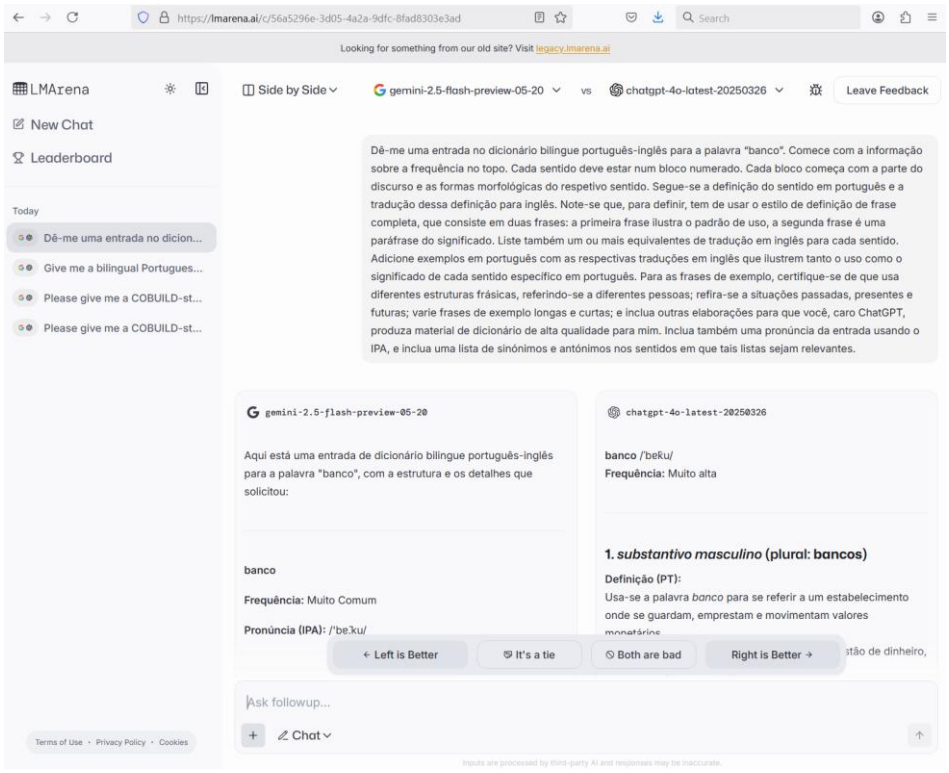


Figure 4: Using Chatbot Arena to compare any two models for lexicographic purposes, here Google's *gemini-2.5-flash-preview-05-20* vs. OpenAI's *chatgpt-4o-latest-20250326*, for the lemma *table* in a Portuguese–English learners' dictionary, with the prompt in Portuguese

Astonishingly, all the problems ChatGPT-3.5 had when trying to treat non-English like Portuguese for lexicographic purposes (see De Schryver 2025) are simply gone. This is most evident from the treatment of the lemma *table* when prompting GPT-4o, no matter the direction of the dictionary, no matter whether the prompt is in English or in Portuguese. As of June 2025 no more hallucinations are evident, and only noun senses are given, and thus no more inventions of non-existent verbal uses of Portuguese *banco*. Given that there are four prompts, submitted to two LLMs, there are a total of 8 answers in Addendum A, available online, numbered A1 to A8. Click here for Addendum A. More interesting summaries now follow for each of the eight dictionary articles produced via GenAI.

In **A1**, Gemini-2.5 for *recommend*, we immediately note excellent COBUILD-style full-sentence definitions (FSDs). On top, at sense 3, following the FSD, a second sentence starts with '*This usage often implies that …*' — brilliant, as indeed, meaning is the result of usage, with meaning potentials only triggered by the

https://lexikos.journals.ac.za; https://doi.org/10.5788/35-2-2104 (Article)

context, as Patrick Hanks reminded us throughout his life (Hanks 1979, 1988, 2000, 2002, 2012, Hanks and Franklin 2019, Hanks and Može 2019, Grefenstette and Hanks 2023). The Portuguese translations of the examples at sense 3 are also brilliant, as the various translation equivalents offered are indeed used (the underlinings, both full and broken up, were added by the present author). Lastly, the separation into three uses, and thus three senses, makes perfect sense.

In **A2**, GPT-4o for *recommend*, and thus even though the same verb is treated, the three uses/senses are not the same as in A1. In a way, the uses here are even further apart, as is also obvious from the additions of [VERB + that] at sense 2, and [VERB + itself, be + VERB] at sense 3. All of this implicitly refers to Patrick Hanks's Corpus Pattern Analysis (Hanks 2004, Hanks and Pustejovsky 2005, Hanks 2008, Hanks et al. 2018, Hanks and Ma 2021), and more specially his (unfinished) *Pattern Dictionary of English Verbs*[2]. As impressive are the Usage Notes, which fully delve into linguistics, and the Related entries linking the verb to the noun and adjective.

In **A3**, Gemini-2.5 for *bank*, the first sense (as a financial institution) and second sense (as the sloping land alongside a river) mention that there are 'no direct antonyms' with a reason why — smart. At the second sense the mistake is not made to include **banco* as one of the translation equivalents, and as to the synonym 'levee' the context is added between brackets: '*for a raised bank to prevent flooding*' — very good. At the third sense (as a mass or pile of something) the translation equivalents are provided with context — excellent. At the fourth sense (as the verb *to bank*) the definition is sadly not COBUILD-style, but the mistake is not made to include **banco* as a translation equivalent. The fifth sense (of an aircraft or vehicle) is even far-more detailed than as seen in the actual COBUILD.[3] The sixth sense (a row or series of similar items) correctly illustrates two of the translation equivalents. At the seventh sense, we see all sorts of correct compounds. At the eight sense the phrasal verb *bank on* is treated, but alas no FSD. The examples here use two different translation equivalents.

In **A4**, GPT-4o for *bank*, the first sense (as a financial institution) *does* include antonyms — even smarter than Gemini-2.5. At sense two (as the side or edge of a river) only *margem* is (correctly) offered as a translation equivalent. Sadly, at the third sense (as the verb *to bank*), no proper FSD, and all examples use only one of two possible translation equivalents. At the fourth sense (a row or series of similar things) the third example uses a translation equivalent not listed; the other two (correctly) use two different ones. All is well with the fifth sense (the noun in aviation or driving). Idem for the sixth sense (the verb in aviation or driving), and seventh sense (as a mass or layer of something). The 'Summary Usage Note' is most-excellent and reminds the user of the highly polysemous nature of this lemma, as it is used both literally and metaphorically, across various fields, pointing out that the resulting translation equivalents in Portuguese truly depend on context. Brilliant lexicography.

In **A5**, Gemini-2.5 for Portuguese *banco* (prompt in English), at the first sense (as a financial institution) the translation equivalent and use in example sen-

https://lexikos.journals.ac.za; https://doi.org/10.5788/35-2-2104 (Article)

tences are all correct. No antonym is provided, although we know, thanks to GPT-4o under A4 sense 1 that there are antonyms (namely *borrower*, *debtor*). At the second sense (as furniture for sitting), three translation equivalents are provided and two are used in the examples (*bench*, *seat*). At the third sense (as a sandbank, or school of fish), four translation equivalents are provided and all four are used in the examples (*sandbank*, *school*, *bank*, *shoal*) — good lexicography in a learners' dictionary. At the fourth sense (as a blood or organ bank), only bank is offered as a translation equivalent, but all examples combine it (once each with *blood*, *organ*, *gene*, *tissue*). None of senses 2 to 4 include antonyms; but GPT-4o does for all, see the next example.

In **A6**, GPT-4o for Portuguese *banco* (prompt in English), the definition at the first sense (as a financial institution) is a good attempt at an FSD, which is always tougher for a noun than for a verb. Two translation equivalents are offered, but only one is used in the three examples (*bank*). As antonyms of this use of *banco*, Portuguese *cofre* 'safe' and *colchão (em uso figurado para guardar dinheiro em casa)* 'mattress (figuratively for storing money at home)' are offered — very good. At the second sense (as a bench in a park), the FSD is near-excellent. Two translation equivalents are offered, of which only one is used in all three examples (*bench*). Here too, the antonyms are head-on, Portuguese *chão* 'floor' and *cadeira individual* 'single chair'. At the third sense (as a substitute bench), the FSD is again near-excellent. While two translation equivalents are offered, again only one is used in all three examples (*bench*), though here it makes more sense, as the expanded *substitute bench* is of course rarer. The antonyms are again very good, Portuguese *titular* 'starter' and *escalado* 'line-up'. At the fourth sense (as a database), we see the usual near-FSD, two translation equivalents of which one used in the three examples (*database*), while the antonyms are original, Portuguese *ausência de dados* 'no data' and *sistema manual* 'manual system'. At the fifth sense (as a sandbank), again a near-FSD, three translation equivalents, but in the three examples only one of them (twice *sandbank*, plus even *bank*, which is not among the translation equivalents), and as antonyms the debatable Portuguese *canal* 'canal' and *profundidade* 'depth'. The concluding summary at the end, focusing on the polysemy of Portuguese *banco*, found with financial, physical, sportive, digital, and geological uses — listed in the order of the five senses — is most precise and helpful. That note continues with the claim that this GenAI entry is *'offering a comprehensive bilingual reference for language learners and lexicographers alike'*. Compared with the ridiculously short entry for *banco* as offered by Collins,[4] this is undoubtedly better, near-perfect even. Near-perfect, as the FSD does indeed contain the two parts, but is followed by a semi-colon and then a more traditional definition on top, making the FSD a bit too long. Other than that, let GPT-4o compile an entire dictionary in this format overnight, for the full lexicon, and we might have (the draft of) a good bilingual Portuguese–English learners' dictionary right away.

In **A7**, Gemini-2.5 for Portuguese *banco* (prompt in Portuguese), even more is presented in Portuguese as a result of prompting in Portuguese. At the first

https://lexikos.journals.ac.za; https://doi.org/10.5788/35-2-2104 (Article)

sense (as a financial institution), the definition consists of two sentences, so not an FSD, but if the two had been merged and shortened, it comes close. Of the two translation equivalents, all four examples use one (*bank*). Two synonyms are offered, no antonyms. At the second sense (as a bench in a park), we see the same type of non-FSD. Of the three translation equivalents that are offered, two are used in the four examples (*bench*, *pew*). Three synonyms are offered, no antonyms. At the third sense (as a sandbank), again a non-FSD. Of the four translation equivalents that are offered, three are used in the three examples (*sandbank*, *mudflat*, *shoal*). Three synonyms are offered, no antonyms. At the fourth sense (as a blood or data bank), another non-FSD. Of the four translation equivalents that are offered, only one is used in the four examples (*bank*). Four synonyms are offered, no antonyms. At the fifth sense (as a school or shoal of fish), the same issue with the non-FSD is evident. Of the two translation equivalents that are offered, only two are used in the three examples (*school*, *shoal*). Only one synonym is offered, no antonyms.

In **A8**, GPT-4o for Portuguese *banco* (prompt in Portuguese), there is again more in Portuguese, so here too the result of the Portuguese prompt. The first sense (as a financial institution) presents a definition in the FSD-style, use vs. meaning, followed by a second sentence that is a variation on the meaning only. Surely, the two sentences could have been merged, to achieve the FSD-goal of a learners' dictionary. One translation equivalent is offered and used in all three examples (*bank*). Two synonyms follow, with this time an indication that there are no antonyms in this sense (even though GPT-4o offered some for this sense in A4 and A6). The second sense (as a long seat) presents a similar FSD cum extra sentence. Two translation equivalents are offered, but only one is used in all three examples (*bench*). Three synonyms follow, and two antonyms (*cadeira* 'chair' and *poltrona* 'armchair'). The third sense (as a subaquatic formation) again has the pseudo-FSD and then a second sentence on a reformulation of the meaning. Four translation equivalents are offered, of which two are used in two examples (*sandbank*, *bank*) and then one not listed under the translation equivalents (*school*). Three synonyms follow, and two antonyms (*mar profundo* 'deep sea' and *leito rochoso* 'bedrock'). The fourth sense (as a vehicle seat) once again has the pseudo-FSD and second sentence. Two translation equivalents are offered, and both are used in all three examples (*car seat*, *seat*). Two synonyms follow, and two antonyms (*espaço livre* 'free space' and *chão do veículo* 'vehicle floor'). The fifth sense (as a collection of information) repeats the pseudo-FSD plus extra sentence on meaning. Two translation equivalents are offered, and both are used in all three examples (*database*, *data bank*). Two synonyms follow, and two antonyms (*informação dispersa* 'scattered information' and *fonte não estruturada* 'unstructured source'). At the very end, a pronunciation is offered for the lemma (both in European and Brazilian Portuguese, although the same here), followed by an invitation to treat GPT-4o as a professional lexicographer, as it invites the user with: *'If you'd like examples of compositions with 'banco' (such as data bank, square bank, image bank), I can draw up more specific blocks. Would you like to continue?'*.

https://lexikos.journals.ac.za; https://doi.org/10.5788/35-2-2104 (Article)

Even a cursory look — but especially the more detailed study just presented — of the lexicographic output of Gemini-2.5 vs. GPT-4o, makes clear that for lexicography GPT-4o is the better tool. Comparing the output under A6 (with the prompt in English) vs. the output under A8 (with the prompt in Portuguese) further indicates that prompting in English remains better than prompting in another language. It is therefore not surprising that over the past two years and a half, lexicographers not only started with but also mainly stuck by ChatGPT, as seen from the detailed study of a sample of 100 contributions on 'GenAI in lexicography' analysed in De Schryver (forthcoming-a, forthcoming-b). In any case, for large languages like Portuguese there is thus no need anymore to customise an LLM, at least not for general lexicographic purposes.

2. Customised GPTs

The necessary move for large non-English languages — so from a 'hyper-visible' to a 'semi-visible' uptake in technology like GenAI — has been made: Recent LLM models are now also achieving top lexicographic performances for languages such as Portuguese with out-of-the-box tools. Of course these same tools won't have improved much for low-visible languages such as the Bantu languages, and very likely not for a local-only visible language such as Lusoga: As far as we know, no extra data was added anywhere online in recent years for that language, so for exotic oral languages like Lusoga it becomes important to now know whether a tool like GPT-4o can be used to take the next step for them, namely *customisation*.

2.1 Local-visible Lusoga

Since the release of GPT-4o on 13 May 2024, customisation has been put into the hands of users. Within days of the release of GPT-4o a serious attempt was made to customise this model by trying the impossible: Could it compile dictionary articles for *neologisms* in the oral — so extremely under-documented — Bantu language Lusoga, by feeding GPT-4o everything that exists on Lusoga, viz. a corpus of 3.7 million tokens (De Schryver and Nabirye 2022), and a full comprehensive monolingual dictionary in XML, the *e-Eiwanika ly'Olusoga* (Nabirye et al. 2012)[5]? The outcome, presented on 20 May 2024 as a keynote at the CogALex workshop of LREC-COLING 2024 in Turin (De Schryver 2024a), was tantalising: whereas GPT-4o generated only nonsense out-of-the-box, it started to make sense with this customisation.

Indeed, following an opening prompt in which GPT-4o was merely informed that the word *ente* is 'cow' in Lusoga; an out-of-the-box generation of a definition for it produced utter gibberish: the reply seen in Figure 5 is meaningless.

https://lexikos.journals.ac.za; https://doi.org/10.5788/35-2-2104 (Article)

Figure 5: Trying the out-of-the-box GPT-4o, asking for a Lusoga definition of *ente* 'cow'

A team of three therefore joined forces — programmer David Joffe from South Africa, native Lusoga speaker Minah Nabirye from Uganda, and lexicographer Gilles-Maurice de Schryver from Belgium — and messaged the built-in GPT builder to create a custom GPT, which they called 'Lusoga Linguist'. After agreeing on a profile picture, the refinement of the context could start, with Figure 6 showing one of the goals.

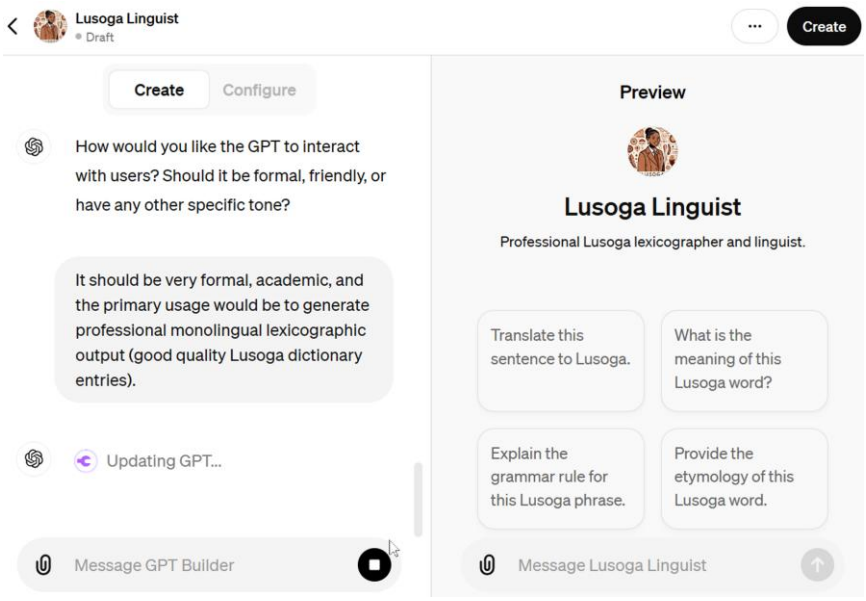


Figure 6: Work on refining the goal of the custom GPT for Lusoga lexicography has begun

https://lexikos.journals.ac.za; https://doi.org/10.5788/35-2-2104 (Article)

After that, a first attempt was made at adding Lusoga corpus files to the 'Knowledge base', as seen in Figure 7.

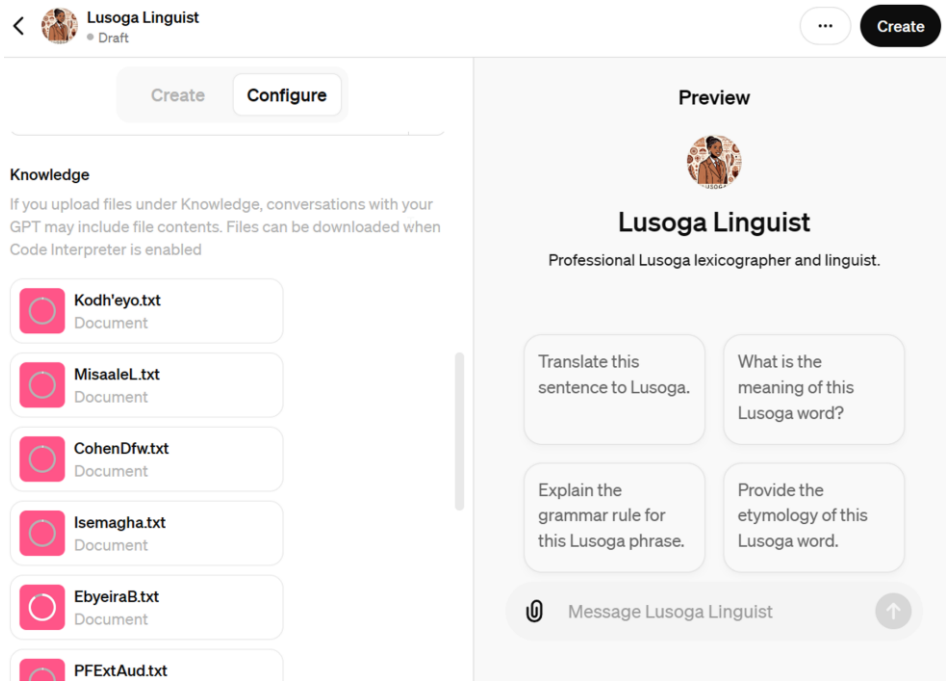


Figure 7: Adding a Lusoga sample corpus to the 'Knowledge base' of GPT-4o

Adding very many files did not work, so a single word file (of about 500KB) with 10,000 lines of corpus texts was added. In there the word *ente* 'cow' occurred 36 times. Once done, GPT-4o was instructed to '*study the uploaded corpus of Lusoga text*' to then use this knowledge before moving to the '*task of generating professional monolingual Lusoga dictionary entries*', as seen in Figure 8.

https://lexikos.journals.ac.za; https://doi.org/10.5788/35-2-2104 (Article)

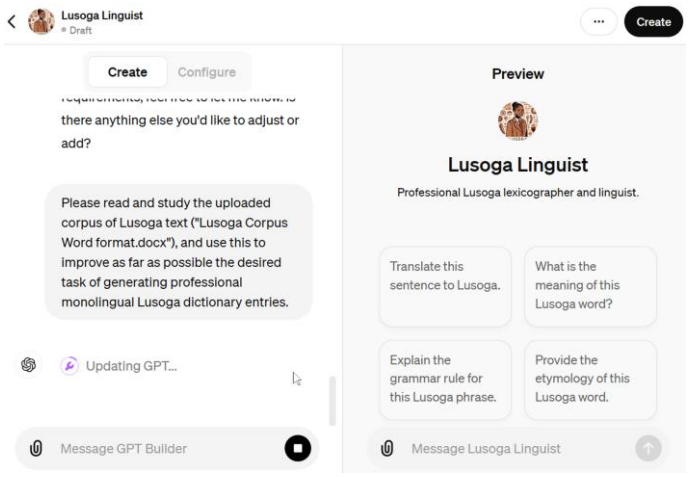


Figure 8: Instructing GPT-4o to study the submitted sample Lusoga corpus

The initial prompt was then repeated, as seen in Figure 9, together with the output.

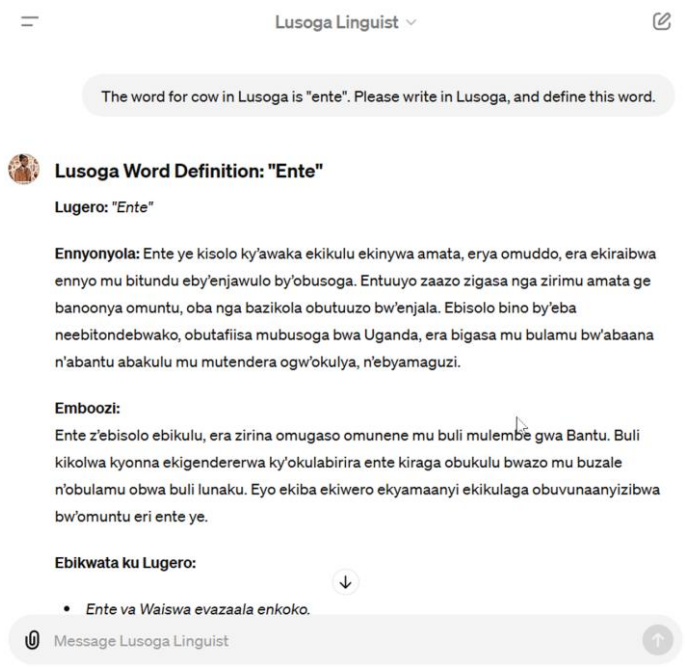


Figure 9: A customised GPT-4o tries to define Lusoga *ente* 'cow', using a sample corpus

https://lexikos.journals.ac.za; https://doi.org/10.5788/35-2-2104 (Article)

The output seen in Figure 9 reads more like a story than a dictionary. Plus, most is in the neighbouring and much larger language Luganda, with little in Lusoga. The opening of the definition translates as '*A cow is an animal that drinks milk and eats grass …*' and the last line of the screenshot has an example that translates as '*The cow of Waiswa gives birth to a chicken*'. Further prompting in which GPT-4o was asked to only use Lusoga (and no Luganda) and to compile a proper dictionary (rather than a story) failed to improve the result. The decision was therefore taken to load samples of the monolingual Lusoga dictionary into the 'Knowledge base' of GPT-4o. That work was published as a paper dictionary (Nabirye 2009) as well as an e-dictionary (Nabirye et al. 2012), and for the latter both as a downloadable dictionary app as well as a free online dictionary. See Addendum B, available online (click here).

After uploading the sample with monolingual Lusoga dictionary examples, GPT-4o was instructed to study those sample entries, in the hope that it would 'understand' the lexicographic composition. Figure 10 displays the start of the conversation on this level, while Figure 11 displays the end of the analysis by GPT-4o. Recall that all the data submitted for training of the model is fully in Lusoga, not in any other language, so the task is clearly hard. On the other hand, there is a good lexical overlap between Lusoga and Luganda, a language for which there are considerable amounts of data online.

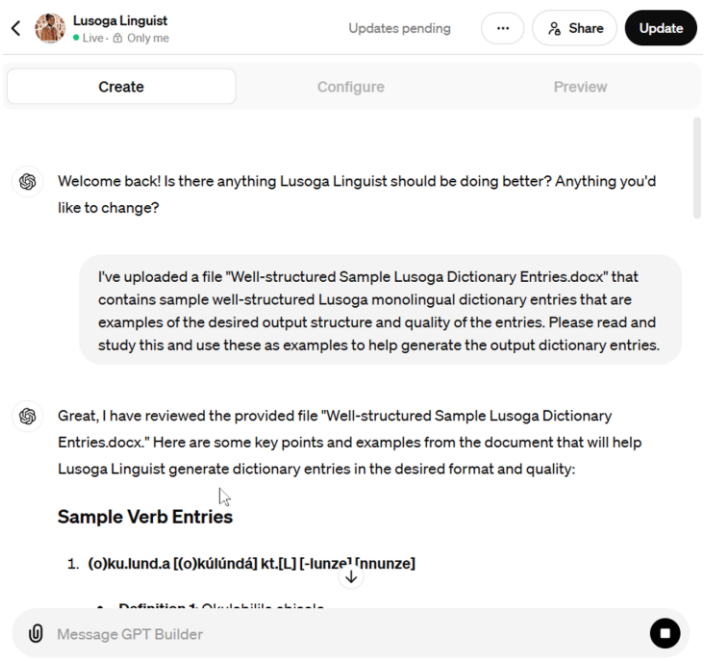


Figure 10: After adding a sample of monolingual Lusoga dictionary entries to the 'Knowledge base', asking GPT-4o to study the structure of that

https://lexikos.journals.ac.za; https://doi.org/10.5788/35-2-2104 (Article)

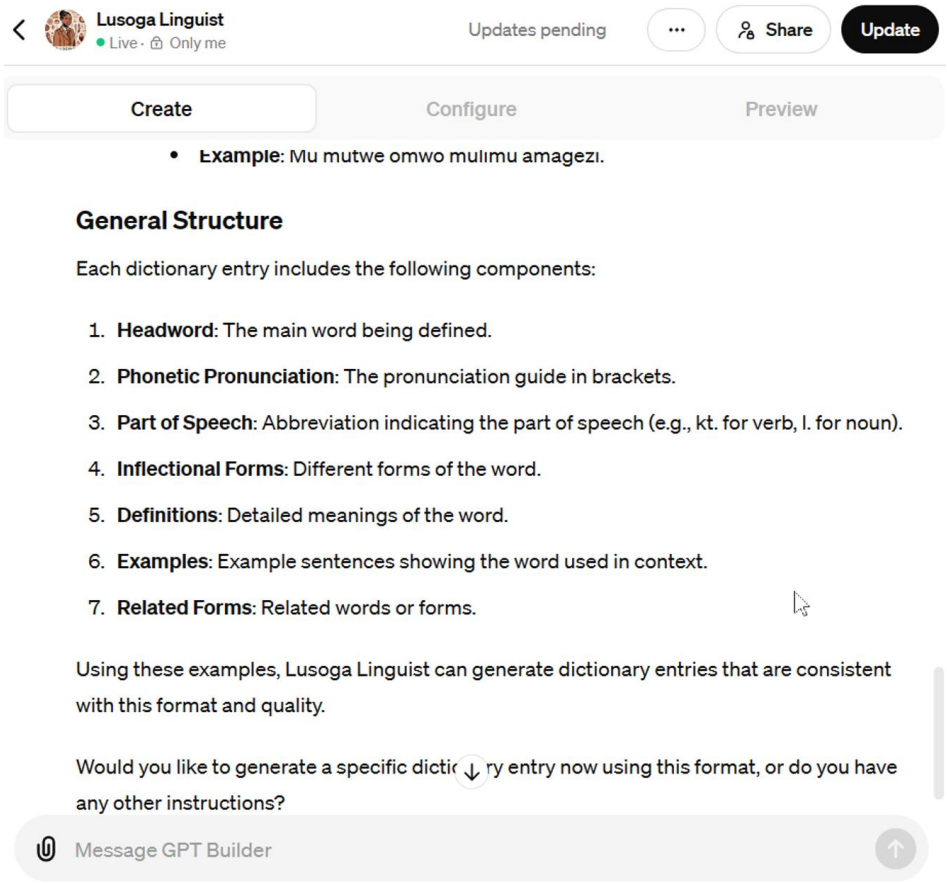


Figure 11: GPT-4o has 'learned' the lexicographic composition of entries in the monolingual Lusoga dictionary

Equipped with a sample Lusoga corpus, and a sample of Lusoga dictionary entries, GPT-4o was asked for a definition of *omukono* 'hand/arm' (not being among the sample dictionary entries), as seen in Figure 12. The overall appearance of Figure 12 is only slightly more dictionary-like. Plus, one continues to notice both Luganda and Lusoga, but whenever it is Lusoga it is still not coherent. Actually, but still surprisingly, only sense 2 is (1) written in Lusoga, and (2) makes somewhat sense, as the translation is '*One of the *drafts of the body ...*'. Is the custom GPT-4o starting to learn Lusoga, or simply lucky in making things up? Two efforts were undertaken to make the custom GPT-4o much better.

https://lexikos.journals.ac.za; https://doi.org/10.5788/35-2-2104 (Article)

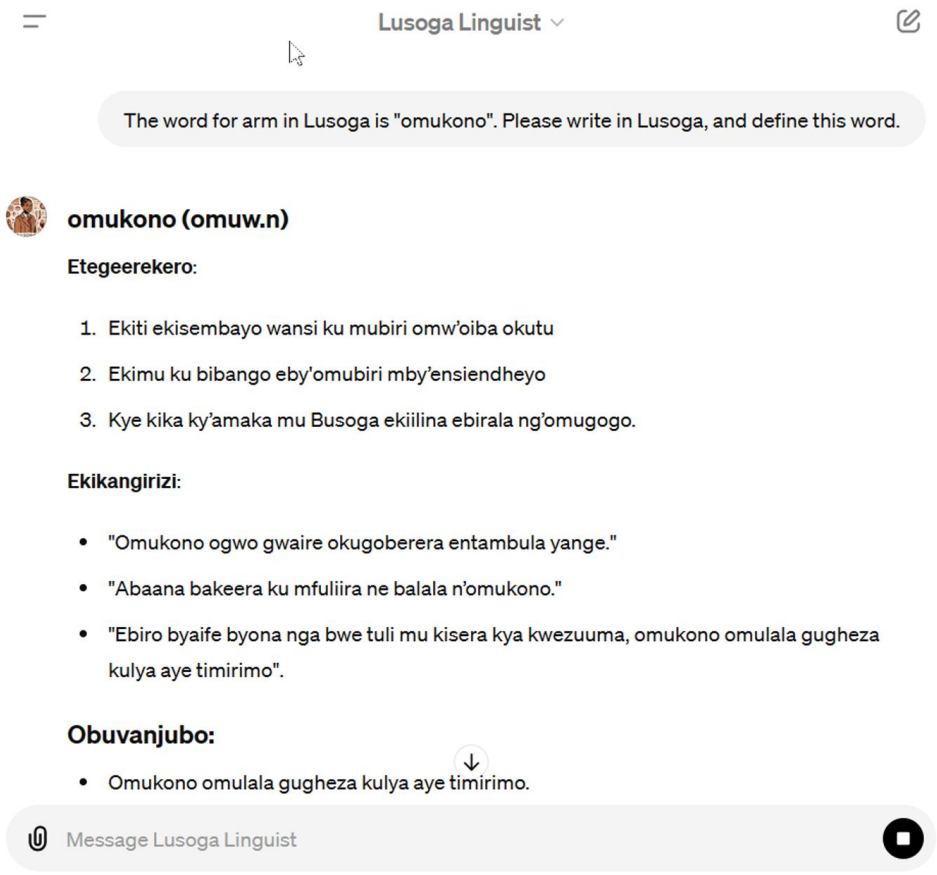


Figure 12: Asking the first version of a customised GPT-4o for the Lusoga entry *omukono* 'hand/arm'

First, given that up to 20 documents may be added to the 'Knowledge base', with each not containing more than 2 million LLM tokens and not larger than 512MB, all the files of the sample corpus were taken away and were now replaced with the full Lusoga corpus of 3.7 million word tokens, cut up in ten parts.[6] That corpus was the result of about two decades of corpus building by Minah Nabirye (De Schryver and Nabirye 2018, 2022), and enlarging it even further is a truly heroic effort.[7] Figure 13 shows how the 3.7 million Lusoga word tokens were added to the 'Knowledge base', and Figure 14 prompts with the same question as in Figure 12, but now assuming that the full corpus 'taught' the customised GPT-4o model more about the Lusoga language.

https://lexikos.journals.ac.za; https://doi.org/10.5788/35-2-2104 (Article)

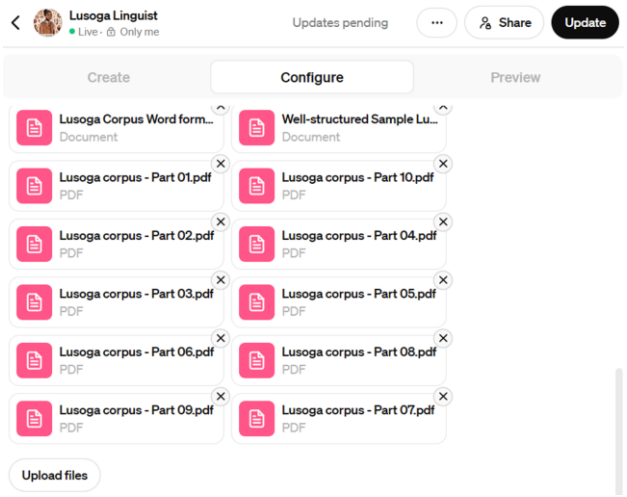


Figure 13: Adding all 3.7m word tokens of Lusoga to the 'Knowledge base' of the customised GPT-4o

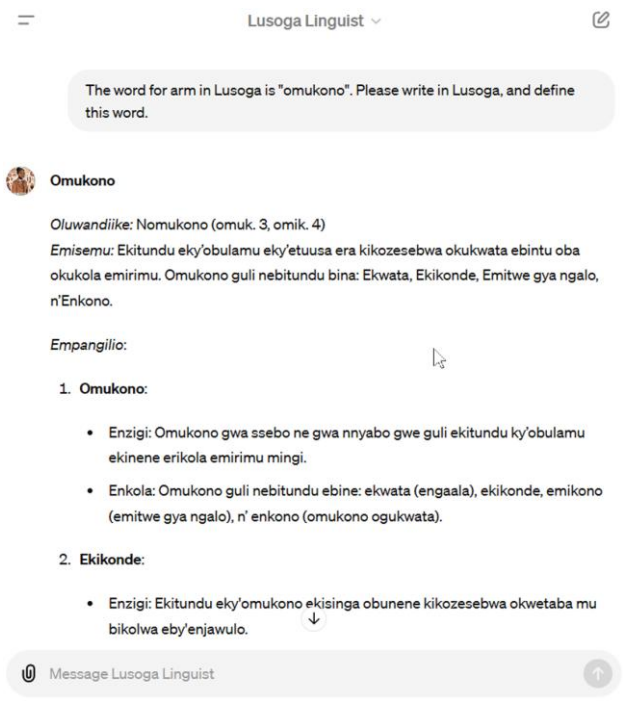


Figure 14: Asking the re-customised GPT-4o for the Lusoga entry *omukono* 'hand/arm'

https://lexikos.journals.ac.za; https://doi.org/10.5788/35-2-2104 (Article)

While still far from correct, Figure 14 suddenly comes close to resembling real Lusoga and the analysis of Lusoga. On the first line, for instance, while the singular prefix is (obviously) correct (*omu-* in class 3), for the plural *omi-* in class 4 is suggested, where it should be *emi-* in class 4. Then, the definition of *omukono* 'hand/arm' contains not only too much Luganda, but also Swahili, and translates as '*The part of the body which is close and is used to hold things and to do work*'. A rather 'funny' definition, but it is valid: it is a close body part, and hands are used to hold things and also perform work. Compare this to the actual entry in the *e-Eiwanika ly'Olusoga*, as seen in the first screenshot of Addendum B, available online (click here).

This result logically led to the second effort, namely the addition to the 'Knowledge base' of the XML-file of the entire 600-page *e-Eiwanika ly'Olusoga*, in other words the full monolingual Lusoga dictionary, as seen in Figure 15. (The 'Well-structured Sample' was taken out.)

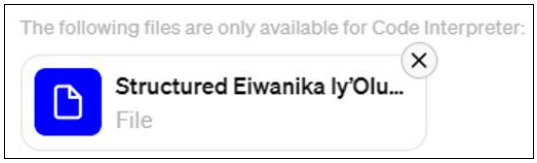


Figure 15: Adding the XML-file of the full monolingual *e-Eiwanika ly'Olusoga* to the 'Knowledge base' of the customised GPT-4o

This was immediately followed by an instruction to the custom GPT-4o to study this full dictionary, as seen in Figure 16.

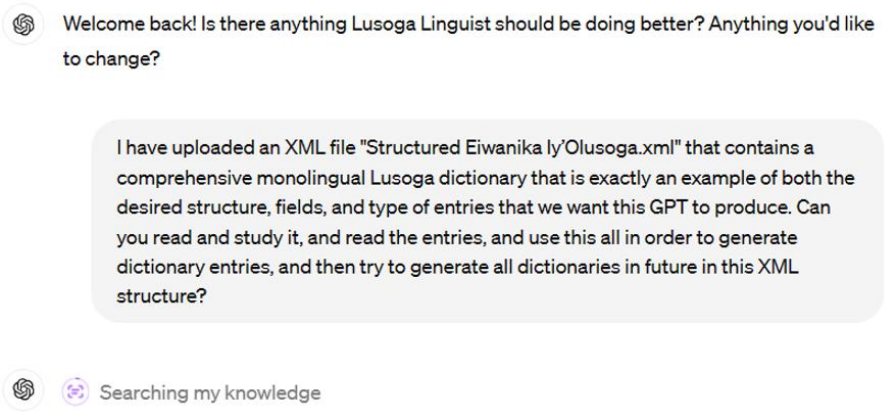


Figure 16: Adding the XML-file of the entire monolingual *e-Eiwanika ly'Olusoga* to the 'Knowledge base' of the customised GPT-4o

https://lexikos.journals.ac.za; https://doi.org/10.5788/35-2-2104 (Article)

Working with ChatGPT, Barrett (2023: 10) had noticed that even their GPT-4 model performed some stunts at times, namely to blatantly copy over existing dictionary contents wholesale (in his case for definitions of *virus*). In order to be sure that the customised GPT-4o model does not simply go on a copy-and-paste venture now that the full *e-Eiwanika ly'Olusoga* is in the 'Knowledge base', an additional difficulty was added, namely to focus on neologisms. The lemma *omuyumo* 'entertainer' was chosen, as it is a known neologism, first described in the academic literature in De Schryver and Nabirye (2022: 843), and *not* in the monolingual Lusoga dictionary, but *in* the Lusoga corpus. In Figure 17 one sees the reply to the question to compile a monolingual dictionary article for *omuyumo* 'entertainer'.

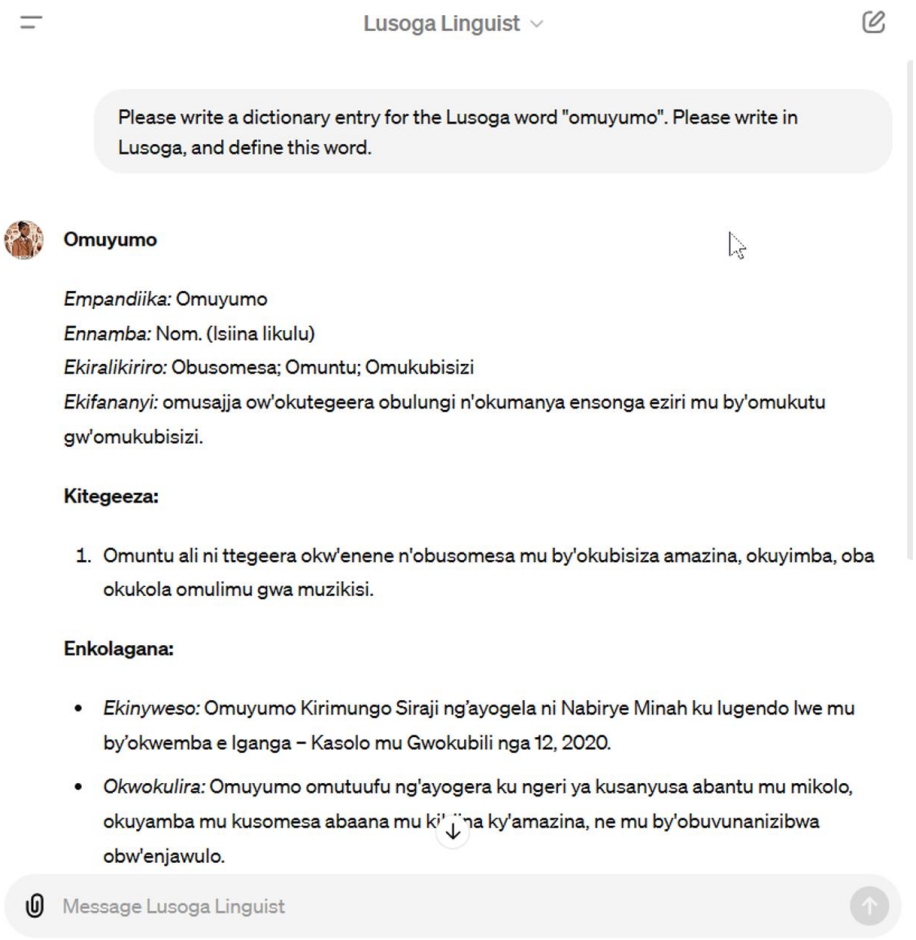


Figure 17: Asking the re-re-customised GPT-4o to compile a dictionary entry for Lusoga *omuyumo* 'entertainer'

https://lexikos.journals.ac.za; https://doi.org/10.5788/35-2-2104 (Article)

While the opening section of Figure 17 still makes no lexicographic sense, the first bullet at the bottom provides an example that is fully grammatical, coherent and on-topic Lusoga. The translation of this example sentence is: '*The entertainer known as Kirimungo Siraj is in the process of speaking with Nabirye Minah about his Singing Journey at Iganga, Kasolo on 12-02-2020*'. This sentence does not appear in the corpus, and is clearly an excellent summary of one of the transcribed recordings made in 2020 for a book that came out four years later, ironically called *Obuyumu mu Busoga* 'Entertainment in Busoga' (Nabirye 2024). Unfortunately, while the example at the next bullet is again grammatical, coherent, and on-topic, it is couched in Luganda: '*A true entertainer who is speaking about ways of entertaining people at a function, who helps to teach the truth to children in class and for different types of responsibilities*'.

While there is clearly still a long way to go to get to proper lexicography, and while the neighbouring language Luganda still creeps in, seeing that GPT-4o can actually start learning a brand-new language and generate some dictionary material in it is promising, and, as far as we know, has not yet been tried for any other language within the field of lexicography.[8]

Moreover, when asked to explain where the data for the generated examples come from, GPT-4o is able to point to the various corpus sections from where it sourced and summarised information. For instance, for the example in Luganda at the last bullet in Figure 17, Figure 18 adds the Lusoga sources — in other words, here the example is based on material taken from the Lusoga corpus, but strangely 'translated' from Lusoga into Luganda.

- Ekinyweso: Omuyumo Kirimungo Siraji ng'ayogela ni Nabirye Minah ku lugendo lwe mu by'okwemba e Iganga – Kasolo mu Gwokubili nga 12, 2020.

- Okwokulira: Omuyumo omutuufu ng'ayogera ku ngeri ya kusanyusa abantu mu mikolo, okuyamba mu kusomesa abaana mu kibiina ky'amazina, ne mu by'obuvunanizibwa obw'enjawulo【21:0†source】【21:1†source】【21:2†source】【21:3†source】【21:5†source】【21:6†source】【21:7†source】【21:10†source】.

Figure 18: The custom GPT-4o reveals the Lusoga sources used for the last example in Figure 17

Experimenting more with trying to discover what was used to come up with certain definitions and/or examples, at some point later on, while working on the neologism *obukurisitu* 'Christianity', the custom GPT-4o claims all of what is seen in Figure 19, where the most important claim is: '*Each reference helps trace*

https://lexikos.journals.ac.za; https://doi.org/10.5788/35-2-2104 (Article)

back the information used in the dictionary entry to its original location in the uploaded documents. This ensures that the definition provided is well-supported by the source material'. And a bit later yet again, when working on the neologism *omukwampa* 'the direction of', the custom GPT-4o even goes as deep as to claim all that is seen in Figure 20, where the summary is: '*The references are not from a single contiguous line or section but rather from different parts of the text that discuss related topics, such as boundary demarcations, geographical descriptions, and historical or cultural contexts*'. All of this has indeed a lot to do with the meaning of the neologism *omukwampa* 'the direction of', so if all true, this means that a customised LLM stops being the full black box feared by lexicographers, as it becomes somewhat less opaque. At the same time, customisation for an unknown exotic language such as Lusoga is not good enough, so we need more.

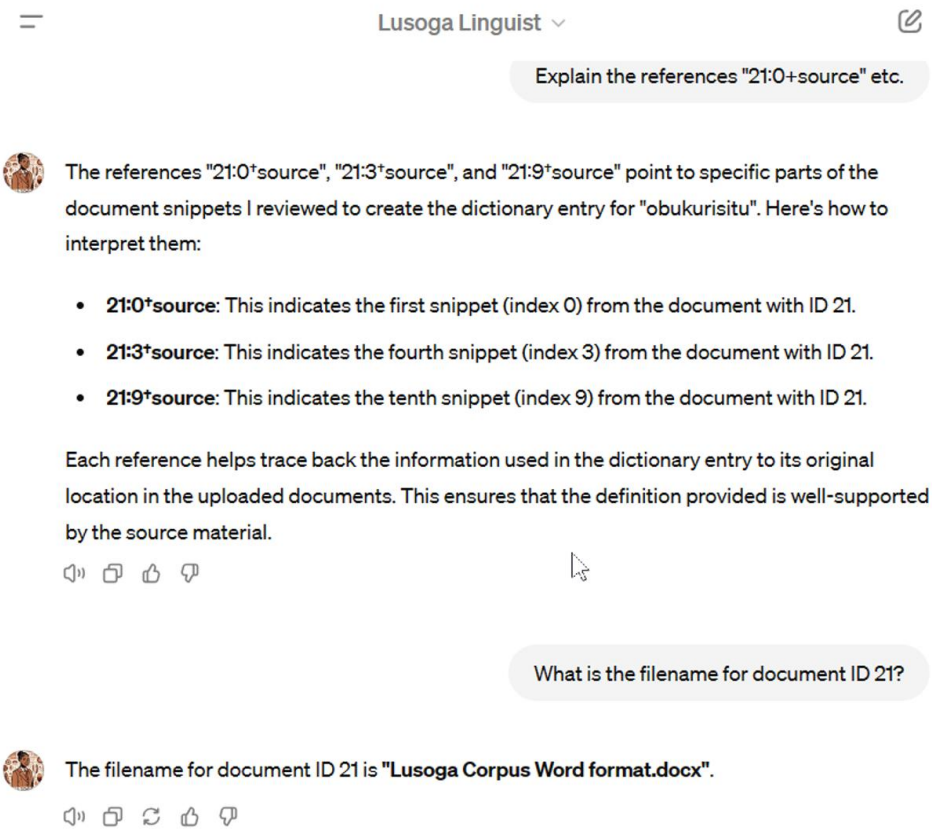


Figure 19: The custom GPT-4o reveals the Lusoga sources used for the Lusoga lemma *obukurisitu* 'Christianity'

https://lexikos.journals.ac.za; https://doi.org/10.5788/35-2-2104 (Article)

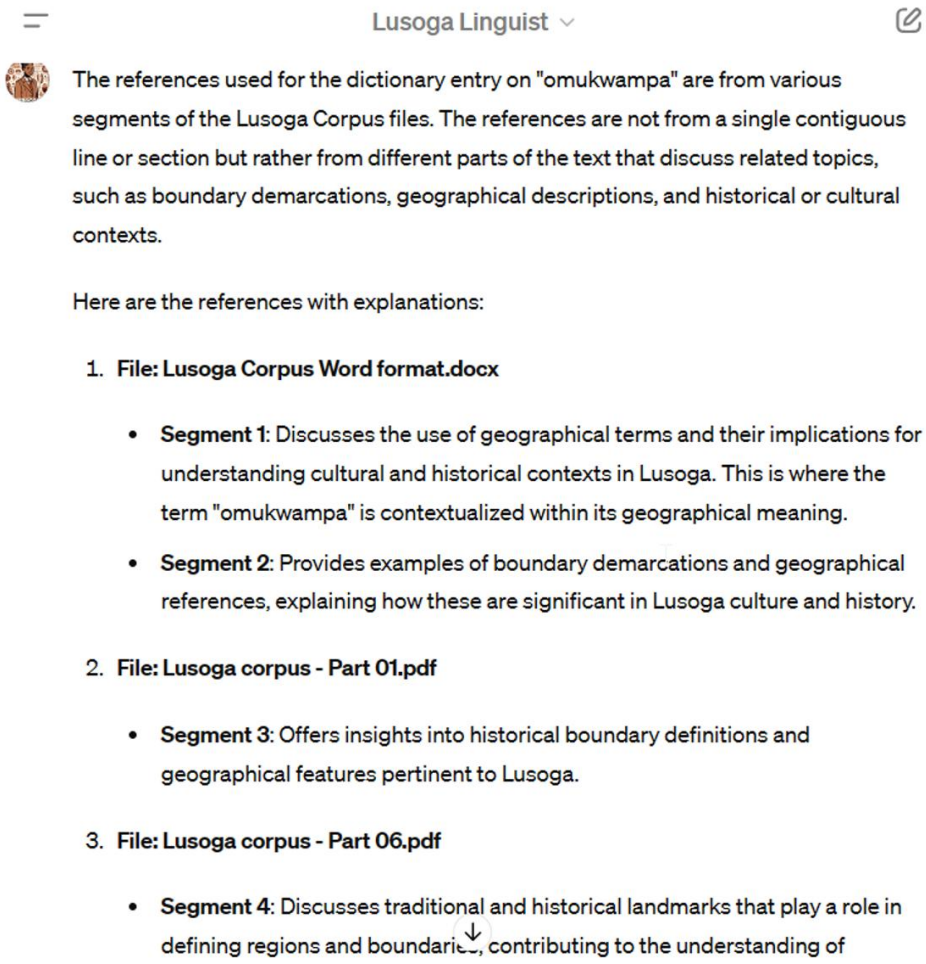


Figure 20: The custom GPT-4o reveals the Lusoga sources used for the Lusoga lemma *omukwampa* 'the direction of'

3. Epilogue

Armed with all the facts presented so far, and having proceeded from an out-of-the-box GPT (see De Schryver 2025), to a customised GPT for lexicographic purposes, it is now necessary to take the next step for under-resourced languages, namely the fine-tuning of an LLM to (1) compile a dictionary, (2) act as a dictionary in its own right, or even (3) chat with the LLM as if it were a lexicographer. The differences between the three types are summarised in Table 1, adapted from De Schryver (2024b: 9).

https://lexikos.journals.ac.za; https://doi.org/10.5788/35-2-2104 (Article)

Table 1: Comparing models for lexicography: Out-of-the-box GPT vs. customised GPT vs. fine-tuned GPT

Feature	Out-of-the-box GPT	Customised GPT	Fine-tuned GPT
Modifies core model	No	No	Yes
Training required	No	No, leverages pre-trained model	Yes, on a specific dataset
User input	Text prompt	Instructions and/or relevant documents	New data for the model to learn from
Complexity	Least complex, easy to use	Rather complex, potentially no-code/low-code	More complex, requires expertise
Cost	Least expensive	More expensive	A lot more expensive
Output control	Limited control over the generated text	More control over the direction of the output	High degree of control over the generated text
Suitability for 'exotic lexicography'	Limited, may not be familiar with 'exotic language'	Can be adapted to the 'exotic language' through prompts and instructions	More directly addresses the 'exotic language' through fine-tuning

The most important difference is listed in the first line of Table 1: one will need to modify the core model. In keeping with seeking a true challenge, as hinted at in the last line of Table 1: one could proceed with an exotic language about which the model has initially no clue. This is definitely a task for a future endeavour.[9] But whatever the outcomes, they should be reported on, there and then.

PS.

Addendum C, available online (click here), gives an example of how the addition of the LLM Gemini to the search engine Google[10] has turned that search engine into an intriguing GenAI chatbot. Search for 'broken uganda' today, and see how all data available on the Internet on this topic is first analysed and summarised, in real time, before listing the usual hyperlinks.

Endnotes

1. See https://lmarena.ai/.
2. See https://pdev.org.uk/.
3. See https://www.collinsdictionary.com/dictionary/english/bank, other verb uses.
4. See https://www.collinsdictionary.com/dictionary/portuguese-english/banco.
5. See https://menhapublishers.com/dictionary/.
6. Note that each token in an LLM like GPT-4o is either a whole word, part of a word, or punctuation, so a Lusoga corpus of 3.7 million word tokens has many more millions of LLM tokens.
7. Ironically, a massive effort to enlarge the Lusoga corpus was indeed undertaken starting at the end of June 2024, but after nearly three months of non-stop data recording and transcrip-

https://lexikos.journals.ac.za; https://doi.org/10.5788/35-2-2104 (Article)

tion it was all in vain, as the material was stolen and the fieldworker himself suffered quite an impact in Uganda (De Schryver forthcoming-b).

8. More generally, and outside the field of lexicography, LLMs have (1) been trained to translate low-resource languages, such as for Inuktitut (40 thousand speakers; spoken in northern Canada) — Elsner and Needle (2023), or (2) been asked to learn new languages, such as for Zhuang (16 million speakers; spoken in southern China) — Zhang et al. (2024), or even (3) been taught languages with rare scripts, such as for Dzonghka (640,000 speakers; spoken in western Bhutan; Tibetan script), Santali (7.6 million speakers; spoken in India, Bangladesh and Nepal; Ol Chiki script), Nko (millions of speakers; spoken in West Africa; N'Ko script), Tamasheq (900,000 speakers; spoken in Mali and Burkina Faso; Tifinagh script), and Tigrinya (9.9 million speakers; spoken in Eritrea and Ethiopia; Ge'ez script) — Li et al. (2025).
9. That endeavour had actually been kickstarted, see Endnote 7. But the fieldworker was broken into, both literally (his hut was emptied) and sadly also literally (his skull and brain were broken up with machetes). After the fieldworker miraculously came fully back to life, he decided it was time to release his talk on 'Broken in Uganda', dating from August 2023.
10. See https://www.google.com/.
11. See https://www.youtube.com/.

References

Barrett, G. 2023. *Defin-o-Bots: Challenging A.I. to Create Usable Dictionary Content*. Paper presented at the 24th Biennial Conference of the Dictionary Society of North America, Boulder, CO, USA, 31 May–3 June 2023.

De Schryver, G.-M. 2023a. *Broken in Uganda: Uganda's National Curriculum Development Centre (NCDC)*. Paper presented at the Third Biannual Conference of the Language Association of Eastern Africa (LAEA), Makerere University, Kampala, Uganda, 15–16 August 2023, Kampala. https://youtu.be/wYL6ZNlny5o

De Schryver, G.-M. 2023b. *Contemporary Lexicography: A Case Study in AI [Keynote Lecture]*. Paper presented at the Inaugural Conference of the Association of Lexicography for the Americas: South, Central, Caribbean, and Mexico (Americalex-S), São Paulo, Brazil, 20–25 October 2023. https://youtu.be/watch?v=yAxzTx7A2LU

De Schryver, G.-M. 2024a. *Customising LLMs for Lexicography [Keynote Lecture]*. Paper presented at the 8th International Workshop on Cognitive Aspects of the Lexicon (CogALex-VIII), co-located with the Joint International Conference on Computational Linguistics, Language Resources and Evaluation (LREC-COLING 2024), Turin, Italy, 20 May 2024.

De Schryver, G.-M. 2024b. The Road towards Fine-tuned LLMs for Lexicography. Krek, S. (Ed.). 2024. *Book of Abstracts of the Workshop 'Large Language Models and Lexicography' @ EURALEX 2024, 8 October 2024, Cavtat, Croatia*: 6-11. Ljubljana: ELEXIS Association.

De Schryver, G.-M. 2025. Out-of-the-Box GPTs for Lexicography. *Lexikos* 35(2): 362-396.

De Schryver, G.-M. forthcoming-a. 100 Scholarly Echoes of Generative AI in Lexicography.

De Schryver, G.-M. forthcoming-b. Citing the Future: The Legacy of Patrick Hanks.

De Schryver, G.-M. and M. Nabirye. 2018. Corpus-driven Bantu Lexicography, Part 1: Organic Corpus Building for Lusoga. *Lexikos* 28: 32-78.

https://lexikos.journals.ac.za; https://doi.org/10.5788/35-2-2104 (Article)

De Schryver, G.-M. and M. Nabirye. 2022. Towards a Monitor Corpus for a Bantu Language. A Case Study of Neology Detection in Lusoga. Klosa-Kückelhaus, A., S. Engelberg, C. Möhrs and P. Storjohann (Eds.). 2022. *Dictionaries and Society. Proceedings of the XX EURALEX International Congress, 12–16 July 2022, Mannheim, Germany*: 833-849. Mannheim: IDS-Verlag.

Elsner, M. and J. Needle. 2023. Translating a Low-resource Language Using GPT-3 and a Human-readable Dictionary. Nicolai, G., E. Chodroff, F. Mailhot and Ç. Çöltekin (Eds.). 2023. *Proceedings of the 20th SIGMORPHON Workshop on Computational Research in Phonetics, Phonology, and Morphology*: 1-13. Toronto: Association for Computational Linguistics.

Grefenstette, G. and P. Hanks. 2023. Competing Views of Word Meaning: Word Embeddings and Word Senses. *International Journal of Lexicography* 36(2): 211-219.

Hanks, P. 1979. Meaning and Grammar. Hanks, P. (Ed.), T.H. Long (Managing ed.), L. Urdang (Ed. director) and others (Eds.). 1979. *Collins Dictionary of the English Language*: xxxi-xxxv. London: William Collins Sons & Co.

Hanks, P. 1988. Typicality and Meaning Potentials. Snell-Hornby, M. (Ed.). 1988. ZüriLEX '86 Proceedings: Papers read at the EURALEX International Conference, Universty of Zürich, 9–14 September 1986: 37-47. Tübingen: A. Francke.

Hanks, P. 2000. Do Word Meanings Exist? *Computers and the Humanities* 34(1–2): 205-215.

Hanks, P. 2002. Mapping Meaning onto Use. Corréard, M.-H. (Ed.). 2002. *Lexicography and Natural Language Processing. A Festschrift in Honour of B.T.S. Atkins*: 156-198. s.l.: Euralex.

Hanks, P. 2004. Corpus Pattern Analysis. Williams, G. and S. Vessier (Eds.). 2004. *Proceedings of the Eleventh EURALEX International Congress, EURALEX 2004, Lorient, France, July 6–10, 2004*: 87-97. Lorient: Faculté des Lettres et des Sciences Humaines, Université de Bretagne Sud.

Hanks, P. 2008. Lexical Patterns: From Hornby to Hunston and Beyond. Bernal, E. and J. Decesaris (Eds.). 2008. *Proceedings of the XIII EURALEX International Congress (Barcelona, 15–19 July 2008)* (Sèrie Activitats 20): 89-129. Barcelona: Institut Universitari de Lingüística Aplicada, Universitat Pompeu Fabra.

Hanks, P. 2012. How People Use Words to Make Meanings: Semantic Types Meet Valencies. Thomas, J. and A. Boulton (Eds.). 2012. *Input, Process and Product: Developments in Teaching and Language Corpora*: 54-69. Brno: Masaryk University Press.

Hanks, P., I. El Maarouf and M. Oakes. 2018. Flexibility of Multiword Expressions and Corpus Pattern Analysis. Sailer, M. and S. Markantonatou (Eds.). 2018. *Multiword Expressions: Insights from a Multilingual Perspective* (Phraseology and Multiword Expressions 1): 93-119. Berlin: Language Science Press.

Hanks, P. and E. Franklin. 2019. Do Online Resources Give Satisfactory Answers to Questions about Meaning and Phraseology? Corpas Pastor, G. and R. Mitkov (Eds.). 2019. *Computational and Corpus-based Phraseology. Third International Conference, Europhras 2019, Malaga, Spain, September 25–27, 2019, Proceedings* (Lecture Notes in Artificial Intelligence (LNAI), subseries of Lecture Notes in Computer Science (LNCS) 11755): 159-172. Berlin: Springer.

Hanks, P. and W. Ma. 2021. Meaning and Grammar in the Light of Corpus Pattern Analysis. *International Journal of Lexicography* 34(1): 135-149.

Hanks, P. and S. Može. 2019. The Way to Analyse 'way': A Case Study in Word-specific Local Grammar. *International Journal of Lexicography* 32(3): 247-269.

Hanks, P. and J. Pustejovsky. 2005. A Pattern Dictionary for Natural Language Processing. *Revue Française de linguistique appliquée* 10(2): 63-82.

https://lexikos.journals.ac.za; https://doi.org/10.5788/35-2-2104 (Article)

Li, Y., Z. Zhao and C. Scarton. 2025. It's All about In-context Learning! Teaching Extremely Low-resource Languages to LLMs. Christodoulopoulos, C., T. Chakraborty, C. Rose and V. Peng (Eds.). 2025. *Proceedings of the 2025 Conference on Empirical Methods in Natural Language Processing*: 29532-29547. Suzhou: Association for Computational Linguistics.

Nabirye, M. 2009. *Eiwanika ly'Olusoga. Eiwanika ly'aboogezi b'Olusoga n'abo abenda okwega Olusoga [A Dictionary of Lusoga. For Speakers of Lusoga, and for Those Who Would Like to Learn Lusoga]* (Linguistics Series 1). Kampala: Menha Publishers.

Nabirye, M. 2024. *Obuyumu mu Busoga [Entertainment in Busoga]* (History Series 3). Kampala: Menha Publishers.

Nabirye, M. and G.-M. de Schryver. 2013. Digitizing the Monolingual Lusoga Dictionary: Challenges and Prospects. *Lexikos* 23: 297-322.

Nabirye, M., G.-M. de Schryver, D. Joffe and M.J. MacLeod. 2012. *e-Eiwanika ly'Olusoga [Digital Lusoga Dictionary]* (Linguistics Series 3). Kampala / Cape Town: Menha Publishers / TshwaneDJe HLT.

Zhang, C., X. Liu, J. Lin and Y. Feng. 2024. Teaching Large Language Models an Unseen Language on the Fly. Ku, L.-W., A. Martins and V. Srikumar (Eds.). 2024. *Findings of the Association for Computational Linguistics: ACL 2024*: 8783-8800. Bangkok: Association for Computational Linguistics.

Addendum A: Using Gemini-2.5 vs. GPT-4o — For an English–Portuguese / Portuguese–English Learners' Dictionary

== A1 == Full text of Figure 1, left: Google's *gemini-2.5-flash-preview-05-20*

RECOMMEND V [VERB] often used
Pronunciation: /ˌrɛkəˈmɛnd/

1. **VERB** (recommends, recommending, recommended) If you **recommend** that someone do something, you advise them that they should do it, especially because you think it would be good or helpful for them. You can also **recommend** a particular course of action or solution.
   - **Portuguese Equivalents:** recomendar, aconselhar, sugerir, propor
   - **Examples:**
     - **English:** "I highly recommend this book to anyone interested in modern history; it's incredibly insightful."
     - **Portuguese:** "Recomendo vivamente este livro a qualquer pessoa interessada em história moderna; é incrivelmente perspicaz."
     - **English:** "The doctor recommended that she get plenty of rest and avoid stressful activities for a few weeks."
     - **Portuguese:** "O médico recomendou que ela descansasse bastante e evitasse atividades estressantes por algumas semanas."
     - **English:** "What dishes would you recommend from the menu for someone who enjoys spicy food?"
     - **Portuguese:** "Que pratos você recomendaria do menu para alguém que gosta de comida picante?"
     - **English:** "For effective pain relief, we generally recommend taking two tablets every four to six hours as needed."
     - **Portuguese:** "Para um alívio eficaz da dor, geralmente recomendamos tomar dois comprimidos a cada quatro a seis horas, conforme necessário."
   - **Synonyms:** advise, suggest, counsel, advocate, propose
   - **Antonyms:** discourage, deter, dissuade

2. **VERB** (recommends, recommending, recommended) If you **recommend** someone or something, you say that they are good and suitable for a particular purpose or job, or for other people to try. This often implies a positive endorsement or a personal vouching for quality.
   - **Portuguese Equivalents:** recomendar, indicar, elogiar, aprovar, endossar
   - **Examples:**
     - **English:** "Our supervisor always recommends new employees who show great initiative and a strong work ethic."

        - **Portuguese:** "Nosso supervisor sempre recomenda novos funcionários que demonstram grande iniciativa e uma forte ética de trabalho."
        - **English:** "The travel guide highly recommended this hidden gem of a restaurant for its authentic local cuisine."
        - **Portuguese:** "O guia de viagem recomendou vivamente esta joia escondida de restaurante pela sua autêntica cozinha local."
        - **English:** "We will certainly recommend your company to all our partners after the excellent service you provided."
        - **Portuguese:** "Com certeza recomendaremos sua empresa a todos os nossos parceiros após o excelente serviço que você prestou."
        - **English:** "Having successfully completed several projects for us, I can confidently recommend him for any challenging engineering role."
        - **Portuguese:** "Tendo concluído com sucesso vários projetos para nós, posso recomendá-lo com confiança para qualquer função desafiadora de engenharia."
    - **Synonyms:** endorse, commend, vouch for, praise, approve, advocate
    - **Antonyms:** criticize, disapprove, condemn, discredit

---

3. **VERB** (recommends, recommending, recommended) If a quality or feature **recommends** something, it makes it seem attractive, desirable, or suitable. This usage often implies that the inherent qualities of something make it a good choice.
    - **Portuguese Equivalents:** tornar atraente, tornar desejável, valorizar, servir de recomendação para
    - **Examples:**
        - **English:** "Its exceptionally quiet location, away from the city bustle, strongly recommends it as an ideal retreat for those seeking peace."
        - **Portuguese:** "Sua localização excepcionalmente tranquila, longe da agitação da cidade, o torna fortemente desejável como um refúgio ideal para quem busca paz."
        - **English:** "The car's impressive fuel efficiency and low maintenance costs immediately recommended it to budget-conscious buyers."
        - **Portuguese:** "A impressionante eficiência de combustível do carro e os baixos custos de manutenção o tornaram imediatamente atraente para compradores preocupados com o orçamento."
        - **English:** "The software's intuitive interface and powerful customization options truly recommend it to both beginners and advanced users alike."
        - **Portuguese:** "A interface intuitiva e as poderosas opções de personalização do software realmente o valorizam tanto para iniciantes quanto para usuários avançados."

- **Synonyms:** appeal to, make appealing, make desirable, enhance, serve as a recommendation
- **Antonyms:** detract from, make undesirable, diminish

== A2 == Full text of Figure 1, right: OpenAI's *chatgpt-4o-latest-20250326*

Certainly! Below is a **COBUILD-style bilingual dictionary entry** for the English verb **to recommend**, translated into **Portuguese**, with all the requested features: frequency information, IPA pronunciation, part of speech, morphological forms, numbered senses (with bilingual examples), synonyms/antonyms, and a professional layout faithful to COBUILD lexicographic style.

---

recommend /ˌrekəˈmɛnd/
(verb forms: recommends, recommending, recommended)
FREQUENCY: ★★★☆☆ (common)

---

1. TRANSITIVE VERB
If someone **recommends** a person or thing, they suggest that it is good or suitable for a particular purpose or job.

◉ **Translation:** *recomendar*, *indicar*, *aconselhar*
▸ *I strongly recommend this book to anyone interested in science.*
▹ *Recomendo fortemente este livro para qualquer pessoa interessada em ciência.*
▸ *She recommended a great restaurant downtown for our anniversary.*
▹ *Ela indicou um ótimo restaurante no centro para o nosso aniversário.*
▸ *He recommended her for the position because of her experience.*
▹ *Ele a recomendou para a vaga por causa da experiência dela.*
▸ *If you're planning to visit Porto, I'd recommend staying near the Gaia area.*
▹ *Se você está planejando visitar o Porto, eu recomendaria ficar perto da região de Gaia.*
▸ *We recommended that he take a break before continuing.*
▹ *Recomendamos que ele fizesse uma pausa antes de continuar.*

Synonyms: suggest, endorse, advocate, propose, put forward
Antonyms: dissuade, discourage, oppose

---

2. TRANSITIVE VERB (recommend + that-clause or infinitive)
If you **recommend that someone do something**, you advise them that it would be a good idea to do it.

◉ **Translation:** *recomendar que*, *aconselhar que*
▸ *The doctor recommended that she start exercising regularly.*
▹ *O médico recomendou que ela começasse a se exercitar regularmente.*
▸ *I wouldn't recommend eating too late at night.*
▹ *Eu não recomendaria comer muito tarde da noite.*
▸ *He recommended going to the museum in the morning to avoid crowds.*
▹ *Ele recomendou ir ao museu de manhã para evitar multidões.*

- *They recommended we book our tickets in advance.*
- *Eles recomendaram que reservássemos os ingressos com antecedência.*

Synonyms: advise, urge, counsel
Antonyms: warn against, caution, prevent

---

3. TRANSITIVE VERB (FORMAL)
If something **recommends** itself, or if someone **is recommended** by something, it makes them appear suitable, attractive, or worthy of consideration.

- **Translation:** *tornar algo recomendável*, *dar mérito a*, *valorizar*
- *The only thing that recommends this film is its soundtrack.*
- *A única coisa que torna este filme recomendável é sua trilha sonora.*
- *Her honesty recommends her for the role of treasurer.*
- *A honestidade dela a recomenda para o cargo de tesoureira.*
- *This historic building recommends itself by its unique architecture.*
- *Este edifício histórico recomenda-se por sua arquitetura única.*

Synonyms: justify, support the case for
Antonyms: discredit, disqualify

Usage Notes:

- In formal or academic writing, the **subjunctive** is often used: *We recommend that he **be** promoted.*
  *— Recomendamos que ele **seja** promovido.*
- With **object + infinitive** constructions, British English tends to avoid: *I recommended **him to go*** (nonstandard).

Related entries:

- **recommendation /ˌrekəmenˈdeɪʃən/** *substantivo: recomendação*
- **recommended (adj.)** *adjetivo: recomendado*, *indicado*

Let me know if you'd like a printable version or styled output (e.g., for lexicography or educational publishing)!

== A3 == Full text of Figure 2, left: Google's *gemini-2.5-flash-preview-05-20*

Here is a COBUILD-style bilingual dictionary entry for the English word 'bank' translated into Portuguese:

Frequency Information: ★★★★★ (Extremely Common Word, among the top 1000 most frequent English words)
Pronunciation: /bæŋk/

---

1. Noun (plural banks)
Definition: A financial institution where people can keep their money, borrow money, or exchange foreign currency.

Portuguese Translation: banco (m)
English Examples with Portuguese Translations:

- **You can usually find a cash machine inside the bank, or just outside its entrance.**
  - *Normalmente, você pode encontrar um caixa eletrônico dentro do banco, ou logo na entrada.*
- **She needed to visit the bank to open a new savings account for her university fund.**
  - *Ela precisava ir ao banco para abrir uma nova conta poupança para seu fundo universitário.*
- **The bank has decided to lower its interest rates on home loans, which is great news for new buyers.**
  - *O banco decidiu baixar suas taxas de juros para empréstimos imobiliários, o que é uma ótima notícia para novos compradores.*
- **We often pay our bills online now, so we don't have to go to the bank as much as we used to.**
  - *Agora pagamos nossas contas online com frequência, então não precisamos ir ao banco tanto quanto costumávamos.*
- **Will they be able to get a loan from the bank to start their small business next year?**
  - *Eles conseguirão um empréstimo do banco para iniciar o pequeno negócio deles no próximo ano?*

Synonyms: financial institution, credit union, building society (UK)
Antonyms: (No direct antonym, as it refers to a type of establishment.)

---

2. Noun (plural banks)
Definition: The sloping land alongside a river, lake, or canal, often forming its edge.
Portuguese Translation: margem (f), **barranco** (m), **ribanceira** (f) (for a steep bank)
English Examples with Portuguese Translations:

- **Children love to play along the river bank, especially when the weather is warm.**
  - *As crianças adoram brincar ao longo da margem do rio, especialmente quando o tempo está quente.*
- **He carefully walked down the steep bank to get closer to the water's edge and cast his fishing line.**
  - *Ele desceu cuidadosamente o barranco íngreme para chegar mais perto da beira da água e lançar sua linha de pesca.*
- **Many historic castles are built on high banks overlooking strategic waterways.**
  - *Muitos castelos históricos são construídos em ribanceiras altas, com vista para vias navegáveis estratégicas.*

- **We plan to have a picnic on the tranquil banks of the lake next Sunday, if the weather holds.**
  - *Planejamos fazer um piquenique nas tranquilas margens do lago no próximo domingo, se o tempo permitir.*
- **The ancient ruins were discovered on the left bank of the river, deep in the jungle.**
  - *As ruínas antigas foram descobertas na margem esquerda do rio, no interior da selva.*

Synonyms: shore, riverside, embankment, levee (for a raised bank to prevent flooding) **Antonyms:** (No direct antonym, refers to a geographical feature.)

---

3. Noun (plural banks)
Definition: A large mass or pile of something, especially snow, sand, or clouds.
Portuguese Translation: banco (m) (especially for sand, clouds), **monte** (m), **pilha** (f), **duna** (f) (for sand)
English Examples with Portuguese Translations:

- **After the blizzard, there was a huge bank of snow piled up against the side of the house.**
  - *Depois da nevasca, havia um enorme banco de neve amontoado contra a lateral da casa.*
- **The ship ran aground on a sand bank, and we had to wait for the tide to rise to free it.**
  - *O navio encalhou num banco de areia, e tivemos que esperar a maré subir para libertá-lo.*
- **A dense bank of fog rolled in from the sea, reducing visibility to almost zero.**
  - *Um denso banco de nevoeiro vindo do mar, reduzindo a visibilidade a quase zero.*
- **Looking out the airplane window, you could see a majestic bank of clouds stretching to the horizon.**
  - *Olhando pela janela do avião, era possível ver um majestoso banco de nuvens se estendendo até o horizonte.*
- **They had to clear a bank of debris that had washed up on the beach during the storm.**
  - *Eles tiveram que limpar um monte de detritos que a tempestade trouxe para a praia.*

Synonyms: pile, heap, mound, drift, stack **Antonyms:** (No direct antonym.)

---

4. Verb (banks, banking, banked)
Definition: To deposit money or valuables into a bank account.
Portuguese Translation: depositar, **colocar no banco**
English Examples with Portuguese Translations:

- **He always banks his tips at the end of his shift, usually late at night.**
  - *Ele sempre deposita suas gorjetas no final do turno dele, geralmente tarde da noite.*
- **I banked my salary today, so I can now pay all my outstanding bills.**
  - *Eu depositei meu salário hoje, então agora posso pagar todas as minhas contas pendentes.*
- **Have you banked that cheque from your client yet, or is it still sitting on your desk?**
  - *Você já depositou aquele cheque do seu cliente, ou ele ainda está na sua mesa?*
- **They were banking a lot of money in offshore accounts to avoid paying taxes.**
  - *Eles estavam depositando muito dinheiro em contas offshore para evitar pagar impostos.*
- **She will bank the proceeds from the charity event tomorrow morning first thing.**
  - *Ela depositará o arrecadado do evento de caridade amanhã de manhã, logo que possível.*

Synonyms: deposit, save, lodge (UK) **Antonyms:** withdraw, pull out

---

5. Verb (banks, banking, banked)
Definition: (Of an aircraft or vehicle) to tilt or cause to tilt sideways, especially when turning in the air or on a track.
Portuguese Translation: inclinar, curvar, fazer a curva inclinando-se
English Examples with Portuguese Translations:

- **The small plane banked sharply to the left as it prepared for landing on the short runway.**
  - *O pequeno avião inclinou-se bruscamente para a esquerda enquanto se preparava para pousar na pista curta.*
- **As the motorcycle racer entered the corner, he leaned heavily, banking his bike almost to the ground.**
  - *Quando o piloto de motocicleta entrou na curva, ele se inclinou pesadamente, curvando sua moto quase até o chão.*
- **The pilot banked the aircraft gently, giving us a fantastic view of the city below.**
  - *O piloto inclinou a aeronave suavemente, nos proporcionando uma vista fantástica da cidade abaixo.*
- **You could see the fighter jet banking high above us, performing aerial maneuvers.**
  - *Era possível ver o jato de combate inclinando-se alto acima de nós, realizando manobras aéreas.*
- **The bobsled team banked around the icy curve, fighting against the centrifugal force.**
  - *A equipe de bobsled fez a curva inclinando-se na pista gelada, lutando contra a força centrífuga.*

Synonyms: tilt, lean, list, cant, heel **Antonyms:** level, straighten, right

---

6. Noun (plural banks)
Definition: A row or series of similar items, often arranged together, such as controls, lights, or machines.
Portuguese Translation: banco (m) (de máquinas, luzes), **conjunto** (m), **fileira** (f)
English Examples with Portuguese Translations:

- **The control room was dominated by a huge bank of monitors displaying live feeds from various cameras.**
  - *A sala de controle era dominada por um enorme banco de monitores exibindo transmissões ao vivo de várias câmeras.*
- **In the old telephone exchange, there was a vast bank of switches that operators used to connect calls.**
  - *Na antiga central telefônica, havia um vasto banco de chaves que os operadores usavam para conectar chamadas.*
- **The server room contains a bank of powerful computers processing millions of transactions per second.**
  - *A sala de servidores contém um banco de computadores poderosos processando milhões de transações por segundo.*
- **A bank of solar panels was installed on the roof to generate electricity for the entire building.**
  - *Um conjunto de painéis solares foi instalado no telhado para gerar eletricidade para todo o edifício.*
- **She looked at the bank of elevators, wondering which one would arrive first.**
  - *Ela olhou para o banco de elevadores, perguntando-se qual chegaria primeiro.*

Synonyms: array, row, series, cluster, panel **Antonyms:** (No direct antonym.)

---

7. Noun (plural banks) (in compounds like 'blood bank', 'food bank', 'data bank')
Definition: A place or organization where something specific is stored in large quantities for future use or distribution.
Portuguese Translation: banco (m) (de sangue, de alimentos, de dados, de sementes)
English Examples with Portuguese Translations:

- **He regularly donates blood at the local blood bank to help patients in need.**
  - *Ele doa sangue regularmente no banco de sangue local para ajudar pacientes necessitados.*
- **During the holidays, the community food bank is always in urgent need of donations to feed families.**
  - *Durante os feriados, o banco de alimentos da comunidade está sempre com necessidade urgente de doações para alimentar famílias.*

- **Researchers accessed a vast data bank to analyze trends in climate change over the past century.**
  - *Os pesquisadores acessaram um vasto banco de dados para analisar as tendências das mudanças climáticas no último século.*
- **The global seed bank stores samples of seeds from around the world, protecting biodiversity.**
  - *O banco global de sementes armazena amostras de sementes de todo o mundo, protegendo a biodiversidade.*
- **They set up a clothing bank to collect warm garments for the homeless during the winter months.**
  - *Eles montaram um banco de roupas para coletar peças quentes para os sem-teto durante os meses de inverno.*

Synonyms: repository, store, archive, collection point **Antonyms:** (No direct antonym.)

---

8. Phrasal Verb (banks on, banking on, banked on)
Definition: To rely on or be confident that something will happen or that someone will do something. (Usually followed by 'on'.)
Portuguese Translation: contar com, **depender de**, **apostar em**
English Examples with Portuguese Translations:

- **You can always bank on her to get the job done efficiently and on time.**
  - *Você sempre pode contar com ela para realizar o trabalho de forma eficiente e pontual.*
- **Don't bank on getting that promotion just yet; there are several other strong candidates.**
  - *Não conte com aquela promoção por enquanto; há vários outros candidatos fortes.*
- **We were really banking on receiving the funding by next month, but it's been delayed.**
  - *Estávamos realmente contando com o recebimento do financiamento até o próximo mês, mas foi adiado.*
- **He's banking on his parents helping him with the down payment for the new apartment.**
  - *Ele está contando com a ajuda dos pais para o pagamento inicial do novo apartamento.*
- **They had banked on the new marketing strategy bringing in more customers, and luckily, it did.**
  - *Eles haviam apostado que a nova estratégia de marketing traria mais clientes, e, felizmente, trouxe.*

Synonyms: rely on, depend on, count on, trust (in), stake on, bet on
Antonyms: doubt, distrust, disbelieve, be skeptical of

== A4 == Full text of Figure 2, right: OpenAI's *chatgpt-4o-latest-20250326*

Certainly! Here's a **COBUILD-style bilingual dictionary entry** for the English word **"bank"**, translated into **Portuguese**, including **IPA pronunciation**, **sense divisions**, **English examples**, **Portuguese translations**, **synonyms/antonyms**, **morphological forms**, and **frequency information** to match the requested high-quality lexicographic style.

---

bank /bæŋk/
[noun, verb]
FREQUENCY ★★★★☆ *(very frequent word)*

---

1. bank¹ [noun] (plural: banks)
A **bank** is an official financial institution where people or businesses can keep their money, borrow money, or access financial services.
TRANSLATION: banco (instituição financeira)
EXAMPLES:

- She keeps all her savings in a local bank.
  Ela guarda todas as suas economias em um banco local.
- They applied for a loan at the city's largest bank.
  Eles solicitaram um empréstimo no maior banco da cidade.
- The bank will be closed tomorrow due to a public holiday.
  O banco estará fechado amanhã devido a um feriado.
- I've worked in banks for over fifteen years.
  Trabalhei em bancos por mais de quinze anos.
- We are meeting with a bank representative to discuss our mortgage.
  Vamos nos encontrar com um representante do banco para discutir nossa hipoteca.

SYNONYMS: financial institution, lender
ANTONYMS: borrower, debtor

---

2. bank² [noun] (plural: banks)
A **bank** is the side or edge of a river, lake, or other body of water.
TRANSLATION: margem (de rio, lago etc.)
EXAMPLES:

- They sat on the bank of the river and watched the sunrise.
  Eles se sentaram na margem do rio e observaram o nascer do sol.
- We saw a deer drink from the opposite bank.
  Vimos um cervo beber água da margem oposta.
- The flood covered both banks of the stream.
  A enchente cobriu ambas as margens do riacho.
- He walked along the bank, searching for a good fishing spot.
  Ele caminhou ao longo da margem, procurando um bom lugar para pescar.

SYNONYMS: shore, riverbank, waterfront
ANTONYMS: center (of a body of water), middle

---

3. bank[3] [verb] (third person singular: banks; present participle: banking; past tense and past participle: banked)
To **bank** money means to deposit it into a bank account.
TRANSLATION: depositar; colocar no banco
EXAMPLES:

- She banks her paycheck every Friday.
  Ela deposita seu salário toda sexta-feira.
- They banked the profits at the end of the day.
  Eles depositaram os lucros no final do dia.
- Tomorrow, I'll bank the donation we received.
  Amanhã, vou depositar a doação que recebemos.
- He hasn't banked the cheque yet.
  Ele ainda não depositou o cheque.

SYNONYMS: deposit, save
ANTONYMS: withdraw, spend

---

4. bank[4] [noun] (plural: banks)
A **bank** can refer to a row or series of similar things, often arranged neatly in a line or group.
TRANSLATION: fileira, série, fila (organizada)
EXAMPLES:

- A bank of computers lined the wall in the classroom.
  Uma fila de computadores enfileirava-se na parede da sala de aula.
- He adjusted the bank of switches before testing the engine.
  Ele ajustou a fileira de interruptores antes de testar o motor.
- There was a bank of clouds approaching from the west.
  Uma massa de nuvens se aproximava do oeste.

SYNONYMS: row, line, group
ANTONYMS: scatter, disarray

---

5. bank[5] [noun] (plural: banks)
In aviation or driving, a **bank** is a tilt to one side, often to change direction smoothly.
TRANSLATION: inclinação; curva inclinada
EXAMPLES:

- The plane made a sharp bank to the right.
  O avião fez uma curva inclinada acentuada para a direita.
- She felt the car bank slightly as it turned around the bend.
  Ela sentiu o carro inclinar-se levemente ao fazer a curva.
- During the stunt, the jet performed an impressive bank to the left.
  Durante a manobra, o jato realizou uma inclinação impressionante para a esquerda.

SYNONYMS: tilt, turn, curve
ANTONYMS: level, straighten

---

6. bank[6] [verb] (third person singular: banks; present participle: banking; past tense and past participle: banked)
To **bank** a vehicle or an aircraft is to tilt it sideways, especially to turn smoothly.
TRANSLATION: inclinar (em curva)
EXAMPLES:

- The pilot banked the aircraft to avoid turbulence.
  O piloto inclinou a aeronave para evitar a turbulência.
- She banked the bike as she sped around the corner.
  Ela inclinou a bicicleta enquanto fazia a curva.
- The car banked hard to the left, nearly hitting the edge.
  O carro inclinou-se bruscamente para a esquerda, quase batendo na borda.

SYNONYMS: tilt, lean, curve
ANTONYMS: straighten, level

---

7. bank[7] [noun] (plural: banks)
A **bank** may also mean a mass or layer of something, especially clouds, fog, snow, or earth.
TRANSLATION: massa, camada, monte
EXAMPLES:

- A thick bank of fog rolled in from the sea.
  Uma densa massa de nevoeiro veio do mar.
- The snow had formed a bank along the road.
  A neve havia formado um monte ao longo da estrada.
- They climbed over a bank of earth to reach the cave.
  Eles escalaram um monte de terra para alcançar a caverna.

SYNONYMS: pile, mound, layer
ANTONYMS: flat, hollow

✓ **Summary Usage Note:**
"Bank" is a **highly polysemous** word in English, used both literally and metaphorically, across **finance**, **geography**, **aviation**, and more. Accurate translation into Portuguese depends on **context**, as the equivalent will change substantially, e.g., *banco*, *margem*, *inclinar*, *camada*, etc.

Would you like a similar entry for another word or word class?

== A5 == Full text of Figure 3, left: Google's *gemini-2.5-flash-preview-05-20*

banco
Frequência: Muito frequente / Very Frequent
Pronúncia (IPA): [ˈbɐ̃ku]

---

1. **substantivo masculino** (plural: bancos)
   - **Definição (PT):** Refere-se a um local ou uma instituição onde se realizam operações monetárias e financeiras, ou seja, um estabelecimento

comercial que oferece serviços como depósitos, empréstimos e investimentos.
   - **Definição (EN):** It refers to a place or an institution where monetary and financial operations are carried out, that is, a commercial establishment that offers services such as deposits, loans, and investments.
   - **Equivalentes em inglês:** bank
   - **Exemplos:**
     - **PT:** Eu preciso ir ao **banco** antes das três da tarde para fazer um saque urgente.
     - **EN:** I need to go to the **bank** before three in the afternoon to make an urgent withdrawal.
     - **PT:** Minha avó sempre guardou suas economias no mesmo **banco** por mais de quarenta anos.
     - **EN:** My grandmother always kept her savings at the same **bank** for over forty years.
     - **PT:** Você pode por favor verificar se o **banco** já processou o pagamento da fatura de energia?
     - **EN:** Can you please check if the **bank** has already processed the electricity bill payment?
     - **PT:** No próximo mês, a empresa planeja abrir uma nova conta corporativa em um **banco** digital.
     - **EN:** Next month, the company plans to open a new corporate account at a digital **bank**.
   - **Sinônimos:** instituição financeira, casa bancária
   - **Antônimos:** (Não aplicável neste sentido)
2. **substantivo masculino** (plural: bancos)
   - **Definição (PT):** É um móvel ou estrutura usado para sentar, geralmente longo, para várias pessoas, e por vezes sem encosto ou braços, isto é, uma peça de mobiliário destinada a proporcionar um assento.
   - **Definição (EN):** It is a piece of furniture or a structure used for sitting, usually long, for several people, and sometimes without a backrest or arms, that is, a piece of furniture intended to provide a seat.
   - **Equivalentes em inglês:** bench, seat, stool
   - **Exemplos:**
     - **PT:** As crianças adoram sentar-se no **banco** de madeira no jardim enquanto comem o lanche.
     - **EN:** The children love to sit on the wooden **bench** in the garden while they have their snack.
     - **PT:** O motorista ajustou o **banco** do carro para ter uma posição mais confortável na estrada.
     - **EN:** The driver adjusted the car **seat** to have a more comfortable position on the road.
     - **PT:** Na semana passada, pintaram todos os **bancos** da praça principal com uma cor vibrante para revitalizar o espaço.

        - **EN:** Last week, they painted all the **benches** in the main square a vibrant color to revitalize the space.
        - **PT:** Precisaremos de mais um **banco** para acomodar todos os convidados na festa de Natal.
        - **EN:** We will need one more **bench** to accommodate all the guests at the Christmas party.
    - **Sinônimos:** assento, banqueta, cadeira (em alguns contextos)
    - **Antônimos:** (Não aplicável neste sentido)
3. **substantivo masculino** (plural: bancos)
    - **Definição (PT):** Designa uma formação natural elevada no fundo de um corpo d'água, como um rio ou mar, ou um grande agrupamento de animais aquáticos, em outras palavras, uma elevação de areia ou rochas submersas ou um cardume de peixes ou mamíferos marinhos.
    - **Definição (EN):** It designates an elevated natural formation on the bottom of a body of water, such as a river or sea, or a large grouping of aquatic animals, in other words, a submerged sand or rock elevation or a school of fish or marine mammals.
    - **Equivalentes em inglês:** bank (of sand/shoal), shoal, sandbank, school (of fish/marine animals)
    - **Exemplos:**
        - **PT:** O barco de pesca desviou-se para evitar o perigoso **banco** de areia próximo à costa.
        - **EN:** The fishing boat swerved to avoid the dangerous **sandbank** near the coast.
        - **PT:** Mergulhadores relataram ter visto um enorme **banco** de peixes tropicais perto do recife de coral.
        - **EN:** Divers reported seeing a huge **school** of tropical fish near the coral reef.
        - **PT:** Preocupados com a navegação, os marinheiros verificaram o mapa para localizar todos os **bancos** de recifes na área.
        - **EN:** Concerned about navigation, the sailors checked the map to locate all the reef **banks** in the area.
        - **PT:** Se continuarmos a poluir, grandes **bancos** de plâncton e, consequentemente, os peixes, podem desaparecer de nossos oceanos.
        - **EN:** If we continue to pollute, large **shoals** of plankton and, consequently, fish, may disappear from our oceans.
    - **Sinônimos:** baixio, cardume (para peixes), arrecife (em alguns contextos)
    - **Antônimos:** (Não aplicável neste sentido)
4. **substantivo masculino** (plural: bancos)
    - **Definição (PT):** Refere-se a uma instalação ou sistema que armazena e organiza material biológico, como sangue ou órgãos, para uso futuro, ou seja, um repositório especializado para a conservação e distribuição de tecidos ou fluidos corporais.

- **Definição (EN):** It refers to a facility or system that stores and organizes biological material, such as blood or organs, for future use, that is, a specialized repository for the conservation and distribution of body tissues or fluids.
- **Equivalentes em inglês:** bank (blood bank, organ bank)
- **Exemplos:**
  - **PT:** Ela se voluntariou para doar sangue ao **banco** de sangue local, contribuindo para salvar vidas.
  - **EN:** She volunteered to donate blood to the local blood **bank**, contributing to saving lives.
  - **PT:** A campanha visa aumentar as doações para o **banco** de órgãos, que está com estoques baixos.
  - **EN:** The campaign aims to increase donations to the organ **bank**, which has low stock.
  - **PT:** A pesquisa genética utiliza amostras armazenadas em **bancos** de dados genéticos para estudos avançados.
  - **EN:** Genetic research uses samples stored in gene **banks** for advanced studies.
  - **PT:** No futuro, esperamos que a tecnologia permita criar mais **bancos** de tecidos especializados para transplantes complexos.
  - **EN:** In the future, we hope technology will allow for the creation of more specialized tissue **banks** for complex transplants.
- **Sinônimos:** repositório, centro de coleta
- **Antônimos:** (Não aplicável neste sentido)

== A6 == Full text of Figure 3, right: OpenAI's *chatgpt-4o-latest-20250326*

banco /ˈbɐ̃.ku/
Frequency: ★★★★☆ (high frequency)

Sense 1
Part of speech: *substantivo masculino*
Morphological forms: *banco*, *bancos*
Definição (PT):
Quando alguém vai ao banco para sacar dinheiro, isso significa que ela está se dirigindo a uma instituição financeira onde pode guardar ou movimentar seu dinheiro; ou seja, banco é um estabelecimento onde se realizam operações financeiras como depósitos, saques, empréstimos e investimentos.
Definition (EN):
When someone goes to the bank to withdraw money, it means they are heading to a financial institution where they can store or manage their money; in other words, a bank is an establishment where financial operations such as deposits, withdrawals, loans, and investments are carried out.
Translation equivalents (EN): *bank*, *financial institution*

Example sentences:
- João foi ao banco ontem para renegociar seu empréstimo.
  - João went to the bank yesterday to renegotiate his loan.
- Costumo depositar meu salário direto na conta do banco.
  - I usually deposit my salary directly into my bank account.
- Amanhã, ela abrirá uma conta em outro banco para diversificar seus investimentos.
  - Tomorrow, she will open an account in another bank to diversify her investments.

Sinônimos: instituição financeira, agência bancária
Antônimos: cofre, colchão (em uso figurado para guardar dinheiro em casa)

Sense 2
Part of speech: *substantivo masculino*
Morphological forms: *banco*, *bancos*
Definição (PT):
Quando alguém se senta em um banco do parque, isso significa que ela utiliza um móvel público que serve para estar sentado; ou seja, banco é um assento comprido, geralmente de madeira ou metal, com ou sem encosto, onde uma ou mais pessoas podem sentar-se.
Definition (EN):
When someone sits on a bench in the park, it means they are using a public seat meant for sitting; in other words, a bench is a long seat, usually made of wood or metal, with or without a backrest, where one or more people can sit.
Translation equivalents (EN): *bench*, *seat*
Example sentences:
- Eles descansaram um pouco no banco perto da fonte.
  - They rested for a while on the bench near the fountain.
- O banco estava molhado por causa da chuva da noite anterior.
  - The bench was wet because of the rain from the night before.
- Amanhã, levaremos um lanche e sentaremos naquele banco sob a árvore.
  - Tomorrow, we'll bring a snack and sit on that bench under the tree.

Sinônimos: assento, banco de jardim
Antônimos: chão, cadeira individual

Sense 3
Part of speech: *substantivo masculino*
Morphological forms: *banco*, *bancos*
Definição (PT):
Quando um jogador começa no banco, isso significa que ele está entre os substitutos e não faz parte da escalação inicial; ou seja, banco é o local ou a condição dos jogadores suplentes durante uma partida esportiva.
Definition (EN):
When a player starts on the bench, it means they are among the substitutes

and are not part of the starting lineup; in other words, the bench is the place or status of substitute players during a match in sports.
Translation equivalents (EN): *bench*, *substitute bench*
Example sentences:

- O goleiro ficou no banco durante toda a partida.
  - The goalkeeper stayed on the bench for the entire match.
- Ela foi promovida à titular depois de passar três jogos no banco.
  - She was promoted to the starting lineup after spending three games on the bench.
- No próximo jogo, estarei no banco, pronto para entrar se necessário.
  - In the next game, I'll be on the bench, ready to come in if needed.

Sinônimos: reserva, suplente (em uso metonímico)
Antônimos: titular, escalado

Sense 4
Part of speech: *substantivo masculino*
Morphological forms: *banco*, *bancos*
Definição (PT):
Quando se fala em banco de dados, significa que se está referindo a um sistema organizado para armazenar e acessar informações de forma eficiente; ou seja, banco é uma coleção estruturada de dados, geralmente mantida em formato digital.
Definition (EN):
When one talks about a database, they are referring to an organized system for storing and accessing information efficiently; in other words, a database is a structured collection of data, usually maintained in digital format.
Translation equivalents (EN): *database*, *data bank*
Example sentences:

- A empresa atualizou o banco de dados com os novos registros de clientes.
  - The company updated the database with the new customer records.
- Esse banco de dados armazena todas as informações do sistema antigo.
  - This database stores all the information from the old system.
- No futuro, criaremos um banco que integre os dados de todos os departamentos.
  - In the future, we will create a database that integrates data from all departments.

Sinônimos: base de dados, repositório de dados
Antônimos: ausência de dados, sistema manual

Sense 5
Part of speech: *substantivo masculino*
Morphological forms: *banco*, *bancos*
Definição (PT):
Quando se observa um banco de areia no rio, isso significa que se vê uma

elevação de areia acumulada dentro da água; ou seja, banco é uma formação natural composta por sedimentos como areia ou lodo, visível na superfície da água.
Definition (EN):
When one observes a sandbank in the river, it means they are seeing a rise of accumulated sand within the water; in other words, a bank is a natural formation made up of sediments such as sand or silt, visible on the water's surface.
Translation equivalents (EN): *sandbank*, *shoal*, *bar*
Example sentences:

- O barco encalhou em um banco de areia no meio do rio.
  - The boat ran aground on a sandbank in the middle of the river.
- Esses bancos são perigosos para embarcações maiores.
  - These sandbanks are dangerous for larger vessels.
- Amanhã visitaremos o banco de coral para observar a vida marinha.
  - Tomorrow we'll visit the coral bank to observe marine life.

Sinônimos: banco de areia, saliência, recife (em alguns contextos específicos)
Antônimos: canal, profundidade

This entry showcases the rich polysemy of the Portuguese word **banco**, including financial, physical, sportive, digital, and geological senses, offering a comprehensive bilingual reference for language learners and lexicographers alike.

== A7 == Full text of Figure 4, left: Google's *gemini-2.5-flash-preview-05-20*

Aqui está uma entrada de dicionário bilingue português-inglês para a palavra "banco", com a estrutura e os detalhes que solicitou:

---

banco
Frequência: Muito Comum
Pronúncia (IPA): /ˈbɐ̃.ku/

---

1. **Substantivo masculino.** Plural: bancos.
   - **Definição (Português):** Uma pessoa pode depositar dinheiro em um **banco** para guardá-lo com segurança e obter juros sobre suas economias. É uma instituição financeira que oferece uma ampla gama de serviços, como empréstimos, investimentos, câmbio de moeda e gerenciamento de contas.
   - **Definição (Inglês):** One can deposit money in a **bank** to keep it safely and earn interest on their savings. It is a financial institution that offers a wide range of services, such as loans, investments, currency exchange, and account management.
   - **Equivalentes de Tradução (Inglês):** bank, financial institution

- **Sinónimos:** instituição financeira, casa bancária
- **Exemplos:**
  - **Português:** Ele foi ao **banco** hoje de manhã para resolver um problema com a sua conta poupança.
  - **Inglês:** He went to the **bank** this morning to resolve an issue with his savings account.
  - **Português:** Muitos **bancos** digitais estão a oferecer taxas de juro mais competitivas para atrair novos clientes no mercado atual.
  - **Inglês:** Many digital **banks** are offering more competitive interest rates to attract new customers in the current market.
  - **Português:** Vamos precisar de um empréstimo do **banco** para comprar a casa dos nossos sonhos no próximo ano, então é melhor começarmos a organizar os documentos agora.
  - **Inglês:** We're going to need a loan from the **bank** to buy our dream house next year, so we'd better start organizing the documents now.
  - **Português:** Os **bancos** estavam fechados durante o feriado prolongado, o que causou alguns inconvenientes.
  - **Inglês:** The **banks** were closed during the long holiday, which caused some inconvenience.

2. **Substantivo masculino.** Plural: bancos.
   - **Definição (Português):** Muitas pessoas se sentam em um **banco** em parques ou jardins para descansar ou apreciar a paisagem, especialmente em dias de sol. É um assento comprido e geralmente sem encosto (ou com um encosto baixo), feito para acomodar várias pessoas ao mesmo tempo.
   - **Definição (Inglês):** Many people sit on a **bench** in parks or gardens to rest or enjoy the scenery, especially on sunny days. It is a long seat, usually without a backrest (or with a low backrest), designed to accommodate several people simultaneously.
   - **Equivalentes de Tradução (Inglês):** bench, seat, pew (for churches)
   - **Sinónimos:** assento, cadeirão (more specific), mocho (stool)
   - **Exemplos:**
     - **Português:** Sentamos no **banco** da praça por um bom tempo, conversando e observando as crianças a brincar.
     - **Inglês:** We sat on the park **bench** for a long time, talking and watching the children play.
     - **Português:** O artesão está a lixar cuidadosamente o novo **banco** de madeira que construiu para a cozinha.
     - **Inglês:** The artisan is carefully sanding the new wooden **bench** he built for the kitchen.
     - **Português:** As igrejas tradicionais geralmente têm longos **bancos** de madeira onde os fiéis se sentam durante as cerimónias.
     - **Inglês:** Traditional churches usually have long wooden **pews** where the faithful sit during ceremonies.

Addenda A-C to: https://lexikos.journals.ac.za; https://doi.org/10.5788/35-2-2104 (Article)

- **Português:** Por favor, desocupe o **banco** para que as pessoas idosas possam sentar-se.
- **Inglês:** Please free up the **bench** so that elderly people can sit down.

3. **Substantivo masculino.** Plural: bancos.
   - **Definição (Português):** Os navegadores devem ter especial cuidado com um **banco** de areia submerso, pois pode causar o encalhe de embarcações, especialmente durante a maré baixa. Refere-se a uma acumulação elevada de areia, lama, cascalho ou corais no fundo de um rio, lago ou mar, que pode aflorar à superfície ou permanecer submersa.
   - **Definição (Inglês):** Navigators must be especially careful with a submerged **sandbank**, as it can cause vessels to run aground, especially during low tide. It refers to an elevated accumulation of sand, mud, gravel, or coral at the bottom of a river, lake, or sea, which may surface or remain submerged.
   - **Equivalentes de Tradução (Inglês):** sandbank, shoal, mudflat, reef (less common for "banco" alone)
   - **Sinónimos:** baixio, cardume (if referring to fish), restinga
   - **Exemplos:**
     - **Português:** O barco de pesca encalhou em um **banco** de areia inesperado durante a tempestade da noite passada.
     - **Inglês:** The fishing boat ran aground on an unexpected **sandbank** during last night's storm.
     - **Português:** Durante a maré baixa, é possível ver o grande **banco** de lama que se forma na foz do rio.
     - **Inglês:** During low tide, it's possible to see the large **mudflat** that forms at the river's mouth.
     - **Português:** As cartas náuticas indicam a presença de vários **bancos** de cascalho nesta parte da costa, exigindo uma navegação atenta.
     - **Inglês:** Nautical charts indicate the presence of several gravel **shoals** in this part of the coast, requiring careful navigation.
4. **Substantivo masculino.** Plural: bancos.
   - **Definição (Português):** Um médico pode solicitar um exame de sangue a um paciente para ser enviado a um **banco** de sangue, onde as amostras são armazenadas para transfusões futuras. É um local, instituição ou sistema onde se armazena uma grande quantidade de algo, como dados, órgãos, material biológico ou recursos, para uso posterior.
   - **Definição (Inglês):** A doctor may request a blood test from a patient to be sent to a **blood bank**, where samples are stored for future transfusions. It is a place, institution, or system where a large quantity of something, such as data, organs, biological material, or resources, is stored for later use.

Addenda A-C to: https://lexikos.journals.ac.za; https://doi.org/10.5788/35-2-2104 (Article)

- **Equivalentes de Tradução (Inglês):** bank (of blood, data, etc.), repository, store, archive
- **Sinónimos:** depósito, arquivo, repositório, coleção
- **Exemplos:**
  - **Português:** A empresa investiu muito na criação de um **banco** de dados robusto para gerenciar as informações dos clientes.
  - **Inglês:** The company invested heavily in creating a robust data **bank** to manage customer information.
  - **Português:** Ela doa sangue regularmente para o **banco** de sangue local, ajudando a salvar vidas.
  - **Inglês:** She donates blood regularly to the local blood **bank**, helping to save lives.
  - **Português:** O projeto visa estabelecer um **banco** de sementes para preservar espécies raras antes que sejam perdidas para sempre.
  - **Inglês:** The project aims to establish a seed **bank** to preserve rare species before they are lost forever.
  - **Português:** Será crucial desenvolver um novo **banco** de recursos educacionais online no próximo ano para apoiar o ensino à distância.
  - **Inglês:** It will be crucial to develop a new online educational resource **bank** next year to support distance learning.

5. **Substantivo masculino.** Plural: bancos.
   - **Definição (Português):** Durante o mergulho, é uma experiência fascinante observar um grande **banco** de peixes se movendo em perfeita sincronia, como uma única entidade. Refere-se a um grande grupo de peixes ou outros animais aquáticos que nadam juntos de forma coesa e organizada.
   - **Definição (Inglês):** While diving, it is a fascinating experience to observe a large **school** of fish moving in perfect synchrony, like a single entity. It refers to a large group of fish or other aquatic animals that swim together in a cohesive and organized manner.
   - **Equivalentes de Tradução (Inglês):** school (of fish), shoal (of fish)
   - **Sinónimos:** cardume
   - **Exemplos:**
     - **Português:** Perto da costa, frequentemente avistamos grandes **bancos** de sardinhas a nadar juntas.
     - **Inglês:** Near the coast, we often spot large **schools** of sardines swimming together.
     - **Português:** Os pescadores relataram ter visto um enorme **banco** de atuns a migrar para o sul no mês passado.
     - **Inglês:** Fishermen reported having seen a huge **shoal** of tuna migrating south last month.

- **Português:** A bióloga marinha estudará o comportamento dos **bancos** de anchovas para entender seus padrões de alimentação e reprodução.
- **Inglês:** The marine biologist will study the behavior of anchovy **schools** to understand their feeding and reproduction patterns.

== A8 == Full text of Figure 4, right: OpenAI's *chatgpt-4o-latest-20250326*

banco /ˈbɐ̃ku/
Frequência: Muito alta

---

1. *substantivo masculino* (plural: bancos)
Definição (PT):
Usa-se a palavra *banco* para se referir a um estabelecimento onde se guardam, emprestam e movimentam valores monetários.
É uma instituição financeira responsável pela gestão de dinheiro, incluindo depósitos e empréstimos.
Definição (EN):
The word *banco* is used to refer to an establishment where money is stored, lent, and transacted.
It is a financial institution responsible for money management, including deposits and loans.
Traduções: bank
Exemplos:
– O meu pai trabalhou num banco durante mais de trinta anos.
My father worked in a bank for over thirty years.
– Se tiveres dúvidas sobre o empréstimo, consulta o banco amanhã.
If you have questions about the loan, consult the bank tomorrow.
– Os bancos vão fechar mais cedo nas vésperas de feriado.
The banks will close earlier on holiday eves.
Sinónimos: instituição financeira, agência bancária
Antónimos: — (não aplicável neste sentido)

---

2. *substantivo masculino* (plural: bancos)
Definição (PT):
Diz-se *banco* para indicar um assento comprido, com ou sem encosto, onde se podem sentar várias pessoas.
É um tipo de móvel destinado a sentar, normalmente encontrado em locais públicos ou na cozinha.
Definição (EN):
Banco is used to indicate a long seat, with or without a backrest, where several people can sit.
It is a type of furniture intended for sitting, usually found in public places or kitchens.
Traduções: bench, seat

Addenda A-C to: https://lexikos.journals.ac.za; https://doi.org/10.5788/35-2-2104 (Article)

Exemplos:
– Sentaram-se juntos num banco do parque a ver o pôr do sol.
They sat together on a park bench watching the sunset.
– O banco da cozinha precisa de ser reparado antes da festa.
The kitchen bench needs to be fixed before the party.
– Vamos instalar mais bancos ao longo do trilho.
We will install more benches along the trail.
Sinónimos: assento, banco corrido, banco de madeira
Antónimos: cadeira, poltrona

---

3. *substantivo masculino* (plural: bancos)
Definição (PT):
Designa-se por *banco* a reserva natural ou artificial de peixes ou areia no fundo do mar ou de um rio.
É uma formação subaquática que pode ser composta por areia, pedras, coral ou peixes.
Definição (EN):
Banco refers to a natural or artificial concentration of fish or sand on the ocean floor or a riverbed.
It is a subaquatic formation that can consist of sand, rocks, coral, or fish.
Traduções: bank (of sand), shoal, sandbank, fish bank
Exemplos:
– Os pescadores encontraram um banco de sardinhas nas águas costeiras.
The fishermen found a school of sardines in the coastal waters.
– Um banco de areia impede o acesso ao porto durante a maré baixa.
A sandbank blocks access to the harbor during low tide.
– O navegador desviou o barco para evitar um banco submerso.
The navigator redirected the boat to avoid a submerged bank.
Sinónimos: shoal, cardume (quando relativo a peixes), banco de areia
Antónimos: mar profundo, leito rochoso

---

4. *substantivo masculino* (plural: bancos)
Definição (PT):
Usa-se o termo *banco* também para se referir ao assento individual de um veículo, especialmente o do condutor ou do passageiro.
É a estrutura interna de um automóvel ou outro transporte destinada ao apoio dos ocupantes.
Definição (EN):
The term *banco* is also used to refer to the individual seat in a vehicle, especially that of the driver or passenger.
It is the internal structure in a car or other transport designed to support the occupants.
Traduções: seat, car seat

Addenda A-C to: https://lexikos.journals.ac.za; https://doi.org/10.5788/35-2-2104 (Article)

Exemplos:
– O banco do carro precisa de ser ajustado para se conduzir com segurança.
The car seat needs to be adjusted to drive safely.
– Ele reclinou o banco e adormeceu durante a viagem.
He reclined the seat and fell asleep during the trip.
– No próximo modelo, os bancos serão aquecidos e ajustáveis eletricamente.
In the next model, the seats will be heated and electrically adjustable.
Sinónimos: assento, cadeiral
Antónimos: espaço livre, chão do veículo

---

5. *substantivo masculino* (plural: bancos)
Definição (PT):
O termo *banco* pode ainda indicar o grupo de reservas, especialmente de informação ou dados, como no caso de *banco de dados*.
Refere-se a uma coleção organizada de informações, usualmente acessível por meios eletrónicos.
Definição (EN):
The term *banco* may also denote a group of stored items, especially information or data, as in *banco de dados*.
It refers to a structured collection of information, usually accessible electronically.
Traduções: database, data bank
Exemplos:
– A empresa atualizou o banco de dados dos clientes na semana passada.
The company updated the customer database last week.
– Vamos criar um banco de dados com todas as referências bibliográficas.
We will create a database with all the bibliographic references.
– O banco de dados foi corrompido, e parte das informações foi perdida.
The data bank was corrupted, and part of the information was lost.
Sinónimos: base de dados, repositório
Antónimos: informação dispersa, fonte não estruturada

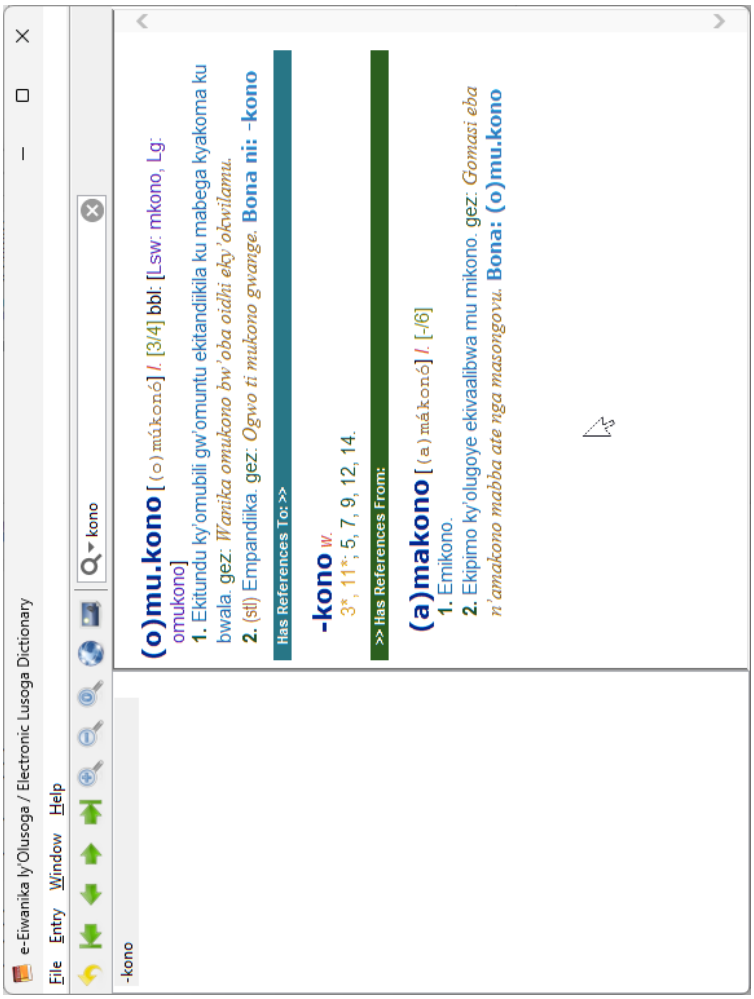
Resumo da Pronúncia:

- **Português Europeu / Brasileiro:** /ˈbɐ̃ku/

Se quiser exemplos de composições com "banco" (como *banco de dados*, *banco de praça*, *banco de imagens*), posso elaborar mais blocos específicos. Deseja continuar?

Addendum B: *The e-Eiwanika ly'Olusoga* / Digital Monolingual Lusoga Dictionary

- A search for the noun *omukono* 'hand/arm', in the downloadable app of the *e-Eiwanika ly'Olusoga* (https://menhapublishers.com/products/9789970101023.html).

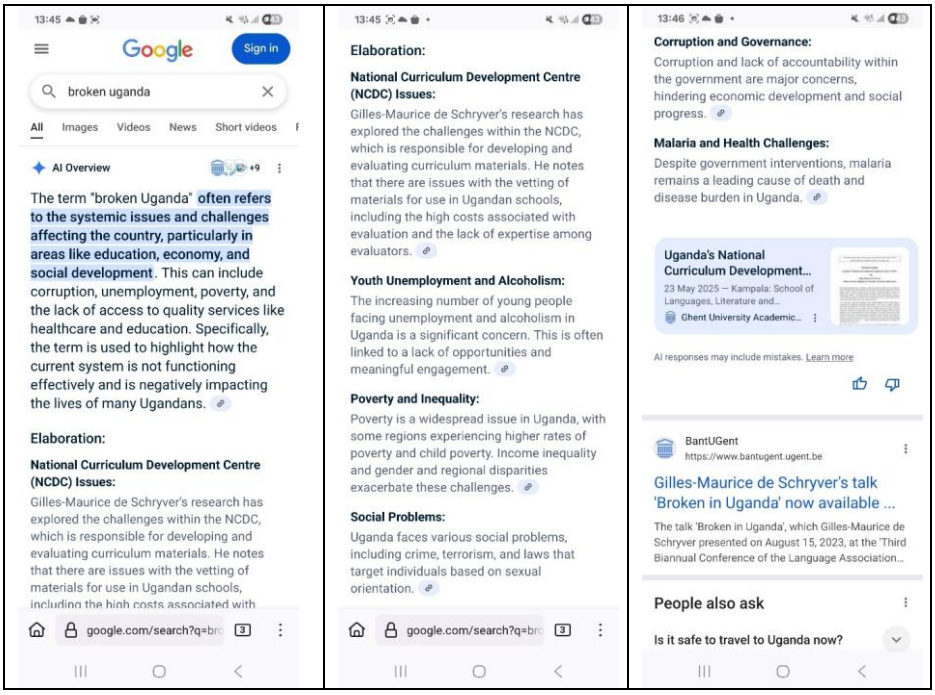


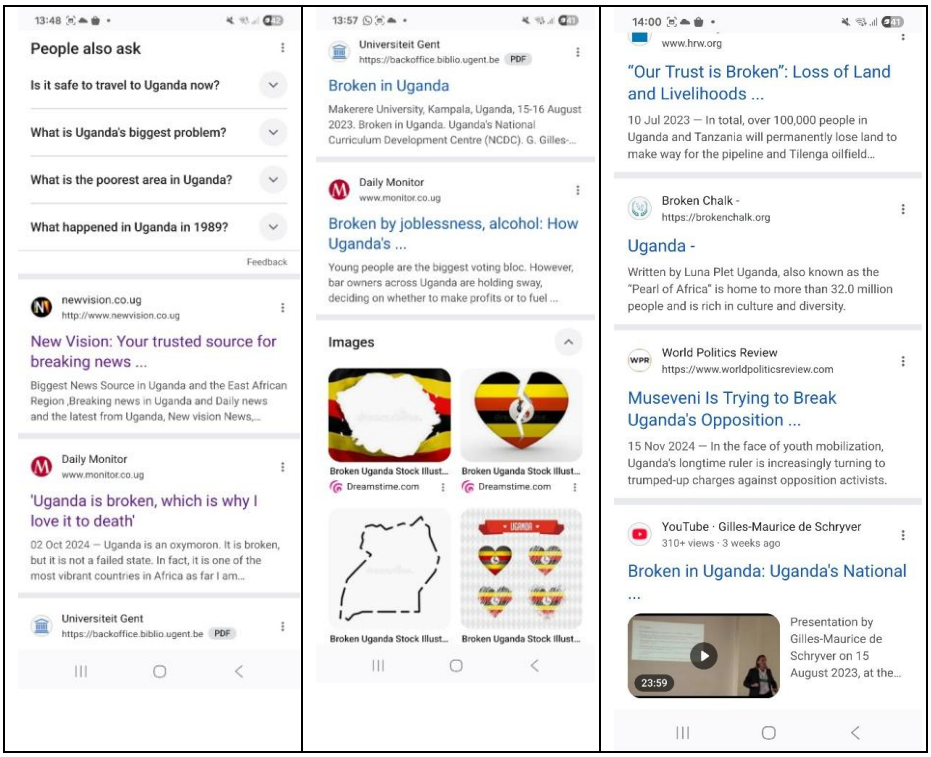
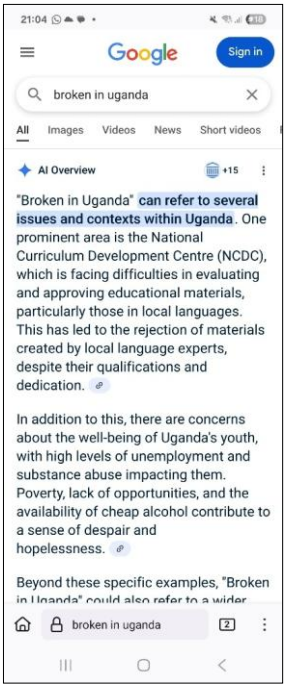
- Despite having been available since 2012, exactly two copies were bought by basically two family members now residing in the USA (Nabirye and De Schryver 2013: 311), so *none* were actually sold. This is the plight of an oral language. See also De Schryver (2023a) on 'Broken in Uganda', as well as Addendum C.

- A search for the verb *okwinhogoga* 'become cold', in the online version of the *e-Eiwanika ly'Olusoga* (https://menhapublishers.com/dictionary/).

- The results for this search display the main entry, together with the entries that refer to it, as well as those where the lemma is used in the microstructure.

Addendum C: Gemini on "broken uganda" (13 June 2025)




People also ask
Is it safe to travel to Uganda now?
What is Uganda's biggest problem?
What is the poorest area in Uganda?
What happened in Uganda in 1989?
Feedback
newvision.co.ug
http://www.newvision.co.ug
New Vision: Your trusted source for breaking news ...
Biggest News Source in Uganda and the East African Region ,Breaking news in Uganda and Daily news and the latest from Uganda, New vision News,...
Daily Monitor
www.monitor.co.ug
'Uganda is broken, which is why I love it to death'
02 Oct 2024 — Uganda is an oxymoron. It is broken, but it is not a failed state. In fact, it is one of the most vibrant countries in Africa as far I am...
Universiteit Gent
https://backoffice.biblio.ugent.be
PDF
Universiteit Gent
https://backoffice.biblio.ugent.be
PDF
Broken in Uganda
Makerere University, Kampala, Uganda, 15-16 August 2023. Broken in Uganda. Uganda's National Curriculum Development Centre (NCDC). G. Gilles-...
Daily Monitor
www.monitor.co.ug
Broken by joblessness, alcohol: How Uganda's ...
Young people are the biggest voting bloc. However, bar owners across Uganda are holding sway, deciding on whether to make profits or to fuel ...
Images
Broken Uganda Stock Illust...
Dreamstime.com
Broken Uganda Stock Illust...
Dreamstime.com
Broken Uganda Stock Illust...
Broken Uganda Stock Illust...
www.hrw.org
"Our Trust is Broken": Loss of Land and Livelihoods ...
10 Jul 2023 — In total, over 100,000 people in Uganda and Tanzania will permanently lose land to make way for the pipeline and Tilenga oilfield...
Broken Chalk -
https://brokenchalk.org
Uganda -
Written by Luna Plet Uganda, also known as the "Pearl of Africa" is home to more than 32.0 million people and is rich in culture and diversity.
World Politics Review
https://www.worldpoliticsreview.com
Museveni Is Trying to Break Uganda's Opposition ...
15 Nov 2024 — In the face of youth mobilization, Uganda's longtime ruler is increasingly turning to trumped-up charges against opposition activists.
YouTube · Gilles-Maurice de Schryver
310+ views · 3 weeks ago
Broken in Uganda: Uganda's National ...
23:59
Presentation by Gilles-Maurice de Schryver on 15 August 2023, at the...

- Google's Gemini adapts what it offers on a daily basis. One week prior to the above, on 6 June 2025, so just two weeks after the video of the talk 'Broken in Uganda' was uploaded to YouTube,[11] Google's first page looked like this: