#### CLEF 2025 JOKER Track Humor Detection, Search, and Translation

<u>Liana Ermakova</u> Anne-Gwenn Bosser Tristan Miller Ricardo Campos









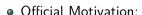




CLEF, September 9, 2025, Madrid, Spain

#### **JOKER Track Motivation**





- State-of-the-art AI, NLP, and IR models are not able to deal with humour or other non-literal meaning aspects of texts
- Wordplay, which can refer to the surface structure or orthography of a word or its pronunciation, is a challenge for AI
- Word surface aspects are not captured in the deep semantic embedding in AI models
- These also cannot be captured by current pre-training models based on next-word prediction objectives
- Motivation of students in the track:
  - Serious research on funny topics?
  - I can work on humor and jokes AND my thesis at the same time?

#### JOKER 2025 Tasks



- **1 Humor-aware Information Retrieval**: retrieve short humorous texts for a query.
- Wordplay Translation: translate puns from English to French.
- Onomastic Wordplay Translation: translate humourous namesfrom English to French.





## Statistics



Team	Task 1		Task 2	Task 3	Total
	EN	РТ	=		
alecs			8		8
arampageos	3	9	12	15	39
cryptix	3		1		4
fhelms	4				4
igoranchik	3	2	13	2	20
kamps	4	4	2		10
mariapazr20				1	1
pjmathematician	7	4	4	3	18
rasion	2	2			4
rdtaylorjr			4		4
sarath_kumar	1		5	1	7
tanishc228	14				14
verbanex			3		3
baselines				1	1
Total	41	21	52	22	136



#### Task 1: Humor-aware IR



- Task 1: Retrieve short humorous texts for a query
  - Retrieving short humorous texts from a document collection
- Use case: to search for a joke on a specific topic
- Main JOKER IR Task since 2024
- 219 queries with relevance judgments (11 queries for Train)
- 77,658 English documents
  - 5,198 humorous texts (JOKER 2024 + new jokes)
- New data
  - New manually created jokes
  - New positive generated examples
  - New negative examples
- Evaluation: traditional IR metrics (MAP, NDCG, ...)
- + Data in Portuguese



#### **EN Data Source Statistics**



source	non-humorous	humorous	total
Bard	36	4	40
Claude	0	74	74
ChatGPT	149	381	530
JOKER	4,954	3,507	8,461
Llama-2	12,523	0	12,523
Phi-3 Mini	8,204	0	8,204
manual	2	247	249
translations	985	0	985
Wikipedia	46,592	0	46,592
total	72,460	5,198	77,658

# Document Examples



Envoi!

```
"docid": "1",
  "text": "Good laws have sprung from bad
    customs."
},
  "docid": "2".
  "text": "The musical score to Topsyturveydom
     does not survive, but amateur productions
     in recent decades have used newly
     composed scores or performed the work as a
     non-musical play."
},
  "docid": "3".
  "text": "The organic compound primarily
     responsible for the characteristic odor of
     musk is muscone."
},
  "docid": "51135".
  "text": "I've inherited a fortune, said Tom,
     willfully."
},
  "docid": "591".
  "text": "My name is Will, I'm a lawyer."
```

## Results Task 1 EN (Test)





Run ID	#ret	#rel	map	gmap	p@r	mrr	p@5	p@10	ndcg@5
pjmathematician_Q14-Q8-Q32	207K	3007	35.01	24.65	38.68	79.04	54.88	40.63	60.80
pjmathematician Q14-Q8-Q14	207K	2954	34.86	24.31	39.07	78.74	54.49	40.29	60.59
pimathematician Q32-Q8-Q14	207K	2932	34.38	23.98	38.98	80.78	54.49	41.01	60.94
pimathematician Q32-Q8-Q32	207K	3011	32.91	23.03	36.99	76.20	50.34	39.95	55.98
pjmathematician_Q14-Q8-R	207K	2835	23.88	16.03	27.10	64.27	36.62	28.70	41.23
UAms_RM3RoBERTa_drop60	82K	1448	16.72	7.04	23.05	54.46	30.82	23.09	1.52
Rasion_SenTransF+Roberta	4K	811	16.21	NaN	20.59	64.93	35.92	24.47	41.34
Rasion_SenTransF+Roberta	53K	1475	15.79	5.53	20.21	55.94	30.82	22.75	34.02
Cryptix_SBERT	207K	1914	15.07	5.52	19.44	56.94	28.70	20.97	33.46
UAms RM3	207K	1864	15.02	7.22	19.53	40.87	24.35	20.00	25.66
UAms RM3RoBERTa	186K	1798	14.94	7.16	19.56	42.47	25.51	19.61	26.76
CCC Ensemble ColBERT RM3	103K	1967	14.15	7.44	16.29	33.69	16.71	17.73	18.17
CCC Ensemble	206K	2050	14.03	7.12	17.01	40.33	20.48	18.65	22.55
UAms RM3	207K	1872	12.16	5.77	15.36	33.30	18.55	18.07	19.57
UAms en bm25	41K	1884	11.91	5.64	12.23	26.28	12.95	12.71	14.00
CCC_TFIDF_Rerank	100K	1764	11.26	NaN	15.25	40.59	20.59	17.07	22.04
UAms Anserini	207K	2134	10.76	5.35	10.56	25.03	11.88	12.22	12.37
UAms en rm3	207K	2134	10.76	5.35	10.56	25.03	11.88	12.22	12.37
CCC ColBERT Enhanced	207K	1879	9.93	5.17	12.47	33.35	15.75	14.15	16.53
CCC XLM R Rerank	207K	2227	9.66	5.03	9.83	36.41	13.82	11.98	16.19
CCC ColBERT Enhanced	207K	1418	6.69	2.06	9.34	31.24	13.43	11.40	14.55
CCC XLM R Rerank	10K	918	6.30	2.56	9.65	23.88	9.18	9.08	19.10
CCC ColBERT Enhanced	207K	1367	6.21	1.82	8.67	28.52	11.30	10.34	12.42
CCC Advanced Ensemble LTR	165K	2122	6.20	3.65	6.38	11.54	2.90	5.89	2.67
CCC_TFIDF	207K	1321	5.79	1.56	8.41	25.29	9.47	9.03	10.50
CCC Ensemble ColBERT_RM3	103K	1904	5.44	2.24	6.52	21.03	8.12	6.96	8.77
CCC_TF-IDF_Ens_ColBERT_RM3	103K	1922	5.31	2.22	5.98	20.16	7.15	6.47	7.90
Skommarkhos BM25 E5 MiniLM	207K	2182	5.02	2.98	3.03	6.47	0.87	3.24	0.65
UAms en bm25 CE1K	41K	1884	4.88	2.60	2.47	5.68	0.48	2.75	0.38
UAms en rm3 CE1K	207K	2134	4.78	2.67	2.32	5.48	0.39	2.51	0.27
UAms Anserini	10K	849	4.76	1.41	3.92	7.67	0.87	3.67	0.75
cryptix crossencoder	20K	999	3.78	1.55	2.43	5.64	0.48	2.51	0.34
CCC Ensemble RoBERTa RM3	41K	1718	3.33	1.69	4.02	11.01	3.77	3.82	23.65
Skommarkhos BM25 E5 MiniLM	20K	517	2.49	0.49	2.62	6.15	0.77	3.19	0.57
CCC pipeline	5K	211	2.43	0.05	3.93	11.81	4.54	4.15	0.80
team reranker EN	20K	824	1.38	0.23	2.40	6.36	2.13	2.03	2.05
yourteam xlm roberta large	20K	271	0.42	0.02	1.29	4.71	1.35	1.50	1.30
duth xanthi en	20K	62	0.04	0.00	0.21	0.75	0.10	0.10	0.08
cryptix crossencoder	414K	336	0.02	0.00	0.01	0.08	0.00	0.00	0.00

## Task 1: Humor-aware IR in PT



- New Portuguese Collection: 45,126 European Portuguese documents
  - 1199 humorous texts (660 texts translated from last year's EN collection + 539 new wordplay)
  - 2899 texts generated using ChatGPT3.5 Turbo
  - 41,028 sentences from Wikipedia extracts
  - 98 queries
- Curation and Translation Process:
  - To ensure consistency with European Portuguese (Pt-PT), PtVId<sup>1</sup> model was used to classify each text as Pt-PT or Brazilian Portuguese (Pt-BR).
  - Texts identified as Pt-BR were translated into Pt-PT using ChatGPT-4o-mini.
  - A final manual curation step was performed to verify translation quality and accuracy.

<sup>&</sup>lt;sup>1</sup>Sousa, H. et al., Enhancing Portuguese Variety Identification with Cross-Domain Approaches, AAAI'25, 2025.

### PT Data Source Statistics



source	#
chatgpt-3.5turbo	1615
joker	972
joker-2	227
wikipedia	15720
wikipedia-non-relevant	26592

# Results Task 1 PT (Test)



Run ID	#ret	#rel	map	gmap	p@r	mrr	p@5	p@10	ndcg@5
pjmathematician_Q32-Q4-R	69000	932	42.21	30.78	42.01	69.07	43.77	34.35	42.14
pjmathematician_Q14-Q4-R	69000	938	42.17	30.81	41.65	68.98	43.77	34.49	51.69
Rasion_SenTransF+Roberta	69000	905	40.51	28.90	40.17	66.57	44.93	38.41	50.15
Rasion_SenTransF+Roberta	62576	904	40.51	28.90	40.17	66.57	44.93	38.41	50.12
UAms_pt_bm25	12856	229	7.89	0.19	5.96	9.83	5.22	6.09	5.13
Skommarkhos_BM25_E5_MiniLM	69000	503	7.42	1.65	5.74	11.91	6.38	6.23	6.44
pjmathematician_Q06-gist	69000	562	6.95	1.75	4.99	11.20	5.51	6.38	5.46
Skommarkhos_BM25_E5_MiniLM	6900	228	6.90	0.28	5.58	12.65	5.22	5.94	5.35
results_pt_pt_finetuned	6900	199	6.71	0.41	6.74	20.21	7.54	7.10	9.29
UAms_pt_rm3	67994	262	6.54	0.25	5.91	9.51	4.64	5.65	4.47
myteam_BERT	69000	496	6.13	1.26	6.38	19.54	8.12	6.38	8.78
duth_xanthi_pt	6900	225	5.95	0.37	6.76	15.65	7.54	8.41	7.03
pjmathematician_Q06-gist-exp32	69000	512	4.91	1.35	2.92	7.15	2.61	3.48	2.73
UAms_pt_rm3_CE1K	67994	262	4.16	0.19	2.47	5.20	1.45	3.19	1.34
UAms_pt_bm25_CE1K	12856	229	3.84	0.12	1.99	4.47	1.16	3.04	0.91
team_xlmr_PT	6900	133	2.96	0.11	5.33	12.03	4.64	5.94	4.57
results_pt_large_pt_finetuned	6900	65	0.31	0.01	0.02	0.73	0.00	0.00	1.72
yourteam_pt_zeroshot	6900	46	0.27	0.01	0.28	1.13	0.00	0.29	0.00
xlm-roberta-triplet-pt	6900	28	0.22	0.00	0.33	2.48	0.58	0.43	0.70

#### Conclusions on Task 1



- $\bullet$  EN: 77,658 documents (5,198 humorous) + 219 queries with relevance judgments
- PT: 45,126 documents (1,199 humorous) + 98 queries
- 9 teams submitted 41 runs for EN
- 5 teams submitted 21 runs for PT
- Diverse methods (TF-IDF, BM25, RM3, cross-encoders with and without filtering, LLMs etc.)
- Best results: Qwen model for retrieval and filtering and dense retrieval and transformer-based detection of humorous texts
- Nearly triple last year's top score
- Dataset's core properties have remained stable and RM3 and BM25 baselines showed stable performance

# Task 2: Wordplay Translation



- Task 2: Translate Puns from English to French and preserve:
  - wordplay form
  - wordplay meaning
- Train data: 5,838 manual FR translations of 1,405 EN puns
- Test data: 2,615 new manual FR translations of 1,682 EN puns
- Main JOKER NLP Task, continues from 2022-2024

#### Evaluation



- BLEU
- **BERTScore** precision, recall, & F<sub>1</sub> over all references
- Pun location-based evaluation: # & % of words or phrases with multiple meanings (pun locations) in runs matching those in references
- Manual evaluation: human assessments of 1,297 French translations of 50 distinct source English puns in terms of meaning preservation and the presence of wordplay

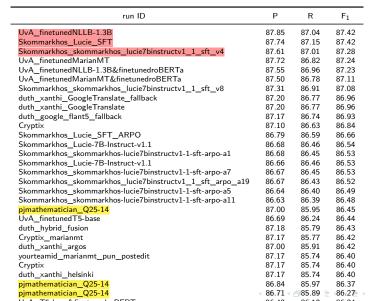
#### **BLEU Scores on Test Data**



run ID	Score	n = 1	n = 2	n = 3	n = 4
Skommarkhos_Lucie_SFT	43.33	65.05	46.98	37.59	30.67
Skommarkhos_skommarkhos_lucie7binstructv1_1_sft_v4	43.20	64.73	46.74	37.50	30.69
UvA_finetunedNLLB-1.3B	42.55	64.74	46.26	36.70	29.83
Skommarkhos_Lucie_SFT_ARPO	42.48	63.76	45.92	36.86	30.17
Skommarkhos_skommarkhos_lucie7binstructv1_1_sft_v8	42.26	64.44	46.13	36.47	29.42
Skommarkhos_skommarkhos-lucie7binstructv1-1-sft-arpo-a5	42.15	63.33	45.50	36.56	29.95
Skommarkhos_skommarkhos-lucie7binstructv1-1-sft-arpo-a1	42.14	63.38	45.53	36.54	29.90
Skommarkhos_skommarkhos-lucie7binstructv1-1-sft-arpo-a7	42.14	63.37	45.55	36.56	29.87
Skommarkhos_Lucie-7B-Instruct-v1.1	42.14	63.43	45.54	36.51	29.88
Skommarkhos_Lucie-7B-Instruct-v1.1	42.12	63.41	45.54	36.50	29.86
Skommarkhos_skommarkhos-lucie7binstructv1-1-sft-arpo-a11	42.11	63.33	45.46	36.51	29.91
Skommarkhos_skommarkhos_lucie7binstructv1_1_sft_arpo_a19	42.00	63.29	45.41	36.40	29.74
UvA_finetunedNLLB-1.3B&finetunedroBERTa	41.80	63.86	45.49	36.01	29.17
UvA_finetunedMarianMT	41.19	63.37	44.74	35.31	28.76
duth_hybrid_fusion	41.11	63.45	44.62	35.17	28.70
yourteamid_marianmt_pun_postedit	41.01	63.40	44.52	35.07	28.58
duth_xanthi_helsinki	41.01	63.40	44.52	35.07	28.58
Cryptix	41.01	63.40	44.52	35.07	28.58
Cryptix_marianmt	40.98	63.36	44.49	35.04	28.55
duth_xanthi_GoogleTranslate_fallback	40.94	62.75	44.21	35.12	28.84
UvA_finetunedMarianMT&finetunedroBERTa	40.85	62.90	44.38	35.03	28.49
Cryptix	40.75	62.54	43.98	34.95	28.69
duth_google_flant5_fallback	40.74	62.60	43.99	34.92	28.65
duth_xanthi_GoogleTranslate	40.73	62.59	43.98	34.91	28.64
duth_xanthi_GoogleTranslate_fallback	40.73	62.60	43.99	34.91	28.63
duth_xanthi_argos	40.49	63.21	44.13	34.73	28.24
pjmathematician_Q25-14	39.08	62.57	43.10	33.19	26.05
pjmathematician_Q25-14	38.49	61.88	42.37	32.62	25.66
pjmathematician_Q25-14	38.24	461.56	<b>42.12</b> ■	32.40	25.46
II A C . ITE I	26.77	60.00	40.50	20.04	04.15

#### BERTScore on Test Data

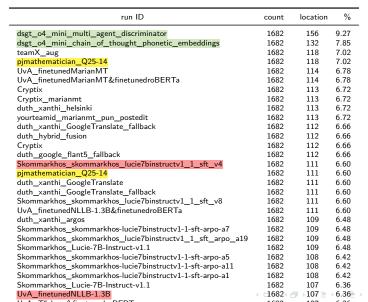






#### Official Pun Location-based Results





## Manual Evaluation on Test Data



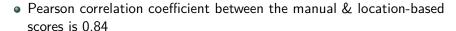


run ID	count	# success	%
dsgt_o4_mini_multi_agent_discriminator	42	37	74
dsgt_o4_mini_chain_of_thought_phonetic_embeddings	42	36	72
duth_xanthi_argos	50	26	52
duth_xanthi_GoogleTranslate_fallback	50	25	50
duth_google_flant5_fallback	50	25	50
Cryptix	50	25	50
duth_xanthi_GoogleTranslate	50	25	50
UvA_finetunedNLLB-1.3B	50	24	48
UvA_finetunedNLLB-1.3B&finetunedroBERTa	50	24	48
duth_xanthi_GoogleTranslate_fallback	48	24	48
pjmathematician_Q25-14	50	23	46
UvA_finetunedT5-base	50	23	46
UvA_T5-base&finetunedroBERTa	50	23	46
Skommarkhos_Lucie_SFT_ARPO	50	22	44
UvA_finetunedMarianMT	50	22	44
Skommarkhos_skommarkhos_lucie7binstructv1_1_sft_v8	50	22	44
UvA_finetunedMarianMT&finetunedroBERTa	50	22	44
pjmathematician_Q25-14	50	21	42
teamX_aug	50	21	42
Skommarkhos_Lucie_SFT	50	21	42
Skommarkhos_skommarkhos_lucie7binstructv1_1_sft_v4	50	21	42
teamX_aug	50	20	40
Skommarkhos skommarkhos lucie7binstructv1 1 sft arpo a19	50	20	40
dsgt_simple_mistral_medium	42	20	40
Skommarkhos_skommarkhos-lucie7binstructv1-1-sft-arpo-a1	50	20	40
Skommarkhos_skommarkhos-lucie7binstructv1-1-sft-arpo-a11	50	20	40
Skommarkhos skommarkhos-lucie7binstructv1-1-sft-arpo-a5	50	20	40
Skommarkhos Lucie-7B-Instruct-v1.1	50	20	40
Skommarkhos_skommarkhos-lucie7binstructv1-1-sft-arpo-a7	∢ □ 50 ∢ ₫	▶ 20 ▶	440 →

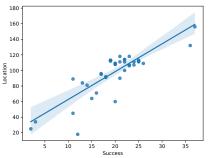


#### Manual Scores VS Location Metrics





- The highest- and lowest-scoring runs according to the location-based metric align with those identified by the expert evaluation
- Pun location-based evaluation can be a reliable proxy for assessing the quality of wordplay translation





#### Conclusions on Task 2



- +1,682 new distinct EN source texts with 2,615 FR translations
- 9 teams submitted 52 runs
- Methods: LLMs, commercial MT, out-of-the-box MT, rule-based approaches, & various fine-tuning and training techniques to discriminate wordplay from non-wordplay
- Significant improvements in participants' results compared to the previous years
- BUT the majority of translations do not preserve meaning and wordplay
- Pun location-based evaluation can be a reliable proxy for assessing the quality of wordplay translation



# Task 3: Onomastic Wordplay Translation



- New JOKER 2025 task!
- Onomastic wordplay is challenging for AI models but common in fictional text (Pokemons, Asterix, Harry Potter,...)
- Parallel corpus of wordplay in named entities in English and French
  - >2,500 FR translations of EN onomastic wordplay
  - Context: a short description of each character/object
  - Different types of wordplay in names: <u>portmanteau</u>, <u>pun/homophone</u>, no manipulation, neologism, assonance/alliteration, anagram...
  - $\bullet$   $\mbox{Train}:$  353 onomastic wordplay EN-FR from Asterix & Harry Potter
  - Test: 2,333 from video games, literature, and other sources (e.g. Fakemon and alternative or new manual translations—unseen by LLMs)
- Evaluation
  - Matching references
  - Manual evaluation of 1,737 translations of 203 distinct EN wordplay
  - # of untranslated onomastic wordplay



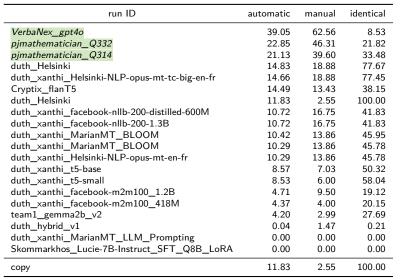
## Example



```
"id": "en_1",
"en": "Asterix",
"description": "Asterix is the small but
   clever hero of the Asterix comic series.
   Known for his sharp wit and courage, he
   outsmarts the Roman invaders with the help
   of a magical potion that grants him
   superhuman strength. Alongside his loyal
   friend Obelix, Asterix defends his village
    and embodies bravery and cleverness.",
"fr": "Astérix"
```

## Official Results for Task 3





#### Conclusions on Task 3



- >2,500 wordplay instances in named entities in EN & FR with a short description of each character/object
  - Train: officially translated sources Asterix and Harry Potter
  - Test: partially new, ↓ overlap with AI training data
- 4 teams submitted 20 runs to Codabench
- Homogeneous results on train: 14 runs with nearly identical scores, high exact matches (56%) and few untranslated names (3.4%)
- Variable results on test
- VerbaNex\_gpt4o:
  - 12% exact matches on the training data but 39% on the test
  - stable rate of untranslated names
  - 63% successful translations by manual evaluation (more creative alternative translations?)
- Recurrent errors: untranslated names, overfitting to training data, omission of surnames, and occasional nonsensical generations



#### JOKER Sessions at CLEF 2025



Date	Event
Sep 09 14:15-14:45	JOKER Task Overview Talks
Sep 09 14:45-15:45	Participant's talks (5x)
Sep 09 16:30-17:30	Participant's talks (5x)
Sep 09 17:30-18:00	Planning Session: Exciting challenges and opportunities, volunteers, roadmap

- Please join the JOKER sessions in Ricardo Marín!
- Program at https://www.joker-project.com/2025/program



 Introduction
 Task 1
 Task 2
 Task 3
 Envoi!

 ○○○
 ○○○○○○○
 ○○○○○○○
 ○○○○
 ○○○











# Thank you! Please join our track!

Website: https://joker-project.com<sup>2</sup> E-mail: contact@joker-project.com

Twitter: https://twitter.com/joker\_research

 ${\sf Google\ group: https://groups.google.com/g/joker-project}$ 

<sup>&</sup>lt;sup>2</sup>This project has received a government grant managed by the National Research Agency under the program "Investissements d'avenir" integrated into France 2030, with the Reference ANR-19-GURE-0001.