

Multilingual Multi-Figurative Language Detection

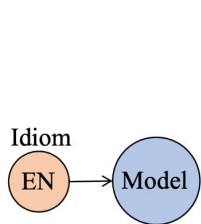
Huiyuan Lai, Antonio Toral, Malvina Nissim



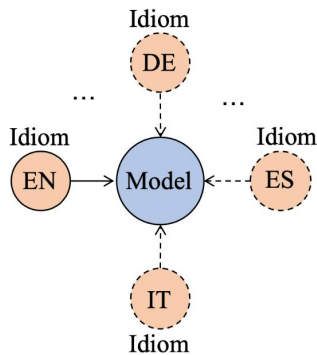
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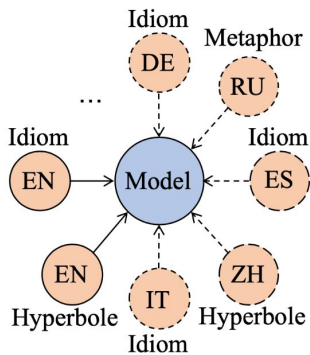
INTRODUCTION



(a) Single figurative language



(b) Multilingual figurative language



(c) Multilingual multi-figurative language

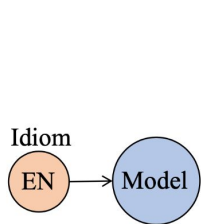


Cross-lingual knowledge
[[Conneau & Lample, 2019](#)]

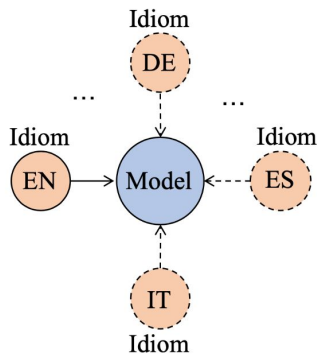


Cross-figurative knowledge
[[Lai & Nissim, 2022](#)]

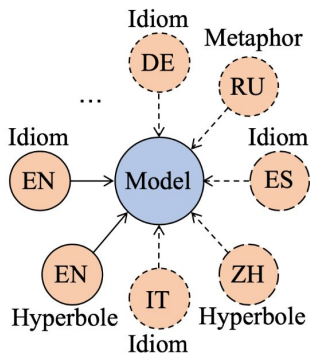
INTRODUCTION



(a) Single figurative language



(b) Multilingual figurative language



(c) Multilingual multi-figurative language



Cross-lingual knowledge
[[Conneau & Lample, 2019](#)]



Cross-figurative knowledge
[[Lai & Nissim, 2022](#)]

Can these **interrelated tasks** be connected and modelled jointly in a multilingual way?

FRAMEWORK

Task: Hyperbole

Text: We went into the shop and bought a lot of things.

Label: Literal

Language: EN

...

Task: Idiom

Text: Va da sé che non potrete lasciare l'aula durante la prova d'esame.

Label: Idiom

Language: IT

Which figure of speech does this text contain? (A) Literal. (B) [Task]. | Text: [Text]

**PLM
(mT5)**

Literal

...

Idiom

Sample

Input with prompt

Model

Output

FRAMEWORK

We use a **detection task**:
“which figure of speech does
this text contain?”

Task: Hyperbole

Text: We went into the shop and
bought a lot of things.

Label: Literal

Language: EN

...

Task: Idiom

Text: Va da sé che non potrete lasciare
l'aula durante la prova d'esame.

Label: Idiom

Language: IT

Which figure of speech does
this text contain? (A) Literal.
(B) [**Task**]. | Text: [**Text**]

PLM
(mT5)

Literal

...

Idiom

Sample

Input with prompt

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We combine the input text with the predefined template instructing the model to handle it.

FINDINGS

- ❖ Our model benefits from cross-lingual/figurative knowledge transfer.
 - Prompt mT5 with multi-task training performs best on most tasks
 - in-language, zero-shot, cross-lingual, and cross-figurative settings
- ❖ Future work: word-level detection and language generation in multilingual and multi-figurative scenarios
- ❖ Limitations: (unmodelled) cultural contexts play a big role in figurative usages

Paper: [Multilingual Multi-Figurative Language Detection](#)
Code, model and data: <https://github.com/laihuiyuan/MMFLD>

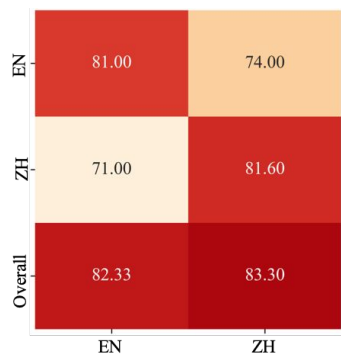


@HuiyuanLai @_atoral @MalvinaNissim @GroNlp

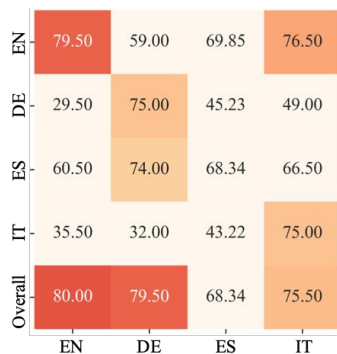
MAIN RESULTS

Model	Hyperbole		Idiom				Metaphor			
	EN	ZH	EN	DE	ES	IT	EN	ES	FA	RU
Main results										
Baseline	72.33	80.40	79.00	72.50	66.33	70.50	81.37	80.11	74.83	79.93
Vanilla mT5	72.67	71.40	79.50	74.50	64.82	76.00	82.64	82.32	77.33	82.25
+ multitask	72.67	81.40	62.00	74.50	56.78	72.00	81.86	81.20	77.61	83.76
Prompt mT5	81.00	81.60	79.50	75.00	68.34	75.00	83.43	82.66	76.64	83.39
+ multitask	82.00	82.60	86.00	79.00	67.84	76.00	83.06	83.10	78.14	83.16
(Zero-shot) with EN model										
Baseline	72.33	69.60	79.00	62.00	61.81	60.00	81.37	71.70	61.29	69.01
Vanilla mT5	72.67	70.20	79.50	53.00	64.32	70.50	82.64	75.10	68.70	76.10
+ multitask	65.67	64.90	72.50	52.50	37.69	63.50	82.41	71.86	66.84	73.61
Prompt mT5	81.00	74.00	79.50	59.00	69.85	76.50	83.43	75.95	70.17	76.39
+ multitask	82.33	76.10	81.50	65.60	66.83	79.50	81.27	74.99	68.70	75.93

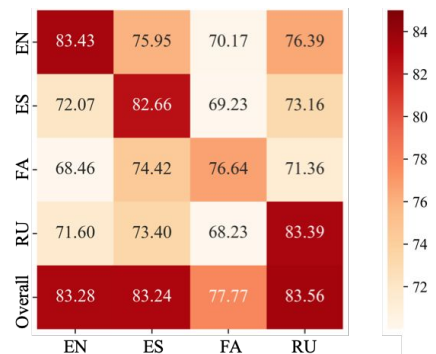
GENERALIZATION



(a) Hyperbole



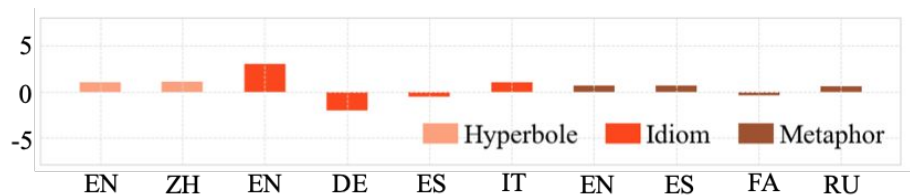
(b) Idiom



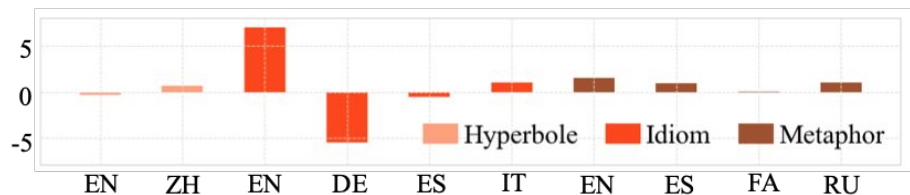
(c) Metaphor

Model	Lang	Hyperbole	Idiom	Metaphor
Prompt mT5 + multitask	EN	81.00	79.50	83.43
		82.33	81.50	81.27
Prompt mT5 + multitask	ES	-	68.34	82.66
		-	70.35	82.14

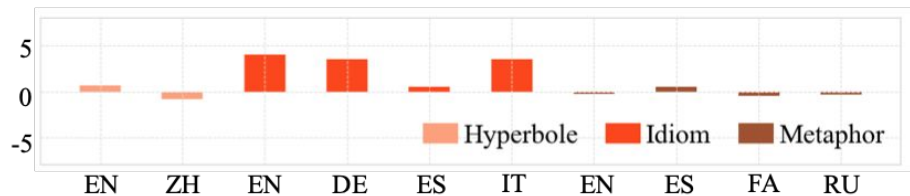
IMPACT OF PROMPTS



(a) Result between templates A and B .



(b) Result between templates A and C .



(c) Results between cross-lingual and in-lingual templates (A VS D).