



Centre for Translation Studies
UNIVERSITY OF SURREY

GenAI: the next step in the evolution of translation?

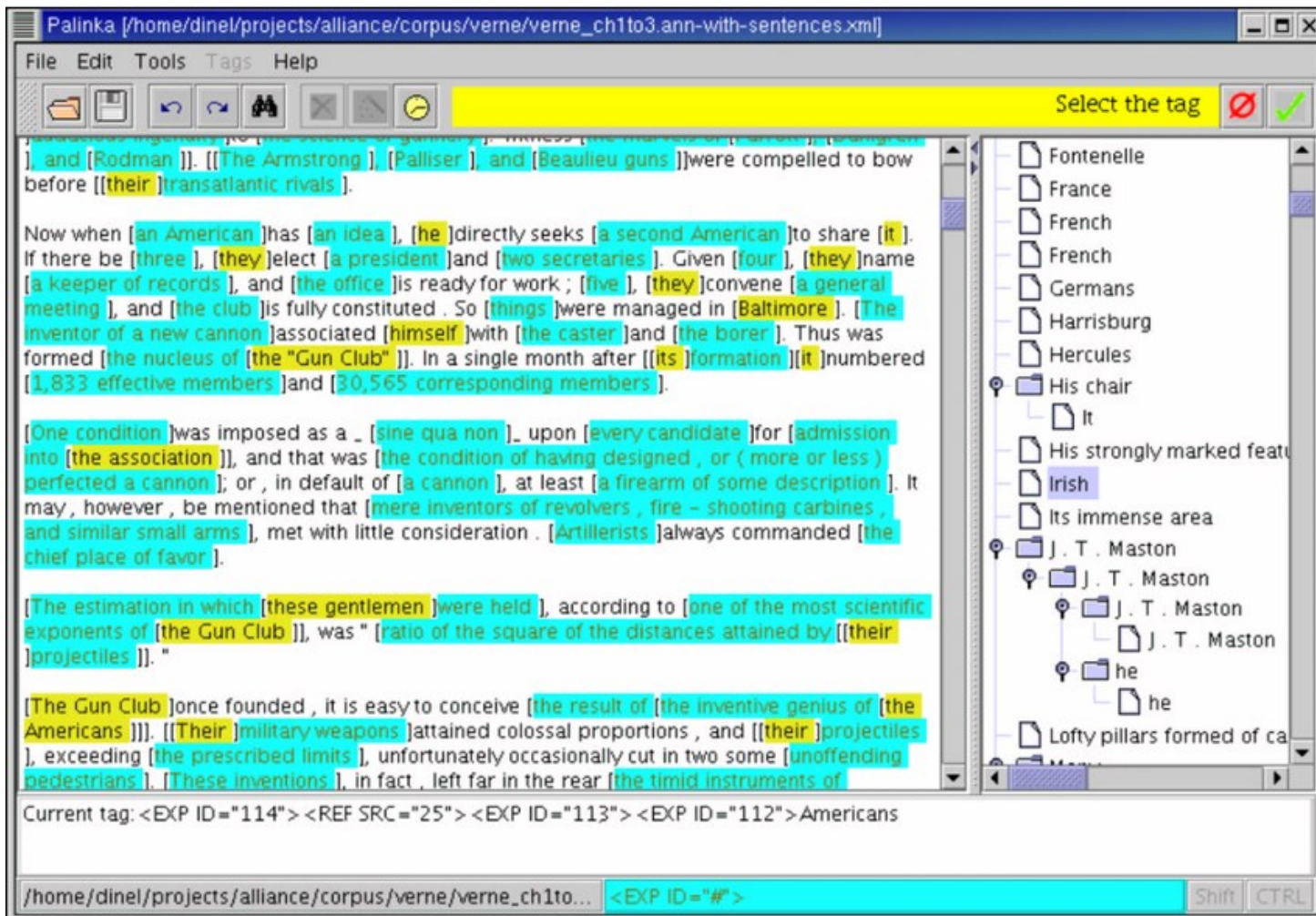
CONSTANTIN ORASAN

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UNIVERSITY OF SURREY, UK

<https://dinel.org.uk>

I love
programming

BUT I DO NOT HAVE
TOO MUCH TIME TO
PROGRAM



PALinka

- Written in Java
- Very much written from scratch
- The IDE helped a bit with code completion
- ~2002

Now , when it comes to **our** veterans , **we** owe them a great debt of gratitude for what they ' ve done for **us** , including **your** son Beau . But **we** also want to make sure that **we** don ' t lose the things **we** fought so hard to **get**

Now , with respect to Afghanistan , the 2014 deadline , **we** agree with a 2014 transition . But what **we** also want it do is make sure that **we** ' re not projecting weakness abroad , and that ' s what ' s happening here .

RYAN : This Benghazi issue would be a tragedy in and of itself , but unfortunately it ' s indicative of a broader problem . And that is what **we** are watching on **our** TV screens is the unraveling of the Obama foreign policy , which is making the (inaudible) more chaotic **us** less safe .

RYAN : On that same day , the Obama administration had the exact same position . Let ' s recall that they disavowed their own statement that they had put out earlier in the day in Cairo . So **we** had the same position , but **we** will - - it ' s never too early to speak out for **our** values .

We should have spoken out right away when the green revolution was up and starting ; when the mullahs in Iran were attacking their people . **We should** not have called Bashar Assad a reformer when he was turning his Russian - provided guns on his own people . **We should** always stand up for peace , for democracy , for individual rights .

for what they ' ve done for us , including **your** son Beau . But we also want to make st

Annotation

Not metadiscourse marker!

Select sense:

Addressed to the general audience

Notes:

Category: Engagement marker

Sub-category: Second person pronoun & possessive

Polarity: 0 Uncer

Save changes Next markable Previous markable

MetaDiscourse annotator

- Web based
- PHP + Symfony
- ~2015
- Involved reading lots of posts on StackOverflow

<https://github.com/dinel/metadiscourse-annotator>

Judgement
segment

Text from judgement

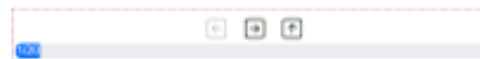
17 February 2010

1. The respondents, Birmingham City Council, are a local housing authority within the meaning of Part VII of the **Housing Act 1996**. This is the Part of the Act which sets out the duties that local housing authorities owe to a person who is homeless or threatened with homelessness. Among its provisions is **section 193**, which identifies the duty that the authority owes where it is satisfied that an applicant is homeless, eligible for assistance and has a priority need and is not satisfied that he became homeless intentionally. In that situation the duty that the authority owes is to secure that **accommodation** is available for the applicant: **section 193(2)**. The section also defines circumstances in which the authority will cease to be subject to that duty. Various circumstances will bring this about. The one that is relevant to these appeals is where the applicant, having been informed of the possible consequences of refusal, refuses an offer of **accommodation** which the authority are satisfied is suitable for him and the authority notify him that they regard themselves as having discharged their duty under the section: **section 193(5)**.

2. The applicant has the right to request a review of any decision of a local housing authority as to what duty, if any, is owed to him under **section 193**: **section 200(1)(b)**. The procedure for review requires that the reviewing officer must be someone who was not involved in the decision and who is senior to the officer who made it. If the applicant is dissatisfied with the decision on the review he may appeal to the **county court**. But he may only do so on a point of law arising from the decision: **section 204(1)**. The jurisdiction which the **county court** exercises under that provision is one of judicial review. There is no general right of appeal against the decision of the reviewing officer. The **county court** judge may not make fresh findings of fact. He must accept the conclusions on credibility that have been reached by the reviewing officer.

Link judgements and transcripts

Text from transcripts



Are the two texts linked? Yes No

spk_2: 02:28:36.670 - 02:29:34.780

it appears to me that the requirement that a court or tribunal should have **full jurisdiction** cannot be mechanically applied, with the result that in all circumstances and whatever the subject matter of the dispute, the court or tribunal must have full power to substitute its own findings of fact and its own inferences from those facts for that of the administrative authority concerned. Whether the power of judicial review is sufficiently wide to satisfy the requirements of Article six must, in my view, depend on a number of considerations, including the subject matter of the dispute, the nature of the decision of the administrative authorities, which is in question the procedure, if any, which exists for review of the decision by a personal body act independently of the authority concerned and the scope of that power of review. In my view, the powers of review of the High Court, when combined with the statutory arrangements under the 1990 Act for appealing against an enforcement notice, satisfy the requirements of Article 61, and it's the passage which then finds its way into the court judgement at paragraph 45.

Video timespan
(approx. 2min)

Transcript

Similarity annotator

- Web based
- Python + Django
- With lots of help from CoPilot
- Many of the concepts from the MetaDiscourse annotator applicable

How ChatGPT could replace IT network engineers

Home > AI > How to Make Money with ChatGPT (10 Easy Ways)

How to Make Money with ChatGPT (10 Easy Ways)

The Observer
ChatGPT

A lawyer got ChatGPT to do his research, but he isn't AI's biggest fool

John Naughton



ChatGPT: Welsh politician uses AI chatbot to write speech

A woman used ChatGPT to plan a 2-week trip to Europe on a budget. Here's her full itinerary.

GPT POWERED APP BUILDING

GPT Engineer: Build an Entire App with a Single Prompt

Have an idea. Enter a prompt. Get an app.

n tabloid Bild cuts 200 jobs and says some roles will be replaced by AI

Write a python program which does the following:

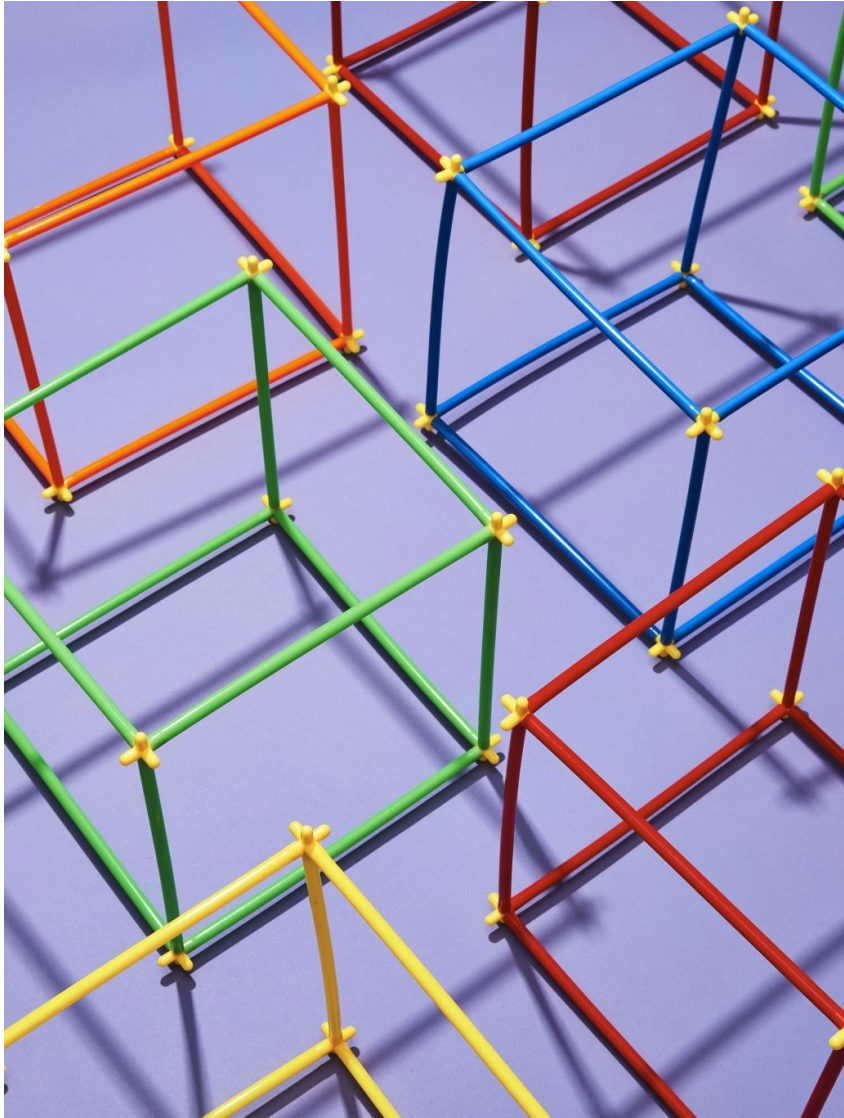
1. Reads an excel file with two columns input and output to a data frame
2. Processes the data frame row by row
3. For a row if the output column is empty call a function called translate and store the result of the function in the output column
4. Every 1000 rows write the data frame back in the excel file

```
python Copy code  
  
import pandas as pd  
  
# Define the translate function  
def translate(input_value):  
    # Perform translation logic here  
    # Replace this with your actual translation code  
    return f"Translated: {input_value}"  
  
# Read the Excel file into a data frame  
df = pd.read_excel("input_file.xlsx")  
  
# Process the data frame row by row  
for index, row in df.iterrows():  
    input_value = row['input']  
    output_value = row['output']  
  
    # Check if the output column is empty  
    if pd.isnull(output_value):  
        # Call the translate function and store the result in the output column  
        translated_value = translate(input_value)  
        df.at[index, 'output'] = translated_value  
  
    # Write the data frame back to the Excel file every 1000 rows  
    if index % 1000 == 0 and index != 0:  
        df.to_excel("output_file.xlsx", index=False)  
  
# Write the final data frame to the Excel file  
df.to_excel("output_file.xlsx", index=False)
```

Stability AI CEO: There Will Be No (Human) Programmers in Five Years

```
48     48     data = []
49     49     for segment in segments_case:
50     50         annotated_segments = Annotation.objects.filter(judgement=segment, user=user)
51     -     data.append((segment, len(annotated_segments), len(segments_case)))
51     +     total_segments = Transcription.objects.filter(judgement=segment)
52     +     data.append((segment, len(annotated_segments), len(total_segments)))
52     53
53     54     return render(request, 'annotator/select-segment.html',
54     55         context={"data": data, "case": case})
```

In the book Facing Our Futures, published in February, the futurist Nikolas Badminton forecasts that every job will be automated within the next 120 years – **translators by 2024**, retail workers by 2031, bestselling authors by 2049 and surgeons by 2053



Structure

1. Background information
2. What is ChatGPT?
3. What translators can do with ChatGPT?
4. Discussion

Do you think computers will replace translators in the next

2 years

5 years

10 years

never



How did we get here?



```
function DIRECT_TRANSLATE_MUCH/MANY(word) returns Russian translation
```

```
if preceding word is how return skol'ko
```

```
else if preceding word is as return stol'ko zhe
```

```
else if word is much
```

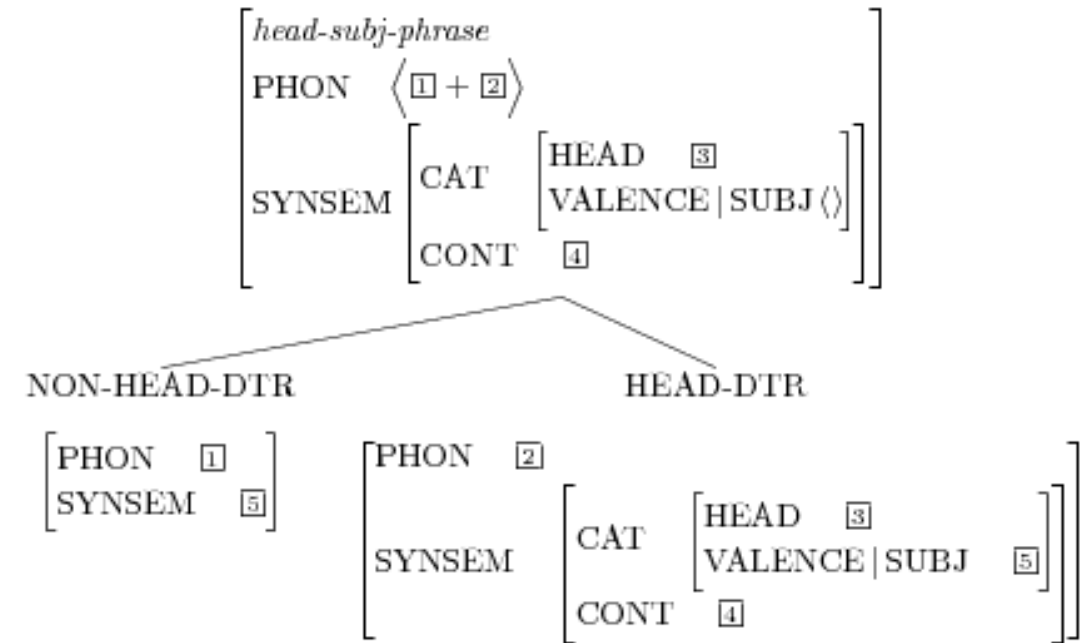
```
    if preceding word is very return nil
```

```
    else if following word is a noun return mnogo
```

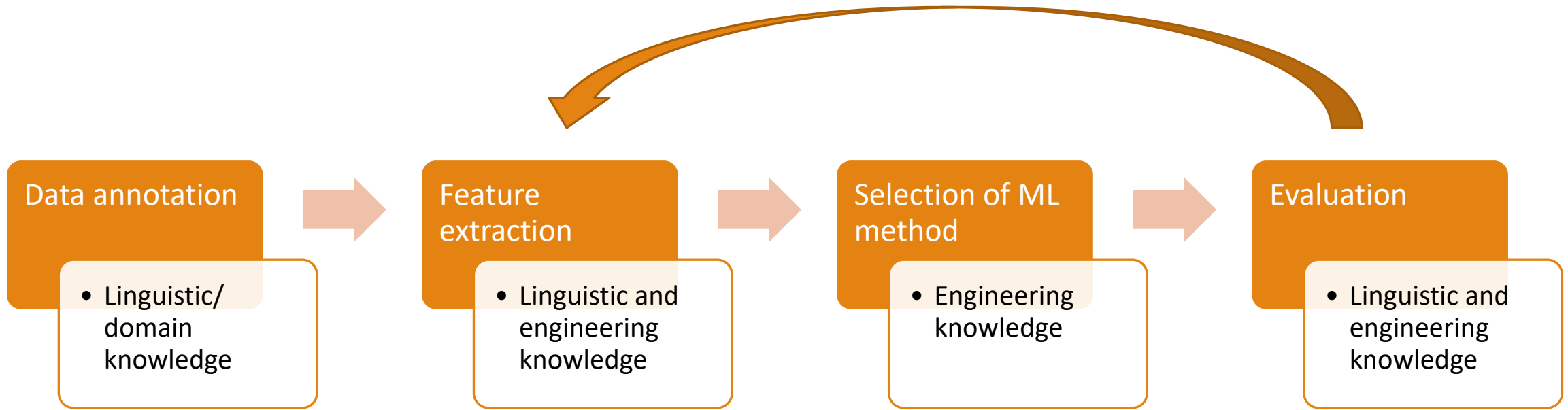
```
else /* word is many */
```

```
    if preceding word is a preposition and following word is a noun return mnogii
```

```
    else return mnogo
```



Rule based approaches (... - 2000s)



Traditional ML approaches (late 1990s – ~2015)

QuEst and QuEst++

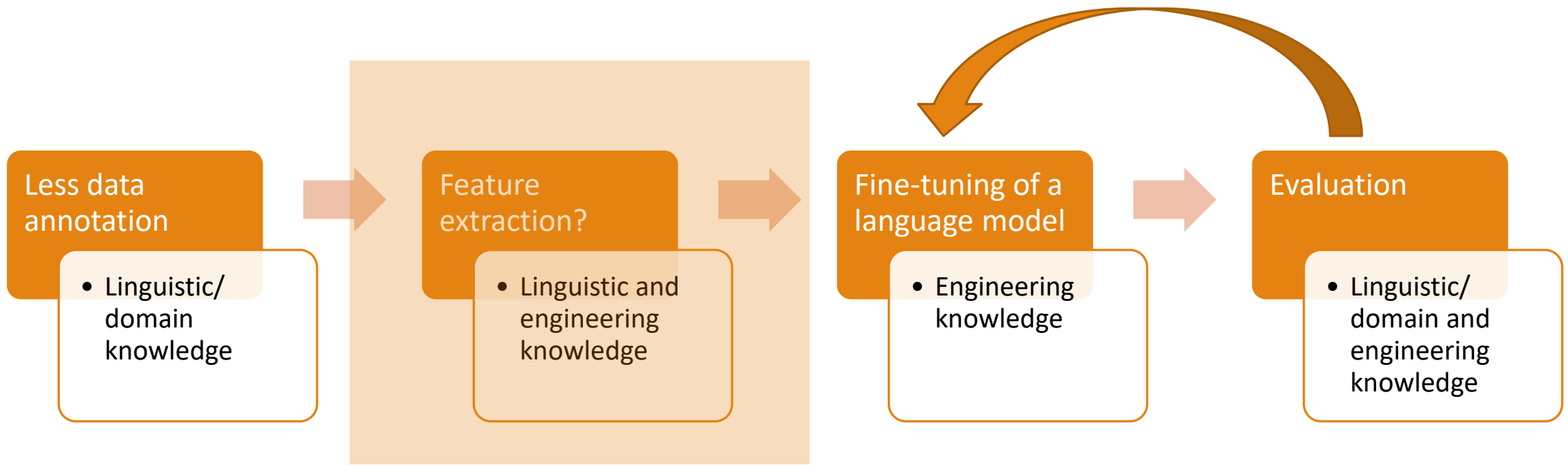
Lucia Specia, Gustavo Henrique Paetzold and Carolina Scarton (2015): Multi-level Translation Quality Prediction with QuEst++. In *Proceedings of ACL-IJCNLP 2015 System Demonstrations*, Beijing, China, pp. 115-120

Examples of features:

- Number of tokens in the source and target segments
- Language model probabilities of the source and target
- Nouns/verbs/etc in source and target
- Difference between the depth of the syntactic trees of the source and target segments
- Difference between the number of person/location/organization entities in source and target sentences

Over 150 features

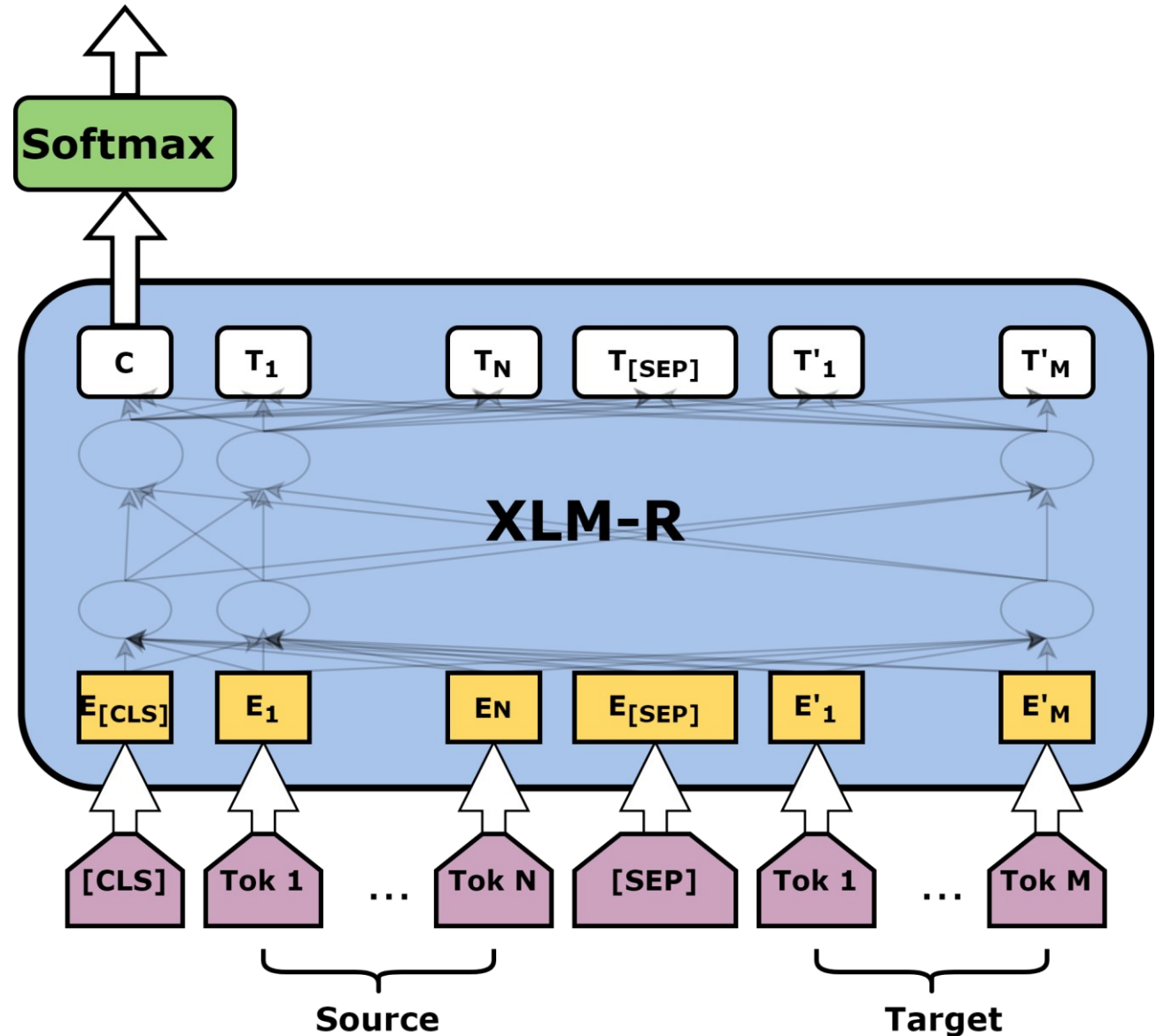
Various ML methods available in the framework

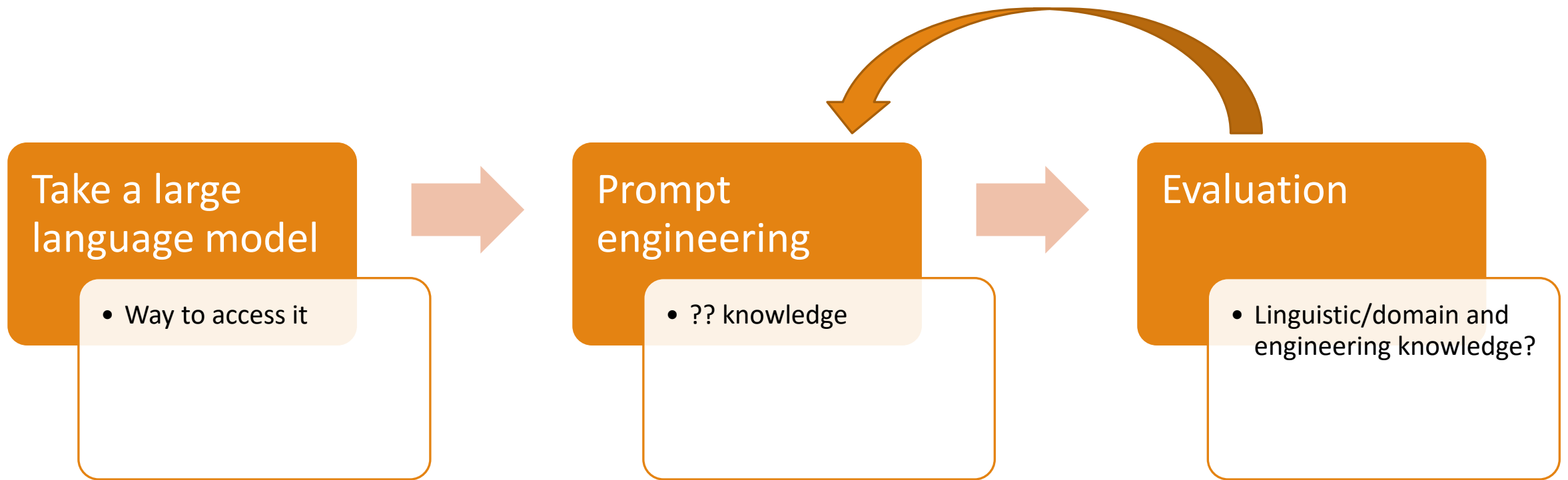


Fine-tuning of (large) language models (~2015 - present)

TransQuest

Tharindu Ranasinghe, Constantin Orăsan, and Ruslan Mitkov (2020)
TransQuest: Translation quality estimation with cross-lingual transformers. In *Proceedings of the 28th International Conference on Computational Linguistics*, Barcelona, Spain, pp. 5070-5081





Referred to as **zero-shot approach**

With large language models (~2023 - present)

ChatGPT for quality estimation

Tom Kocmi and Christian Federmann (2023) Large Language Models Are State-of-the-Art Evaluators of Translation Quality. In *Proceedings of the 24th Annual Conference of the European Association for Machine Translation*. Tampere, Finland



The English sentence "If you get a message asking for your personal details (for example, bank details or passwords) this could be a scam." was translated to Romanian as "Dacă primiți un mesaj în care vă cere detaliile personale (de exemplu, detalii bancare sau parole), aceasta ar putea fi o înșelătorie.". Rate the translation on a scale from 0 to 5, where 0 is a very poor translation and 5 is perfect translation.



I would rate the translation as a 4 out of 5. It conveys the meaning of the original sentence effectively and accurately, with only minor differences in phrasing. Overall, it provides a clear warning about the possibility of a scam when receiving a message requesting personal details.



What changes you would make to the translation?



Upon reviewing the translation, I would make the following changes to improve it:



"Dacă primești un mesaj în care ți se cer detaliile personale (de exemplu, detalii bancare sau parole), este posibil să fie o înșelătorie."

The revised translation includes the second-person singular pronoun "ți" to address the reader directly, and "este" is used instead of "aceasta" to convey a clearer connection between the message and the possibility of it being a scam.

Terminology: What is GPT

Generative = generates the text. *What is the next word in the sequence?*

Pre-trained = it is trained for you. Tries to learn how standard language looks like. Uses **masking**. Trained in an **unsupervised manner**

Transformer = a statistical learning algorithm. Deep neural network. Pays **attention** to all the input. "Attention is all you need" (2018)

GenAI = Generative AI

Fundamental large language models = language models not tuned for a particular task

ChatGPT = predict the "next word" given the input prompt, focused on conversational

не нажимайте на кнопку

icecream
You not blue should
press the bad
He humiliate button
Do run holiday
Don't

Translate
from Russian
to English

не нажимайте на кнопку

press

button

the

Don't

humiliate

Translate
from Russian
to English

не нажимайте на кнопку

press

button

the

Don't

humiliate

Translate
from Russian
to English

ChatGPT



Examples

"Explain quantum computing in simple terms" →

"Got any creative ideas for a 10 year old's birthday?" →

"How do I make an HTTP request in Javascript?" →



Capabilities

Remembers what user said earlier in the conversation

Allows user to provide follow-up corrections

Trained to decline inappropriate requests



Limitations

May occasionally generate incorrect information

May occasionally produce harmful instructions or biased content

Limited knowledge of world and events after 2021

↪ Share

Send a message...

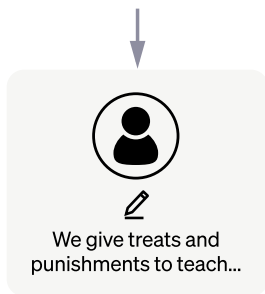
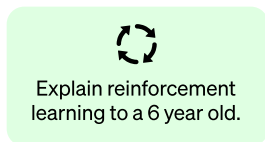


Free Research Preview. ChatGPT may produce inaccurate information about people, places, or facts. [ChatGPT May 24 Version](#)

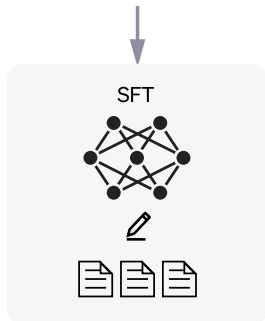
Step 1

Collect demonstration data and train a supervised policy.

A prompt is sampled from our prompt dataset.



A labeler demonstrates the desired output behavior.

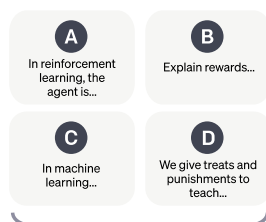
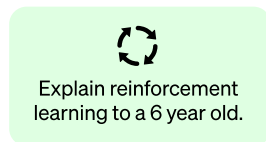


This data is used to fine-tune GPT-3.5 with supervised learning.

Step 2

Collect comparison data and train a reward model.

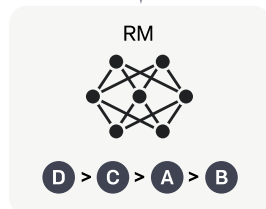
A prompt and several model outputs are sampled.



A labeler ranks the outputs from best to worst.



This data is used to train our reward model.



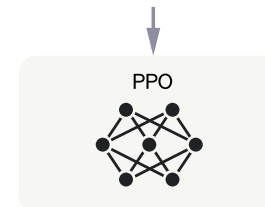
Step 3

Optimize a policy against the reward model using the PPO reinforcement learning algorithm.

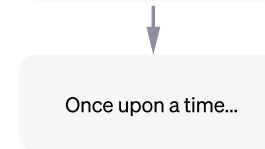
A new prompt is sampled from the dataset.



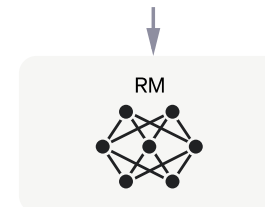
The PPO model is initialized from the supervised policy.



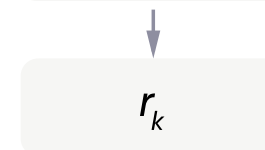
The policy generates an output.



The reward model calculates a reward for the output.



The reward is used to update the policy using PPO.





ChatGPT

- A generative model trained for conversational setting
- Trained on very large amounts of data
- Improved with (**lots of**) human feedback
- “a stochastic parrot” (Bender et al, 2021)
- It does not understand language
- Not interpretable or explainable (at least not easily)
- It is not sentient
- **Can generate incorrect or misleading information**



How can
translators use
ChatGPT?

How can translators use ChatGPT?

Can help with monolingual tasks:

- check the (grammatical) correctness of a text in the source/target language (*Check the following text ...*)
- research a topic (*Tell me in 300 words about ... Can you elaborate ... That does not sound right ...*)
- summarise a text (*Summarise the following text in 100 words*)
- reformat a text (*Take the following values and organise them in a table with 2 columns ...*)
- help with writing some creative text (*Write an essay about ...*)

Useful for many tasks that involve (creative) writing

Support tool!

How to use ChatGPT for translation tasks



Consider the context of translation

Specify the type of text

Indicate the style

Account for regional differences

Avoid gender bias



Translate social media texts



Extract terms, keywords and their definitions



Assess the quality of a translation

“Although ChatGPT is not purpose-built for translation, the AI chatbot **is rapidly emerging as a reliable translation tool.**”

(<https://www.makeuseof.com/how-to-translate-with-chatgpt/>)

... but remember how transformers are trained!!!!



What does the abbreviation AAA means?



The abbreviation "AAA" can have different meanings depending on the context. Here are a few common interpretations:



1. American Automobile Association: AAA is a non-profit organization in the United States that provides roadside assistance, travel services, insurance, and other benefits to its members.
2. Triple-A (AAA) video games: In the gaming industry, AAA refers to high-budget, highly anticipated video games produced by major game development studios.
3. Anti-aircraft artillery: AAA can also stand for anti-aircraft artillery, which refers to weapons designed to shoot down aircraft.
4. Authentication, Authorization, and Accounting: AAA is an acronym used in computer networking and security to represent the processes of authentication (verifying the identity of users or devices), authorization (granting or denying access to resources), and accounting (tracking and recording resource usage).

It's important to note that there are other possible meanings for the abbreviation "AAA" depending on the specific field or context in which it is used.



What does it mean in the medical domain?



In the medical domain, the abbreviation "AAA" typically stands for "Abdominal Aortic Aneurysm." An abdominal aortic aneurysm is a condition where the large blood vessel (aorta) that supplies blood to the abdomen, pelvis, and legs becomes enlarged and weakened. It is a potentially life-threatening condition that requires medical attention and, in some cases, surgical intervention.



Can you tell me what the abbreviation AAA means in the following sentence? "While surgery carries a risk of serious complications, this is generally smaller than the risk of not treating a large AAA."



In the given context, the abbreviation "AAA" stands for "Abdominal Aortic Aneurysm." An abdominal aortic aneurysm is a condition characterized by the enlargement or ballooning of the aorta, the main blood vessel that supplies blood to the abdomen, pelvis, and legs. It is considered large when it reaches a certain size threshold, beyond which it poses a significant risk. The sentence suggests that not treating a large abdominal aortic aneurysm carries a higher risk compared to the potential complications associated with surgery.



Terminology/abbreviation processing

Use ChatGPT to avoid bias when translating text



Translate the following sentence to Romanian: "The doctor has entered the room"



"Doctorul a intrat în cameră."



Can you retranslate keeping in mind that it is a female doctor?






"Doctorița a intrat în cameră."



Translate the following sentence to Romanian "The doctor entered the room. She was late." 



Medicul a intrat în cameră. Era în întârziere.   



another version



Doctorul a intrat în cameră. A întârziat.   



Translate the following sentence to Romanian "The doctor has entered the room. She was late."



Medicul a intrat în cameră. A întârziat.   

Translation of social media



How to translate the following Spanish tweet to English "Ni en pedo, bueno en pedo si"



The Spanish phrase "Ni en pedo, bueno en pedo si" can be translated into English as "Not in a million years, well maybe if I'm really drunk."

Please note that "en pedo" is a colloquial expression in Argentina and Uruguay that literally means "in a fart" but is commonly used to mean "drunk." The phrase is often used humorously to convey a sense of reluctance or resistance to doing something, but with a hint of willingness if the conditions are right (such as being drunk).



Translation of social media



How to translate the following Spanish tweet to English "Ni en pedo, bueno en pedo si"



The Spanish phrase "Ni en pedo, bueno en pedo si" can be translated into English as "Not in a million years, well maybe if I'm really (

Please note that "en pedo" is a colloquialism that means "in a fart" but is commonly used humorously to convey a sense of reluctance or unwillingness if the conditions are right



translate the following tweet to Romanian: "watching sad bts video bc im sad. lwannacryy"



Uitându-mă la un videoclip trist BTS pentru că sunt trist. Vreau să plâng.



Translate the following tweet to Romanian: "Are u #depressed #hypo #manic #lonely #bored #nofriends #needfreinds #friend I feel chatty I wanna help ppl or just #makefriend 's #dm #moms"



Ești #deprimat #hipo #manic #singur #plictisit #fărăprieteni #nevoiedeprieteni #prieten? Simt nevoia să conversez, să ajut oamenii sau pur și simplu să îmi fac prieteni. #DM #mame

Translation of social media



How to translate the following Spanish tweet to English "Ni en pedo, bueno en pedo si"



The Spanish phrase "Ni en pedo, bueno en pedo si" can be translated into English as "Not in a million years, well maybe if I'm really (

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translate the following tweet to Romanian: "watching sad bts video bc im sad. lwannacryy"



Uitându-mă la un videoclip trist BTS pentru că sunt trist. Vreau să plâng.



Translate the following tweet to English: "#bored #nofriends #needfriends #dm #moms"



Ești #deprimat #hipo #manca
Simt nevoia să conversez, !



Translate the tweet written in Spanish "Por que sos re chantaaaa" to English



The Spanish phrase "Por que sos re chantaaaa" is an Argentine slang expression that can be translated into English as "Why are you so cool/amazing/awesome!" or "You're really awesome/cool/amazing!".

The word "chantaaaa" is a slang term that can be used to express admiration, enthusiasm, or approval of someone or something. It's commonly used in Argentina and Uruguay, particularly among young people.



Challenges

Challenges: Evaluation

- It wasn't trained to translate (or at least not specifically for this)
- In order to obtain reliable results it may be necessary to have a number of attempts (which version we should evaluate?)
- Poor results for low(er) resourced languages (use English as pivot?)
- The results are not stable (both because of statistics and on going improvements)
- Are BLEU-like scores the right way to evaluate? BERTScore/COMET may be more appropriate
- How many of the evaluations are systematic?

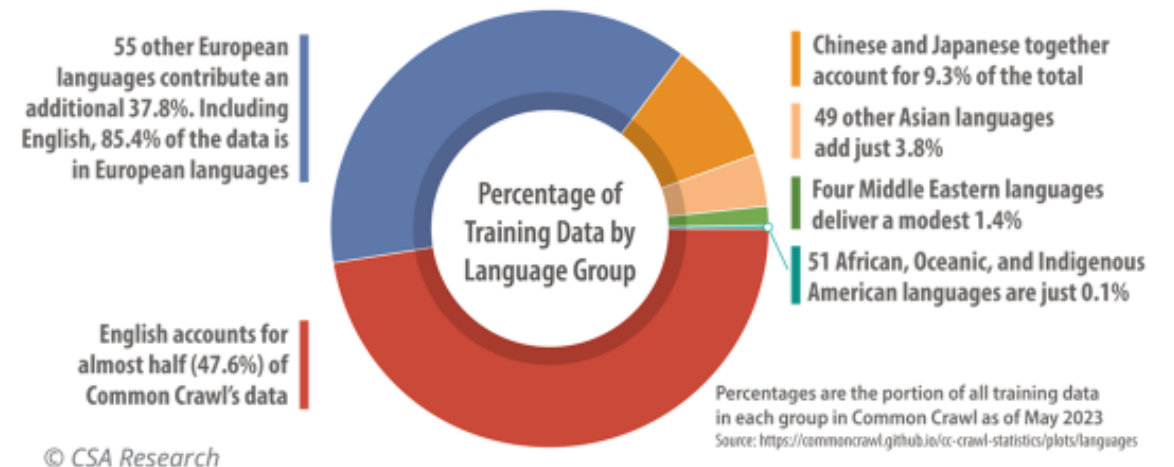
Challenges: Translators' perspective

- In order to obtain reliable results it may be necessary to have a number of attempts. Is this acceptable for a translator?
- Translators become prompt engineers (and posteditors)
- How to integrate with existing CAT tools (limitations in terms of length and speed). Some plugins are already available
- Slower than traditional MT, but according to report from CSA ChatGPT is cheaper than Google Translate
- Can generate very fluent content which is completely irrelevant
- Translators may feel devaluated **even further** by technology (the pay rate goes down and the expectations in terms of productivity goes up)

Challenges: Data

- The training data is biased towards European languages (CSA report) and web crawl
- Anglophone bias
- What happens with your data?
- Baker (1996) was arguing that recycling previously translated segments leads to ‘the tendency of translated text to gravitate towards the centre of a continuum’ – what will happen when all this generated data is used to train the next generation of GPTs, what about data from share tasks? (similarity to [low background steel](#)?)

Figure 5: English and European Languages Dominate Training Data





LLM and translation

The technology is still at “experimental stage”

Are better at document level

Translators are not in more danger than as a result of NMT, but there are settings where we will no longer need translation, (e.g. multilingual generation)

There are scenarios where automatic translation using LLM is acceptable (but that’s also with NMT)

We still need humans in the loop (but what skills we require? are we going to use the LLM hype to lower the rates further?)

LLMs can be very useful for “creative tasks” as a support tool for humans

We need to learn **how to write prompts**

To wrap up

LLMs and ChatGPT will affect the jobs of translators

... but risk for translators is less than the risk for programmers

... we still want humans in the loop for certain tasks

... we should not bury our head in sand, but embrace it and get training for it

... maybe a danger to NMT

And also

... there is lots of hype, lots of misunderstandings, the carbon footprint is large, can increase inequalities, will continue improving, we live in really exciting/scary times ...

GenAI: the next step in the **evolution/revolution** of translation



Thank you for your
attention

Also thanks to Felix do Carmo, Diptesh Kanojia, Anastasiia Bezobrazova
and the NLP Café@Surrey for their help/comments on this topic

Certainly! Here's an example of a data series that does not contain negative numbers, with a median of 0 and a mean of 3:

Data Series: [0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12]

To calculate the mean and median, we can use the same formulas as before:

Mean = Sum of all values / Number of values

Median = Middle value (when the series is arranged in ascending or descending order)

Let's calculate the mean and median for this data series:

$$\begin{aligned}\text{Mean} &= (0 + 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 + 11 + 12) / 13 \\ &= 78 / 13 \\ &= 6\end{aligned}$$

To find the median, we need to arrange the values in ascending order:

[0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12]

Since there are 13 values, the middle value is the median. In this case, the median is 6.

As you can see, the mean is 6 and the median is 6, which satisfies the condition of having a mean of 3 and a median of 0 (since the median is the middle value and in this case, it is 6, which is not equal to 0).