

School of Computer Science and Engineering College of Engineering

Computational Models for Metaphor Understanding

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Project Objectives

Metaphor Understanding is a complex NLP task that consists subtasks: Metaphor Identification and Metaphor 2 O Interpretation. This project proposes 2 BERT-based Metaphor Interpretation models based on different training paradigms: Classification (CLS) and Masked Language Modelling (MLM). Our unified processing methods apply to both single-word and Multi-Word Expression (MWE) metaphors, reducing complexity. A detailed evaluation is then conducted to compare the performances of both models on how generalizable they are in terms of unseen cases and MWEs. It

Metaphor Understanding



Paradigm 1: Classification

Tokenized input sentence $t_1, \dots, m_j, \dots, m_{j+r}, \dots, t_L$

is found that CLS performs better than MLM in general, but

MLM is	more ge	neralizable	on	unseen	labels.
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METAPHOR INTERPRETATION						
	Task	Overall	Unseen Labels	Unseen Metaphors	MWE Label	MWE Metaphor
	Task 1 (CLS)	74.92	14.29	52.87	57.90	56.67
RoBERTa	Task 2 (MLM)	66.03	42.86	45.98	57.90	56.67
	Task 1 (CLS)	72.38	0.00	48.28	63.16	60.00
BERT	Task 2 (MLM)	64.44	38.34	60.92	52.63	50.00
	Task 1 (CLS)	73.33	14.29	49.43	63.16	53.33
ELECTRA	Task 2 (MLM)	42.22	14.29	22.99	52.63	23.33

Metaphor Interpretation tool

Metaphor Interpretation Demo											
🕑 Task 1 (CLS)	🛃 Task 2 (MLM)	Results:									
Select an option:			ta	ask 1	task 2						
Example 1	•		quire 0.	.89	0.46						
Enter your text here:			chieve 0.	.01	0.04						
I managed to X_get X_hold of this limited edition bag .			ollect 0.	.09	0.35						
			arn 0.	.00	0.03						
		Task 2 Processing:									
		Sentence 1: <s> I managed to<mask> hold of this limited edition bag.</mask></s> get Sentence 2: <s> I managed to get<mask> of this limited edition bag.</mask></s> hold									•
Positive	Negative 1										
acquire 🔻	achieve 🗸										
Negative 2	Negative 3										
collect 🗸	earn										
Loaded models											
Submit											



Paradigm 2: Masked LM

