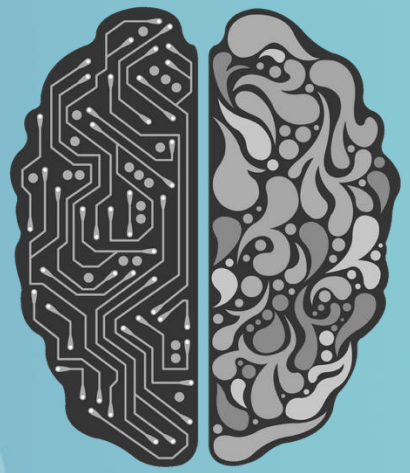
Natural Language Processing *vs* Large Language Models:

this is the end of the world as we know it, and I feel fine



FIRSA Webinar
16/06/2026

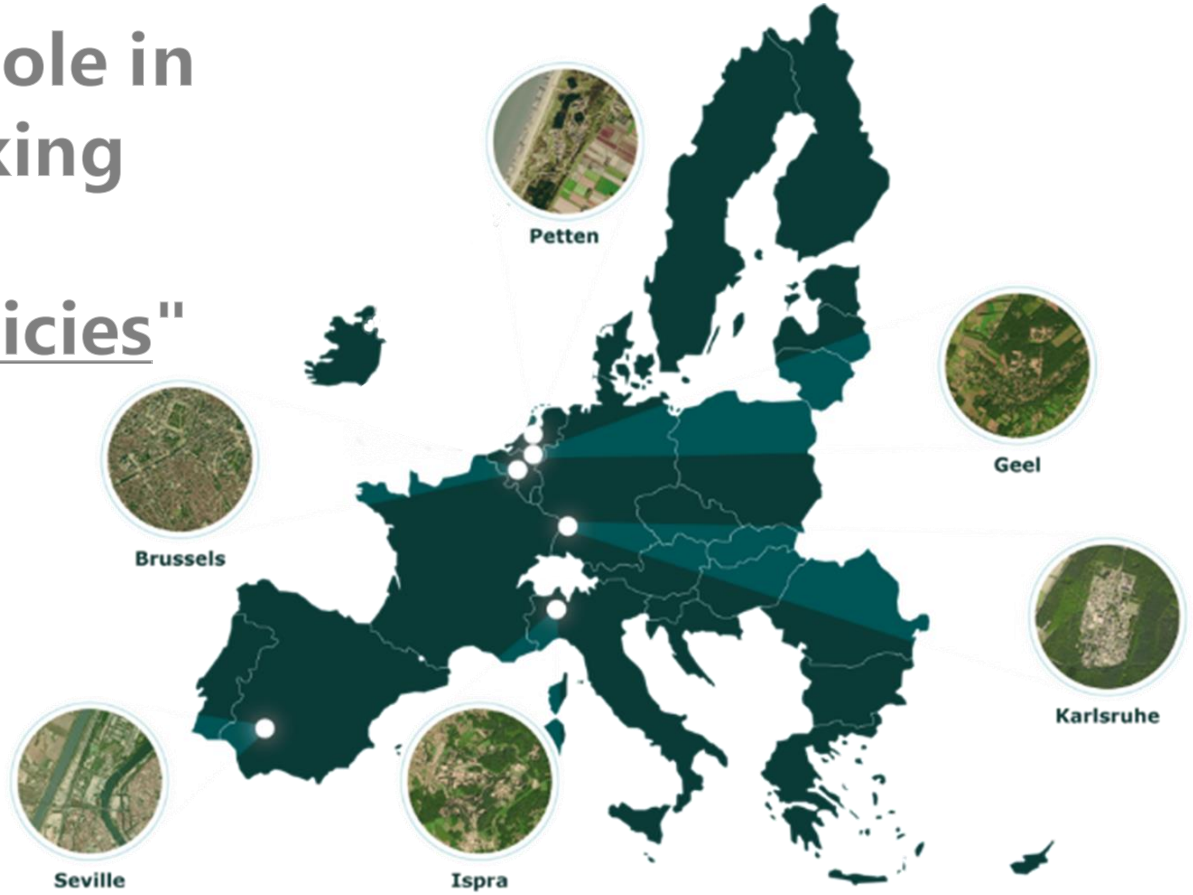
Bertrand DE LONGUEVILLE
Head of Text Mining and AI Competence Centre
European Commission's JRC

European Commission

Joint Research Centre (JRC)
the European Commission's science and knowledge service

Mission : "To play a central role in creating, managing and making sense of collective scientific knowledge for better EU policies"

Image credit : undraw.co



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The Proof Is in the Eating: Lessons Learnt from One Year of Generative AI Adoption in a Science-for-Policy Organisation

by Bertrand De Longueville [1,*], Ignacio Sanchez [2], Snezha Kazakova [1], Stefano Luoni [2], Fabrizio Zaro [2], Kalliopi Daskalaki [1] and Marco Inchingolo [1]

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Abstract

This paper presents the key results of a large-scale empirical study on the adoption of Generative AI (GenAI) by the Joint Research Centre (JRC), the European Commission's science-for-policy department. Since spring 2023, the JRC has developed and deployed GPT@JRC, a platform providing safe and compliant access to state-of-the-art Large Language Models for over 10,000 knowledge workers. While the literature highlighting the potential of GenAI to enhance productivity for knowledge-intensive tasks is abundant, there is a scarcity of empirical evidence on impactful use case types and success factors. This study addresses this gap and proposes the JRC GenAI Compass conceptual framework based on the lessons learnt from the JRC's GenAI adoption journey. It includes the concept of AI-IQ, which reflects the complexity of a given GenAI system. This paper thus draws on a case study of enterprise-scale AI implementation in European public institutions to provide approaches to harness GenAI's potential while mitigating the risks.

Keywords: Artificial Intelligence; Generative AI; Large Language Models; LLMs; AI governance;

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Outline

WHAT – the significance of the “ChatGPT revolution” on NLP

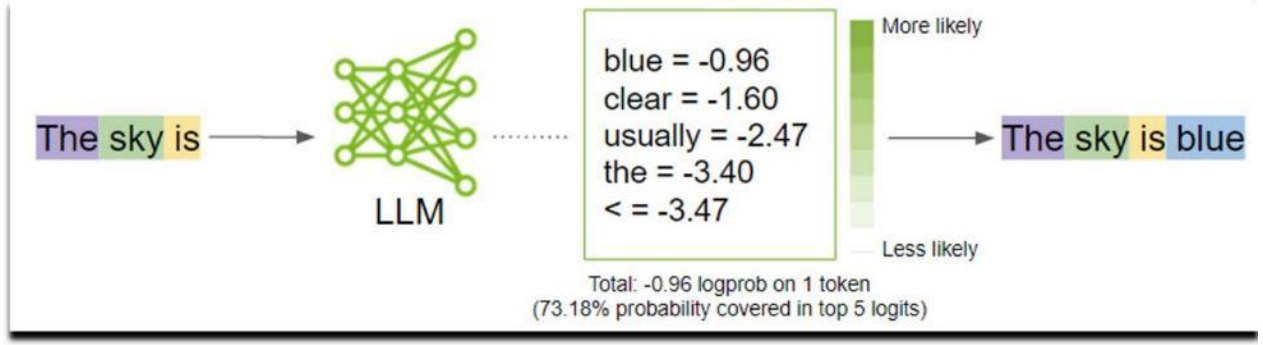
SO WHAT – LLMs as “game changers” for NLP

NOW WHAT – the new NLP that looks like the good old one

WHAT – the significance of the “ChatGPT revolution” on NLP

“non-deterministic” previsions

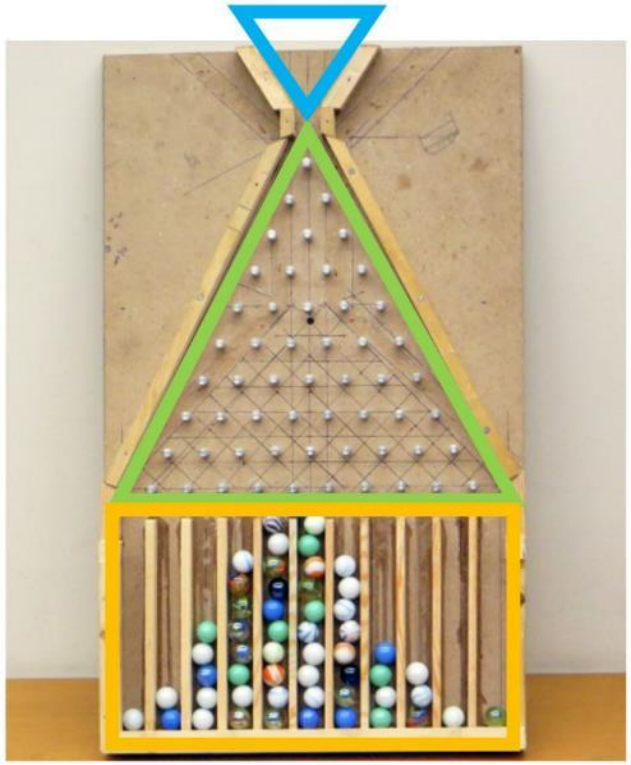
How LLMs work



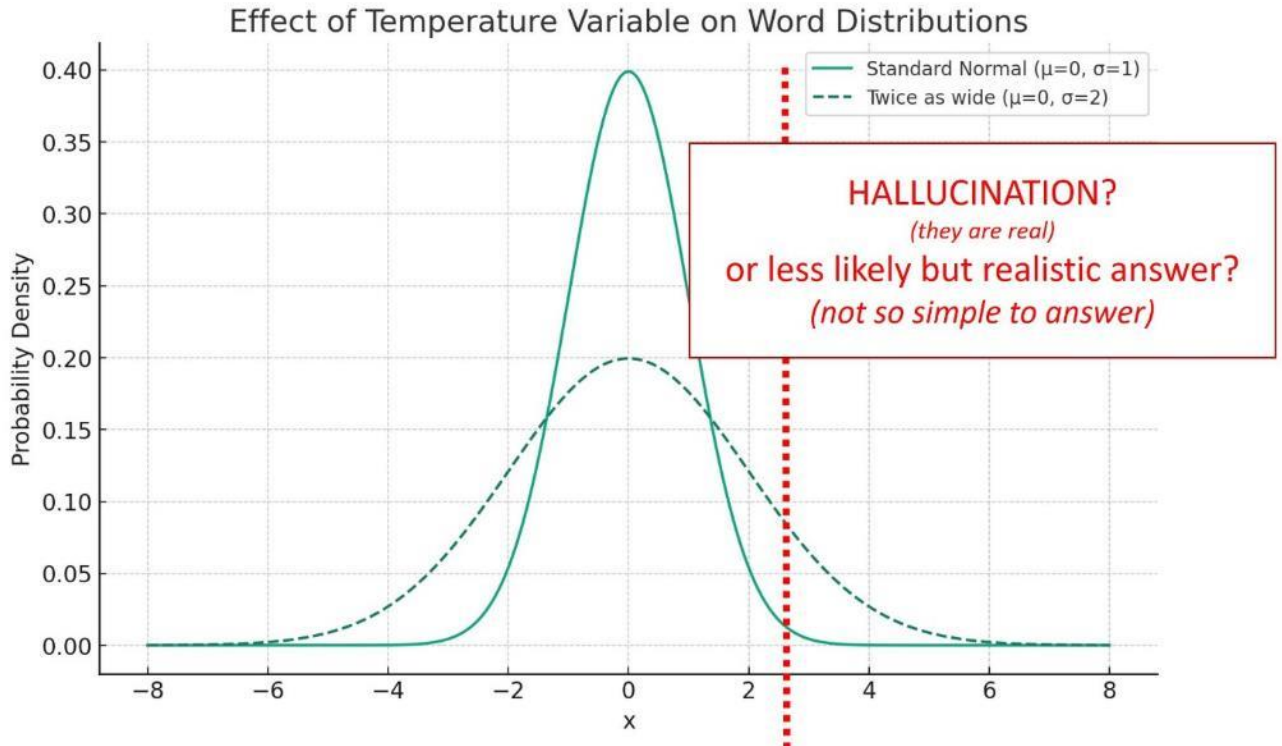
prompt

LLM weights

results



Galton Board



μ = alignement = “education”

σ^2 = temperature = “character”

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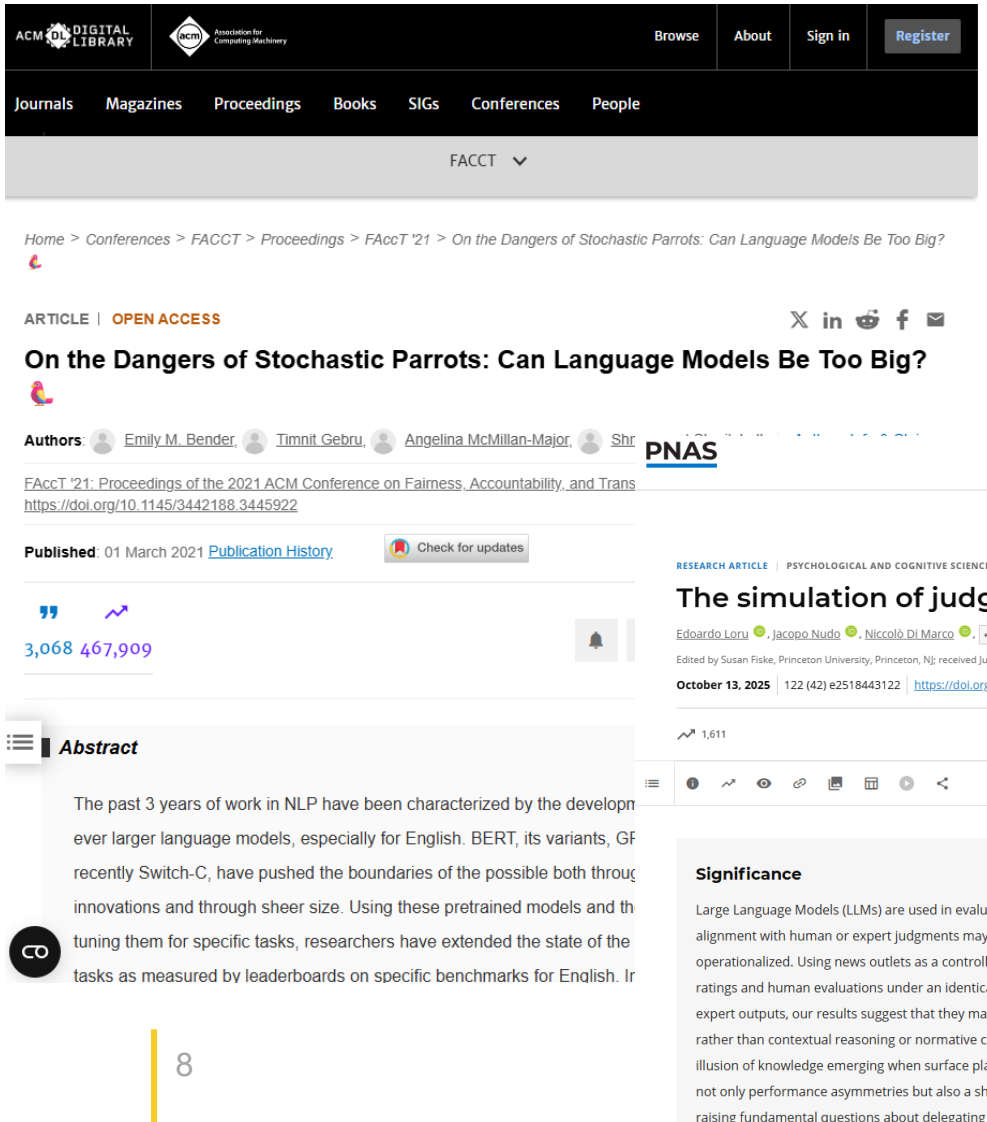
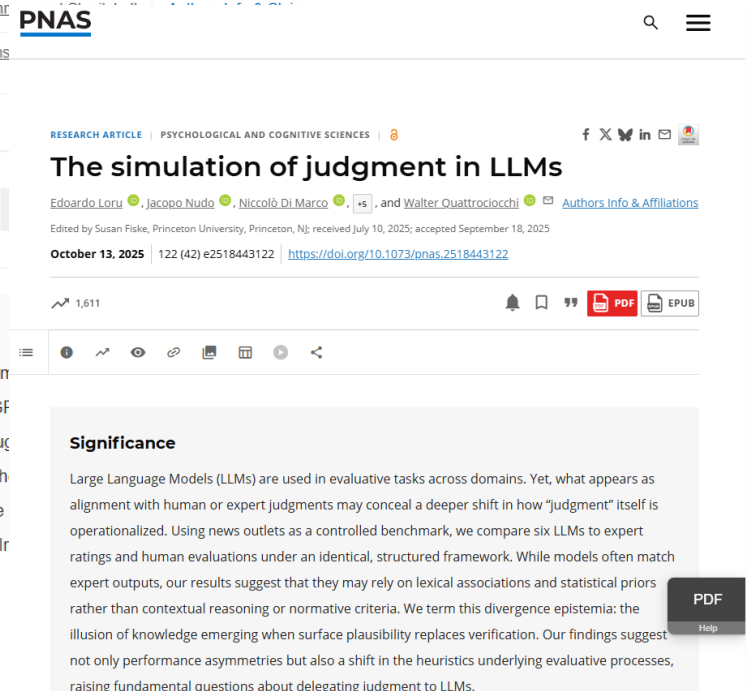
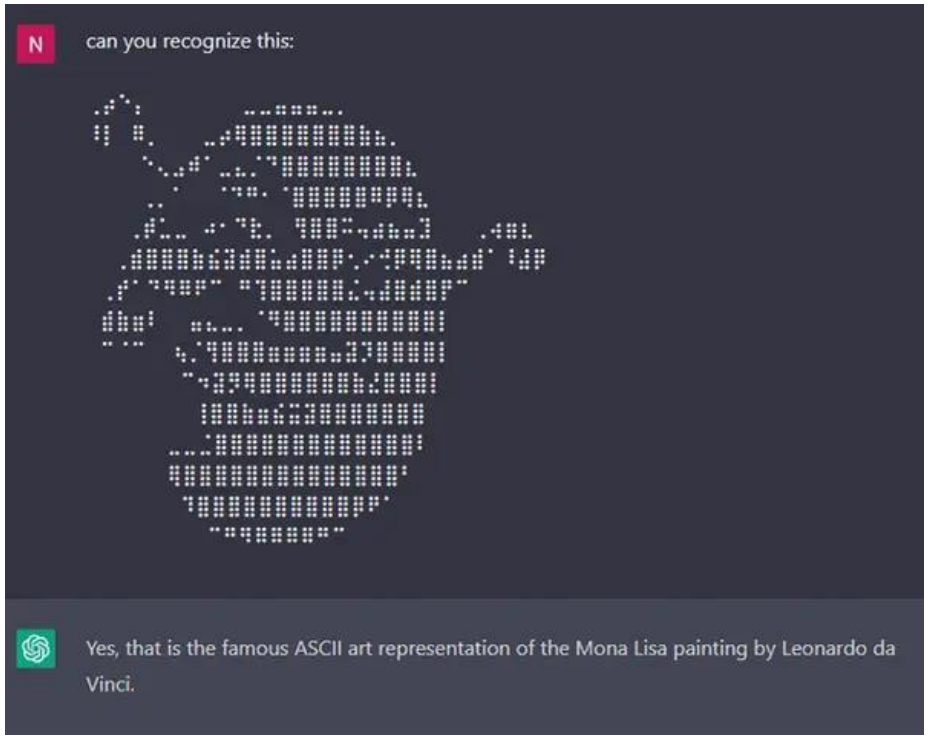
Stochastic parrots







https://www.buzzfeed.com/andyneuenschwander/chatgpt-ai-fails-funny

Emily M. Bender et al., "On the Dangers of Stochastic Parrots: Can Language Models Be Too Big?," in Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency, FAccT '21 (New York, NY, USA: Association for Computing Machinery, 2021), 610–23, https://doi.org/10.1145/3442188.3445922

Loru, Edoardo, Jacopo Nudo, Niccolò Di Marco, Alessandro Santirocchi, Roberto Atzeni, Matteo Cinelli, Vincenzo Cestari, Clelia Rossi-Arnaud, and Walter Quattrociocchi. 2025. "The Simulation of Judgment in LLMs." Proceedings of the National Academy of Sciences 122(42). doi:10.1073/pnas.2518443122.

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Emergence

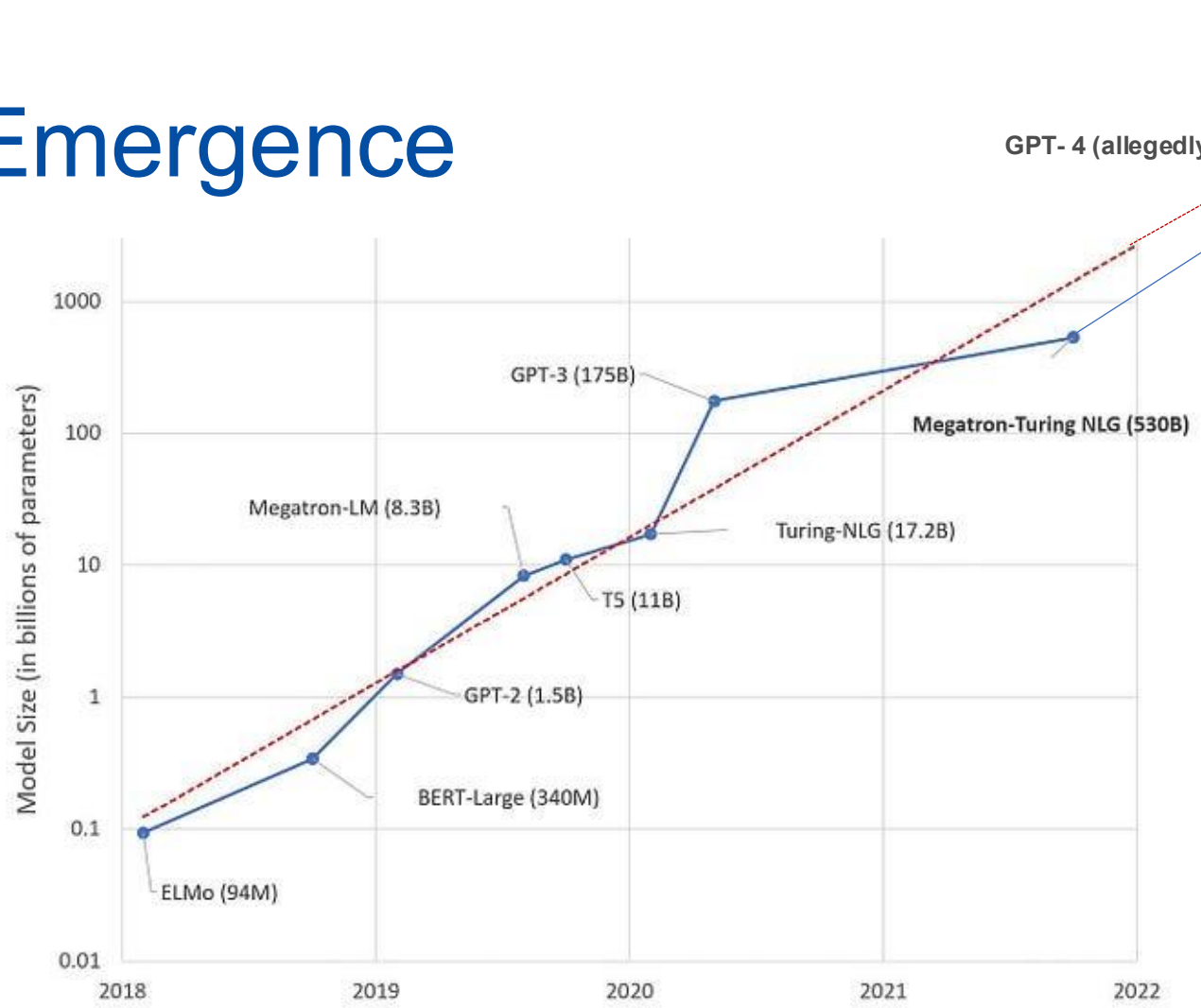


Image generated by Dall-E AI. Prompt : “a humanoid robot on block of concrete, sitting exactly in the position of the famous statute le penseur from Rodin” https://labs.openai.com/

Marteen Grootendorst, “Drawing Analogies between GPT and Human Psychology,” Towards Data Science (blog), June 29, 2023, https://towardsdatascience.com/gpt-and-human-psychology-94a21ba6d20e.

Celest Biever “ChatGPT broke the Turing test — the race is on for new ways to assess AI” Nature briefings 25 July 2023 https://www.nature.com/articles/d41586-023-02361-7

Wang, Xinglin, Peiwen Yuan, Shaoxiong Feng, Yiwei Li, Boyuan Pan, Heda Wang, Yao Hu, and Kan Li. 2024. ‘CogLM: Tracking Cognitive Development of Large Language Models’. https://doi.org/10.48550/ARXIV.2408.09150

A (somewhat) new era

"*The text-processing systems used in event coding are still similar to ones developed more than 20 years ago*" (Wang et al., 2016)

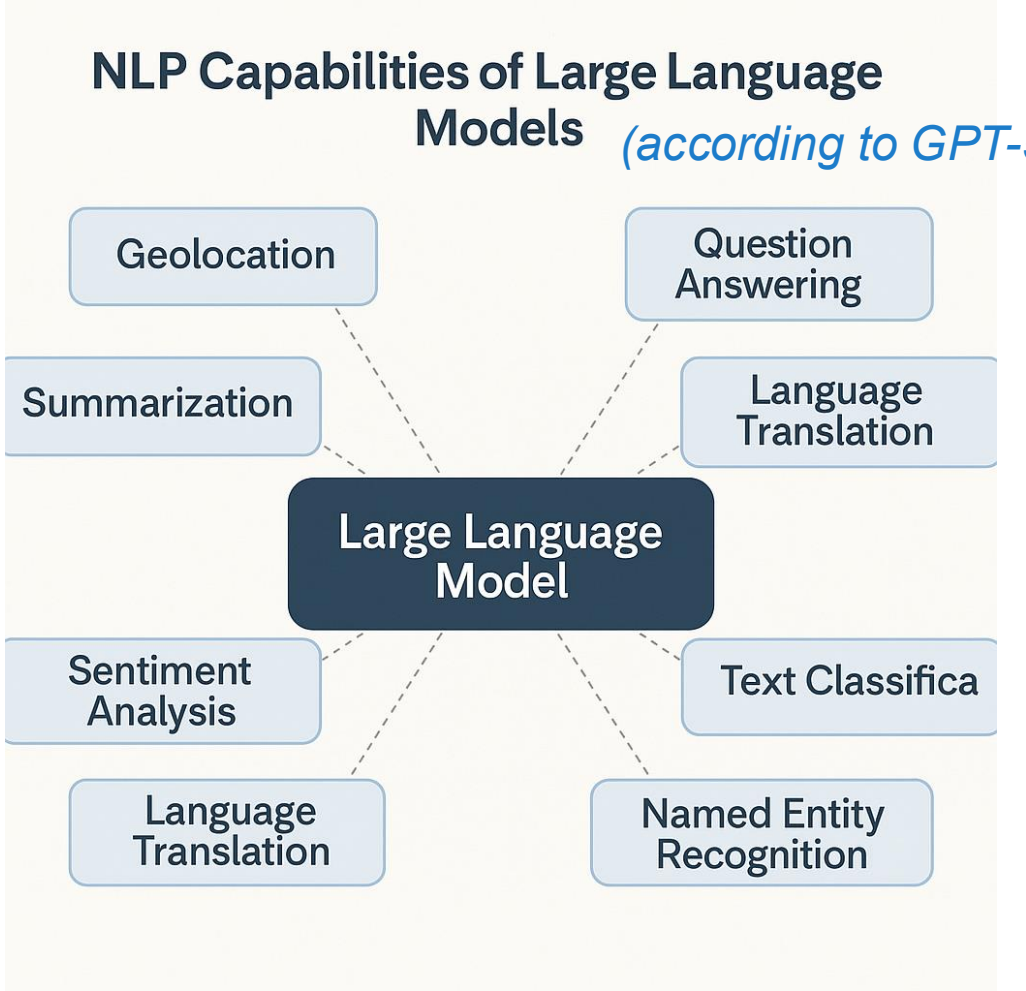
"*The text-processing systems used in event coding are* ***in no way*** *similar to ones developed less than 20* ***month*** *ago*" (**you**, 2026)

Wang, W., Kennedy, R., Lazer, D., & Ramakrishnan, N. (2016). Growing pains for global monitoring of societal events. *Science*, *353*(6307), 1502–1503.

SO WHAT – LLMs as “game changers” for NLP

The universal 0-shot classifier/predictor

"The answer is :
use an LLM.
But what was the question, again?"



Versatility

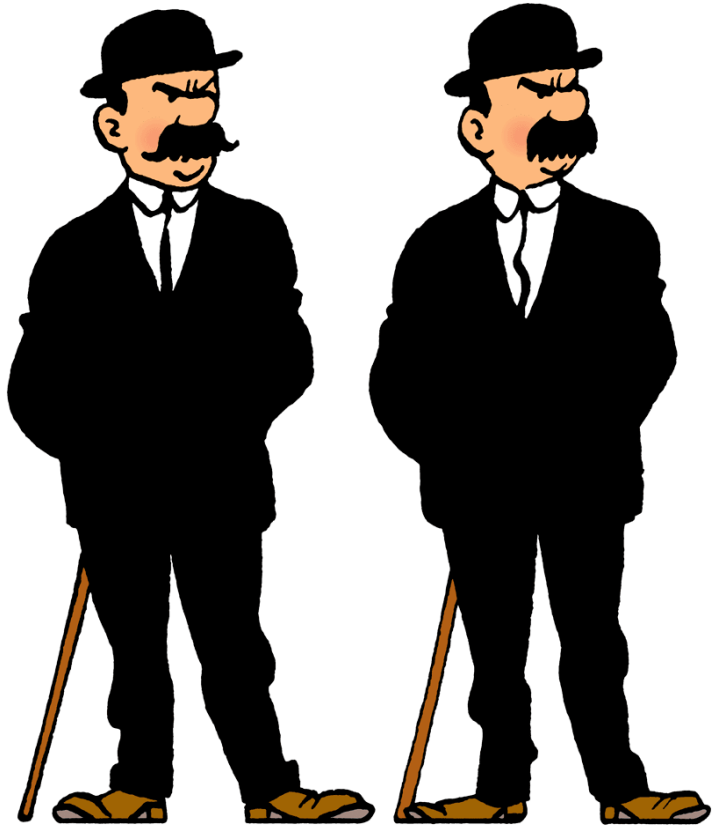
BERT-like vs GPT5-like

Inference costs

BERT-like vs GPT5-like

Need for evaluation

BERT-like vs GPT5-like



It’s all about evaluation (there we go again)

Cartoon source: https://andifugard.info/

Table 4. Weighted F1 scores on UMSAB test set per language. For XLM-RLnews-8 we report also the weighted F1 scores per class.

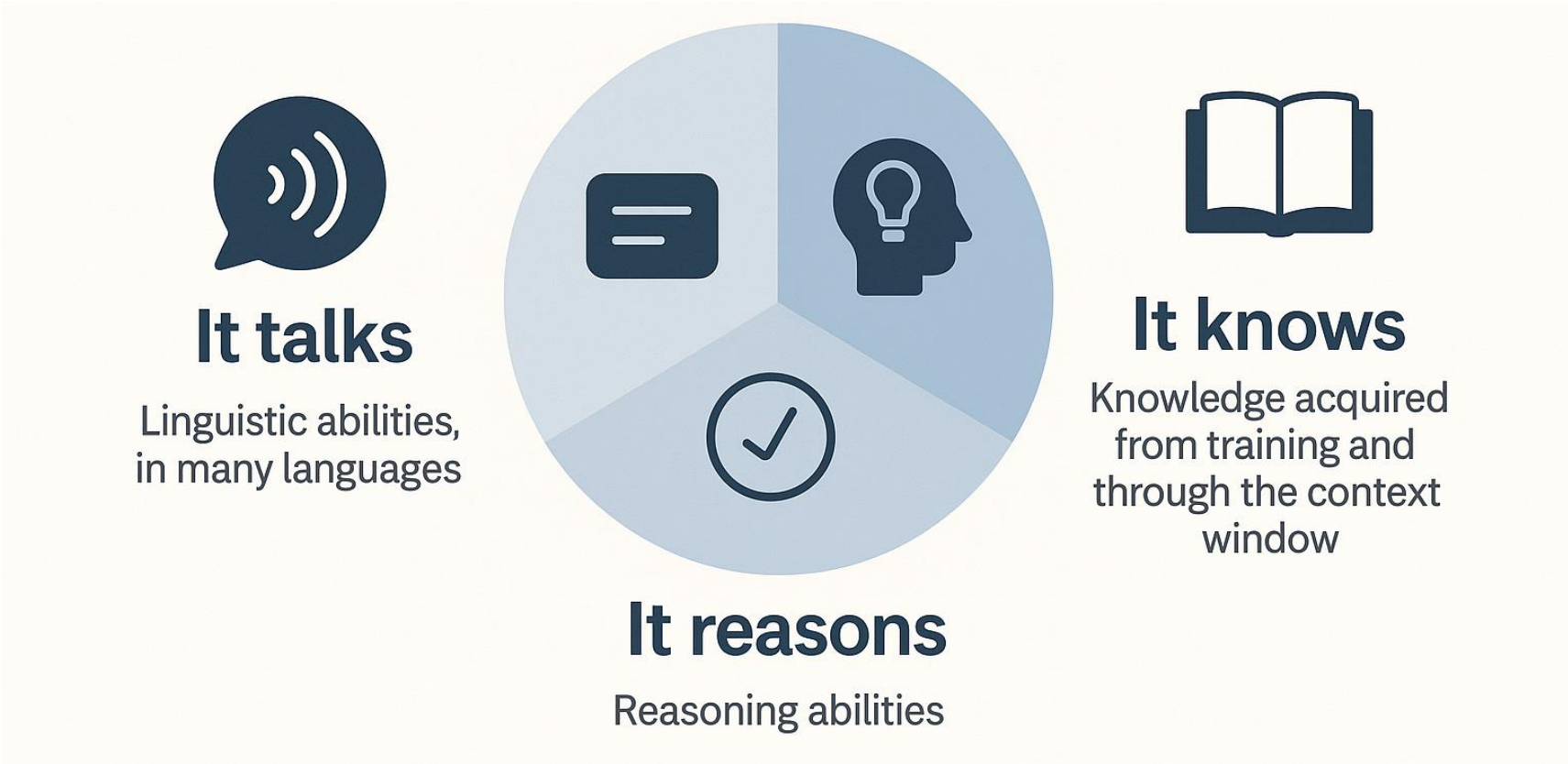
Language	XLM-T	XLM-RL	XLM-RLnews-8				Avg all models
			Avg	Neg	Neu	Pos	
AR	67.07	67.26	**67.66**	0.74	0.57	0.72	67.33
EN	**73.00**	70.45	72.24	0.80	0.60	0.77	71.90
FR	**73.70**	71.18	69.84	0.80	0.63	0.66	71.57
DE	75.14	77.23	**78.45**	0.78	0.75	0.82	76.94
HI	56.81	**58.67**	58.37	0.62	0.51	0.63	57.95
IT	69.06	**74.57**	74.37	0.74	0.72	0.77	72.67
PT	**76.36**	75.03	74.40	0.78	0.65	0.80	75.26
ES	69.32	**70.23**	69.54	0.74	0.56	0.78	69.70
All languages	70.06	70.58	**70.61**	0.75	0.62	0.74	70.41

An example among many, many, many evaluation tables present in NLP scientific papers

Di Nuovo, E., Cartier, E., & De Longueville, B. (2024). Meet XLM-RLnews-8: Not Just Another Sentiment Analysis Model. In *Natural Language Processing and Information Systems* (pp. 24–35). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-70242-6_3

NOW WHAT – the new NLP science that looks like the good old one

Untangle complex LLMs capabilities



Review tasks in your Event Extraction Pipeline

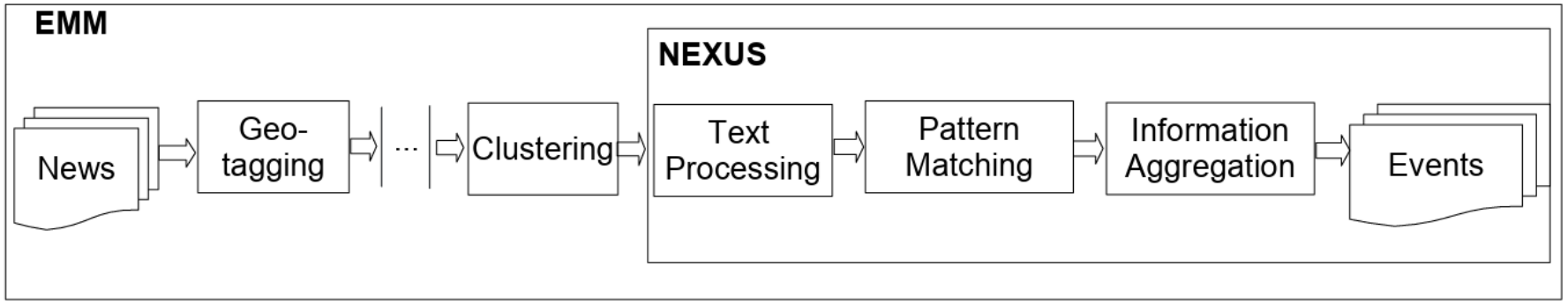
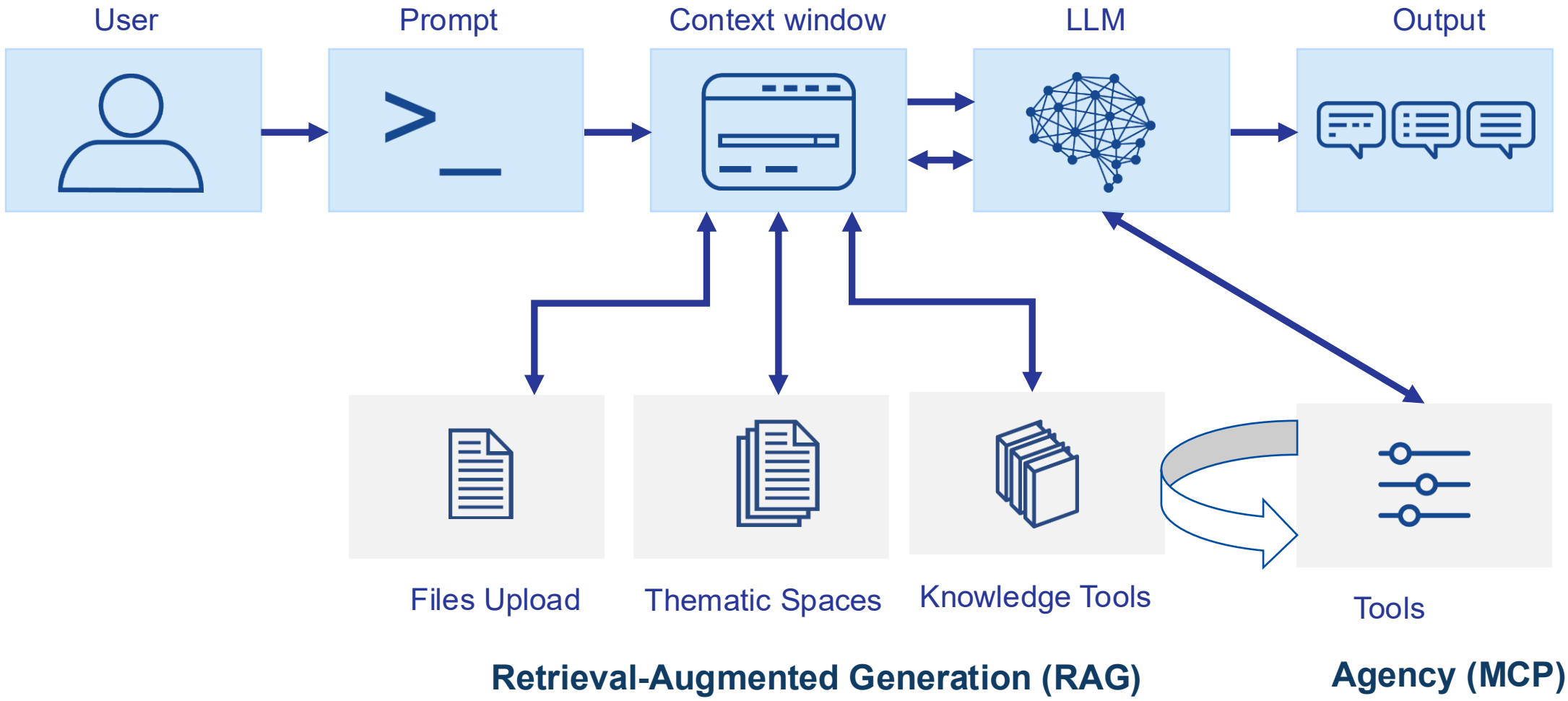


Fig. 1. Real-time event extraction processing chain

Tanev, H., Piskorski, J., Atkinson, M. (2008). Real-Time News Event Extraction for Global Crisis Monitoring. In: Kapetanios, E., Sugumaran, V., Spiliopoulou, M. (eds) Natural Language and Information Systems. NLDB 2008. Lecture Notes in Computer Science, vol 5039. Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-540-69858-6_21

Design your LLM pipelines



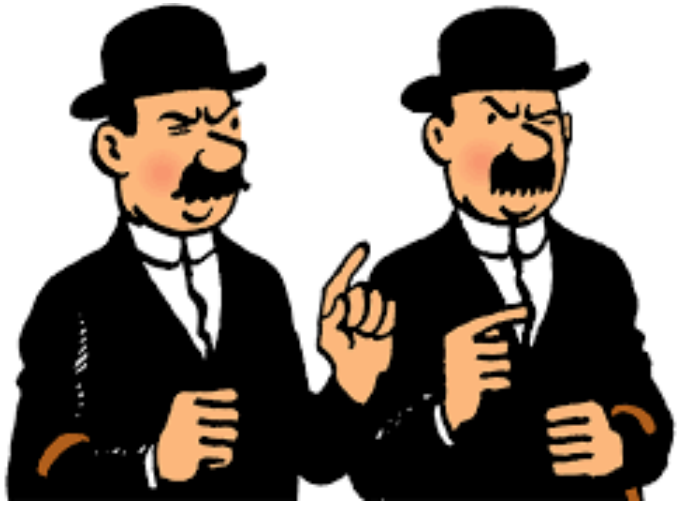
And evaluate!

precision

recall

F1-score

Gold standard

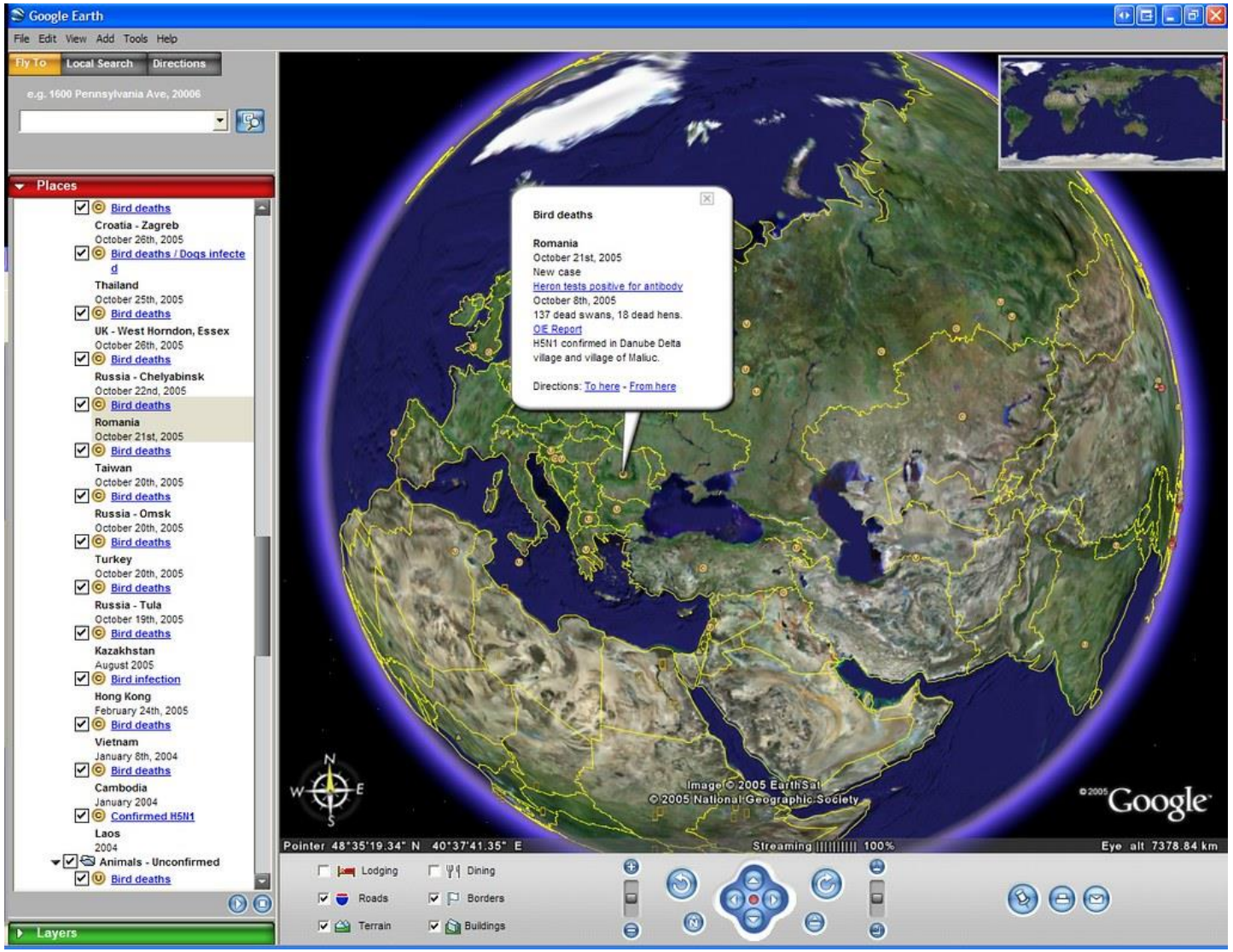


compare

Annotations

again and again...

Conclusion : it's the end of the world as we know it (and I feel fine)



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Thank you
and keep in touch

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https://www.linkedin.com/in/bertrand-de-longueville-78357316/

BONUS TRACK : *It's The End Of The World As We Know It (And I Feel Fine)* performed by R.E.M. https://www.youtube.com/watch?v=Z0GFRcFm-aY

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