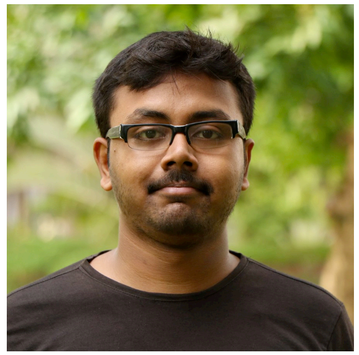
UNC NLP

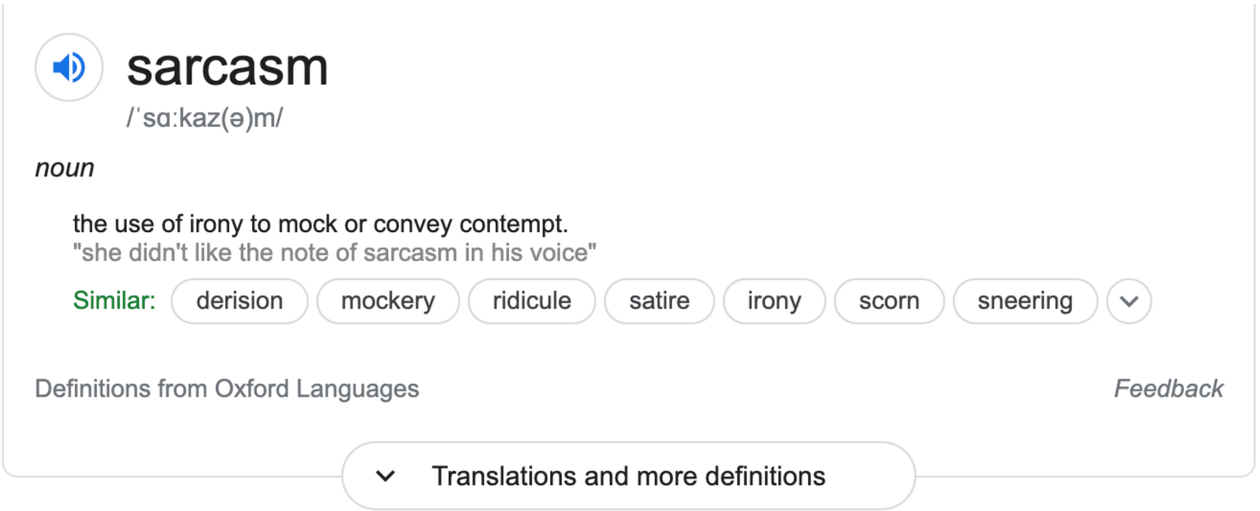
Does Commonsense help in detecting Sarcasm?



Somnath Basu Roy Chowdhury *and Snigdha Chaturvedi*

Insights from Negative Results in NLP Workshop
EMNLP 2021

Sarcasm - Canonical Definition



sarcasm

/ˈsɑːkaz(ə)m/

noun

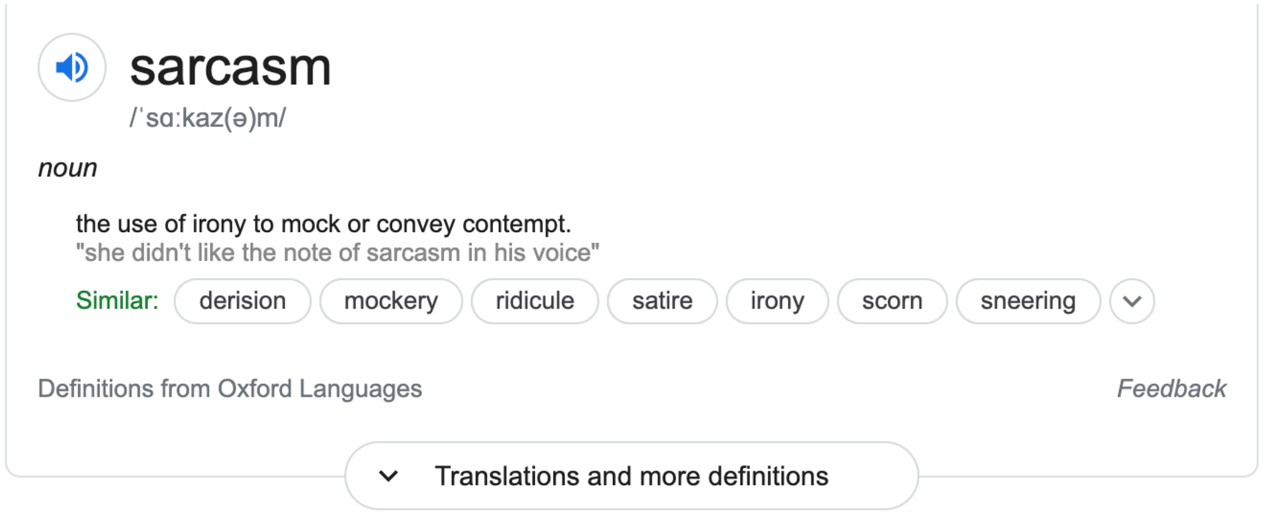
the use of irony to mock or convey contempt.
"she didn't like the note of sarcasm in his voice"

Similar: derision | mockery | ridicule | satire | irony | scorn | sneering

Definitions from Oxford Languages *Feedback*

Translations and more definitions

Sarcasm - Canonical Definition



"I **loved** the movie so much that I **left** the theatre during the interval." [1]

contradiction

Sarcasm detection - Challenges

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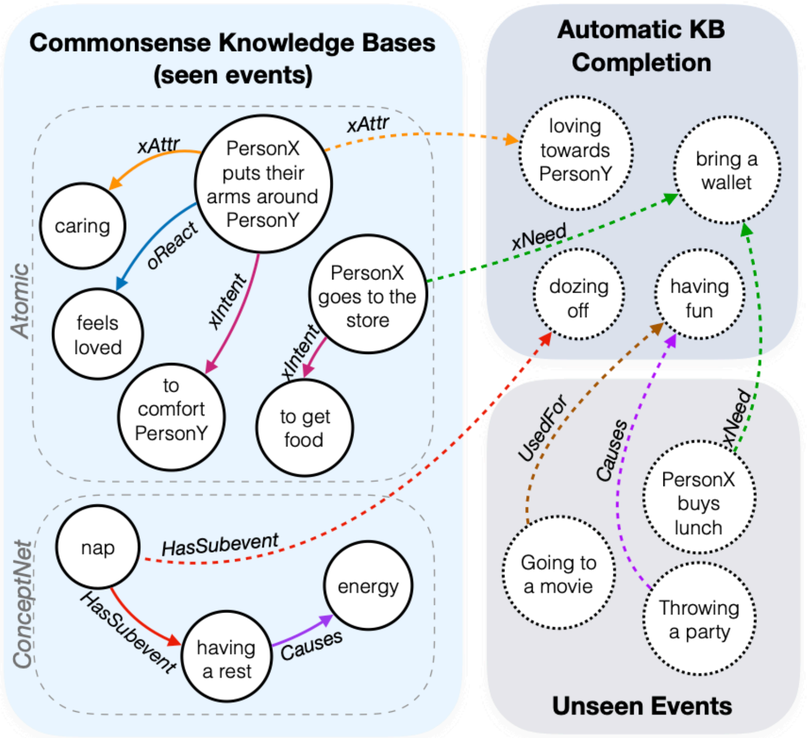
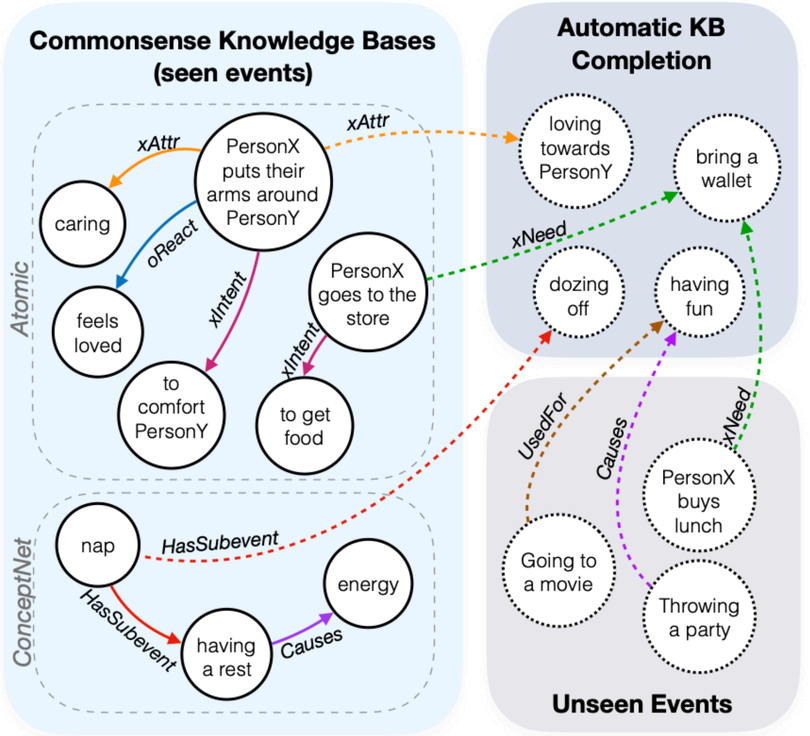
- Sarcasm is quite subtle at times and requires deeper understanding of NL
- Context dependent and domain specific
- Can refer to multiple events, facts and commonsense knowledge

Commonsense from COMET



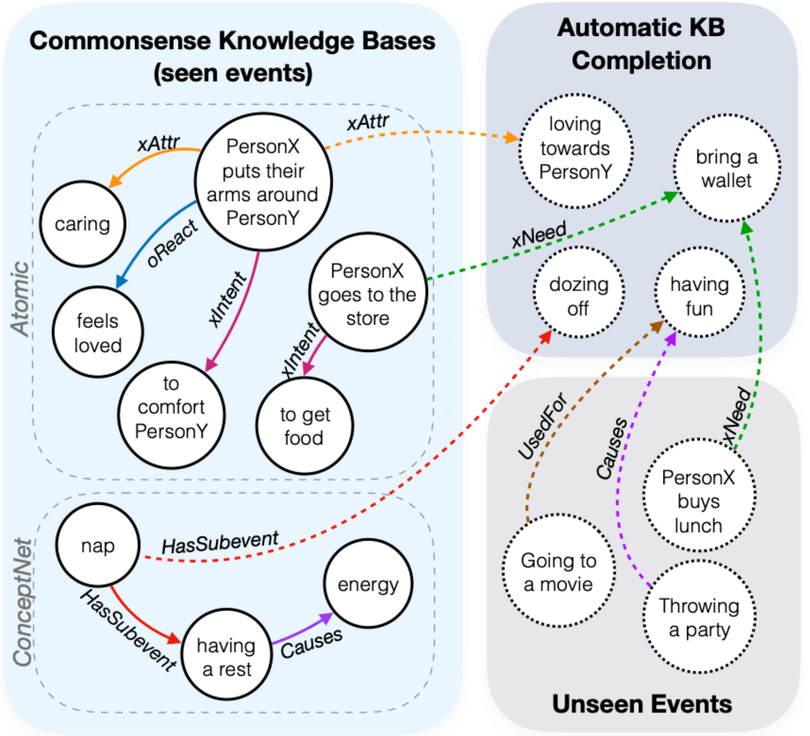
Commonsense from COMET

- Commonsense KG with 1.33M everyday inferential knowledge tuples



Commonsense from COMET

- Commonsense KG with 1.33M everyday inferential knowledge tuples
- Large-scale common sense repository that encode common human everyday experiences



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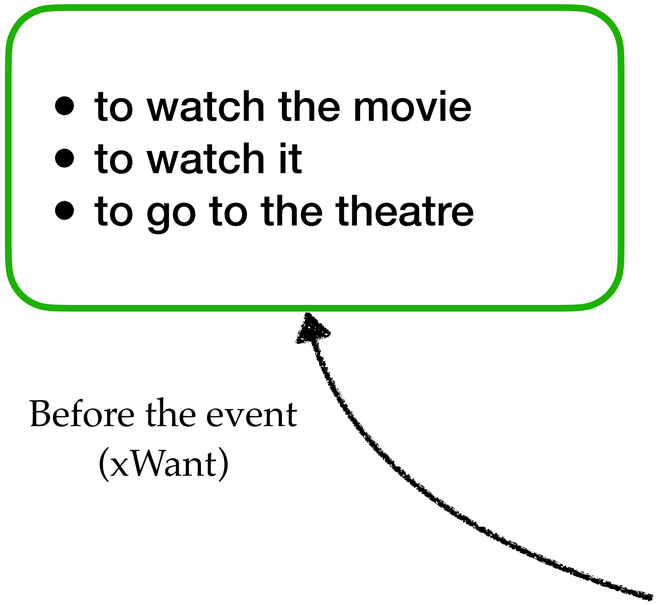

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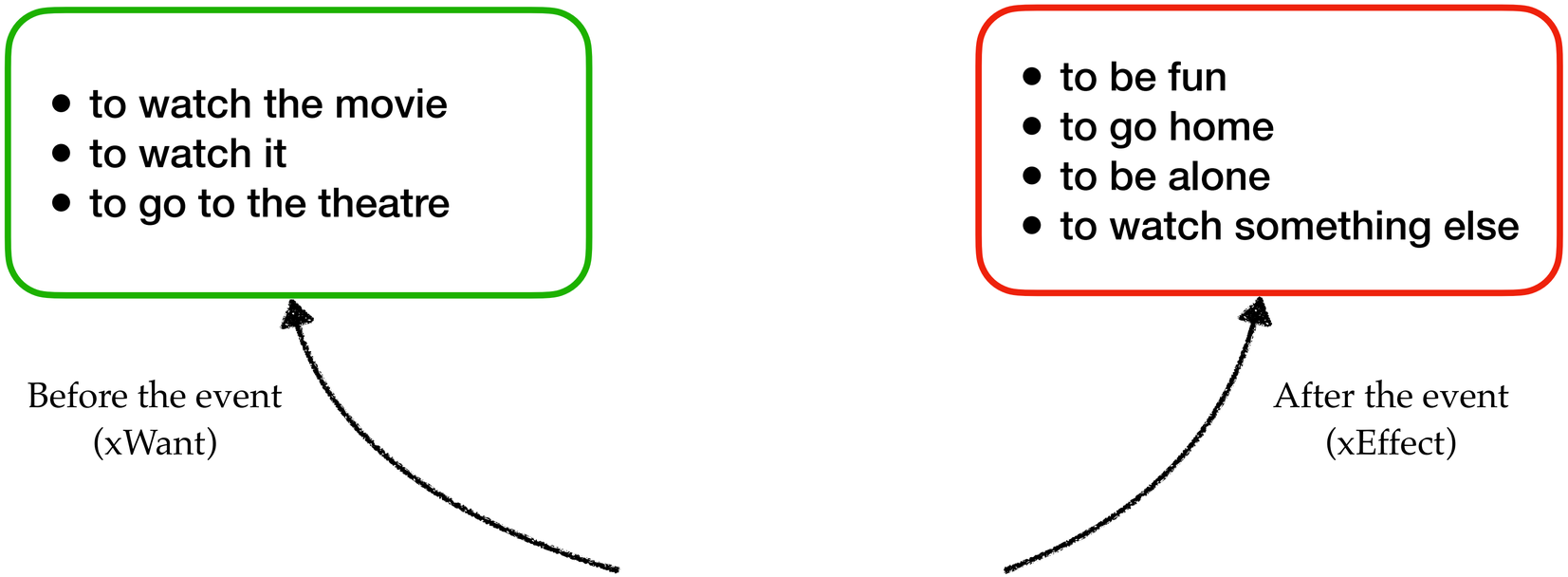

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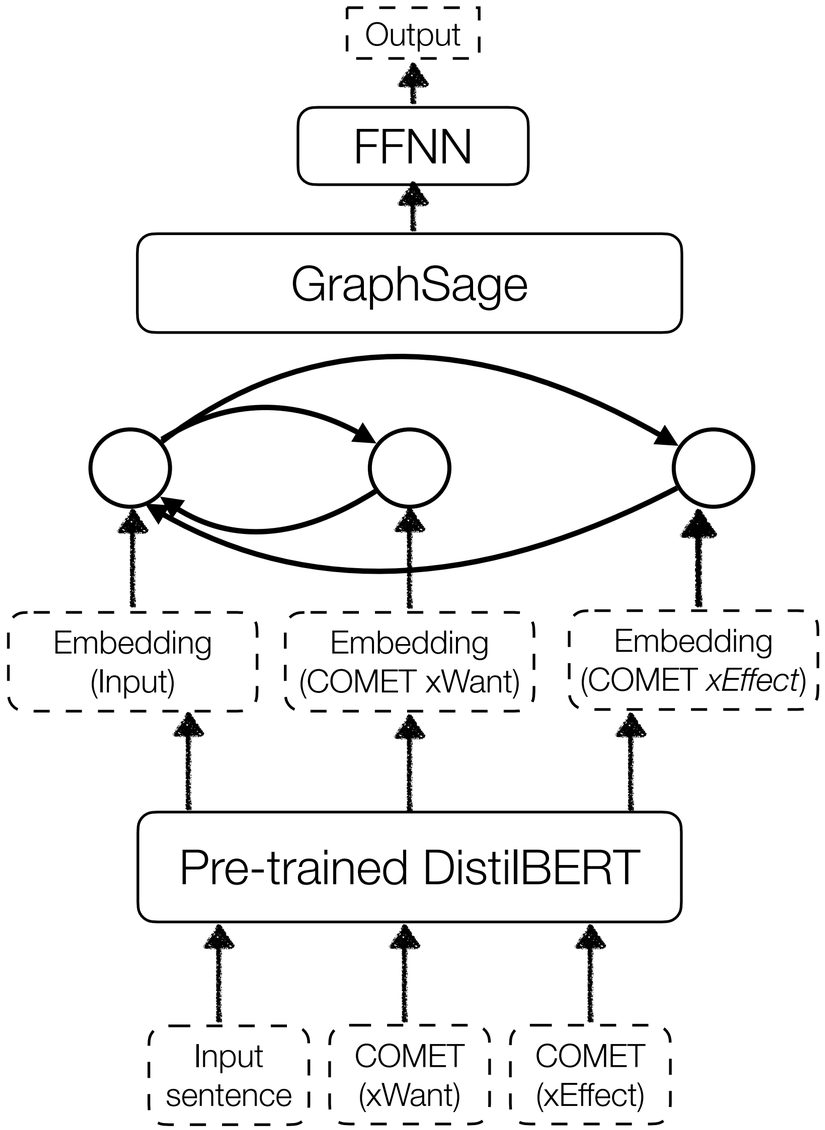
Output
FFNN
GraphSage
Embedding (Input)
Embedding (COMET xWant)
Embedding (COMET *xEffect*)
Pre-trained DistilBERT
Input sentence
COMET (xWant)
COMET (xEffect)

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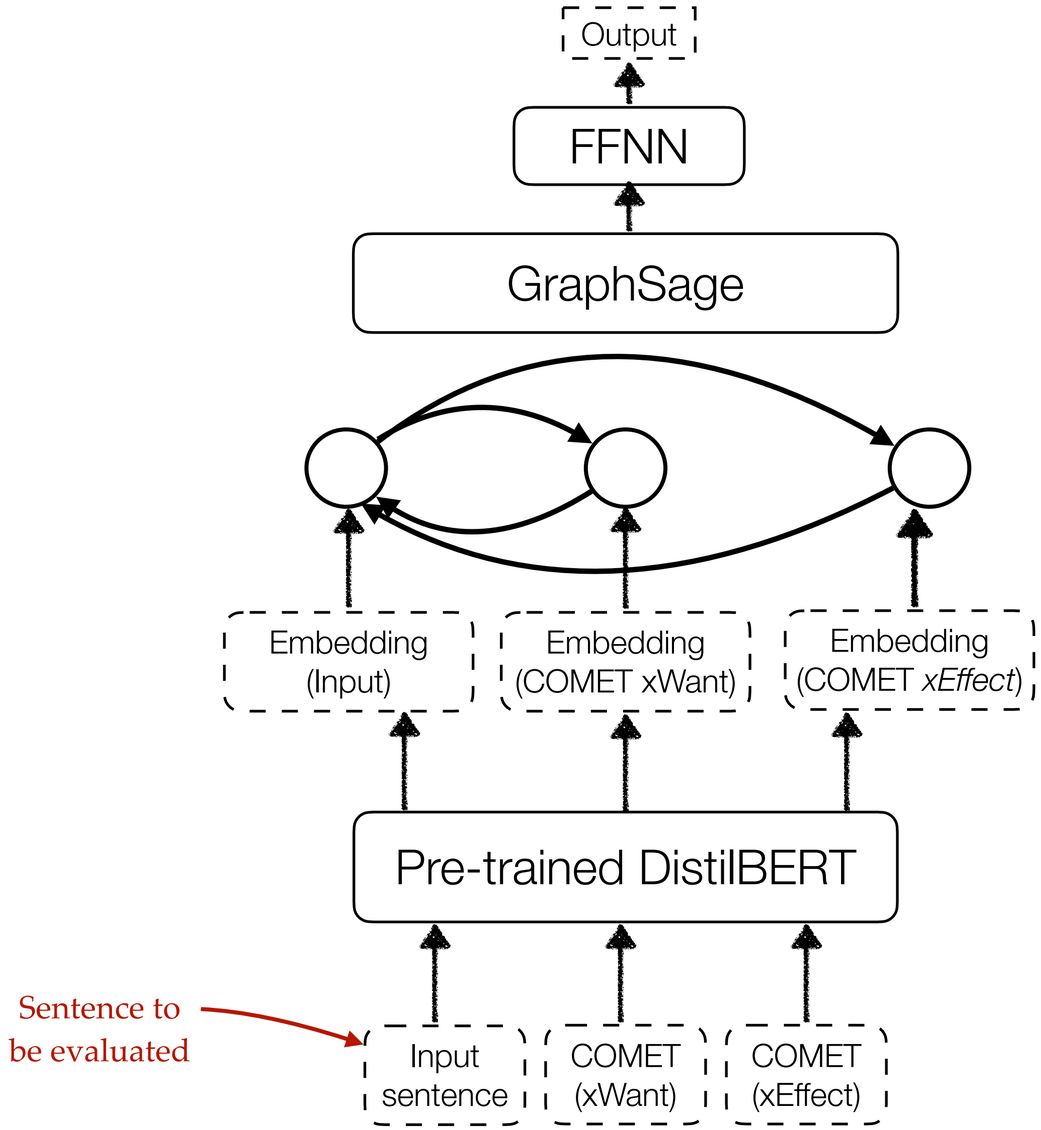
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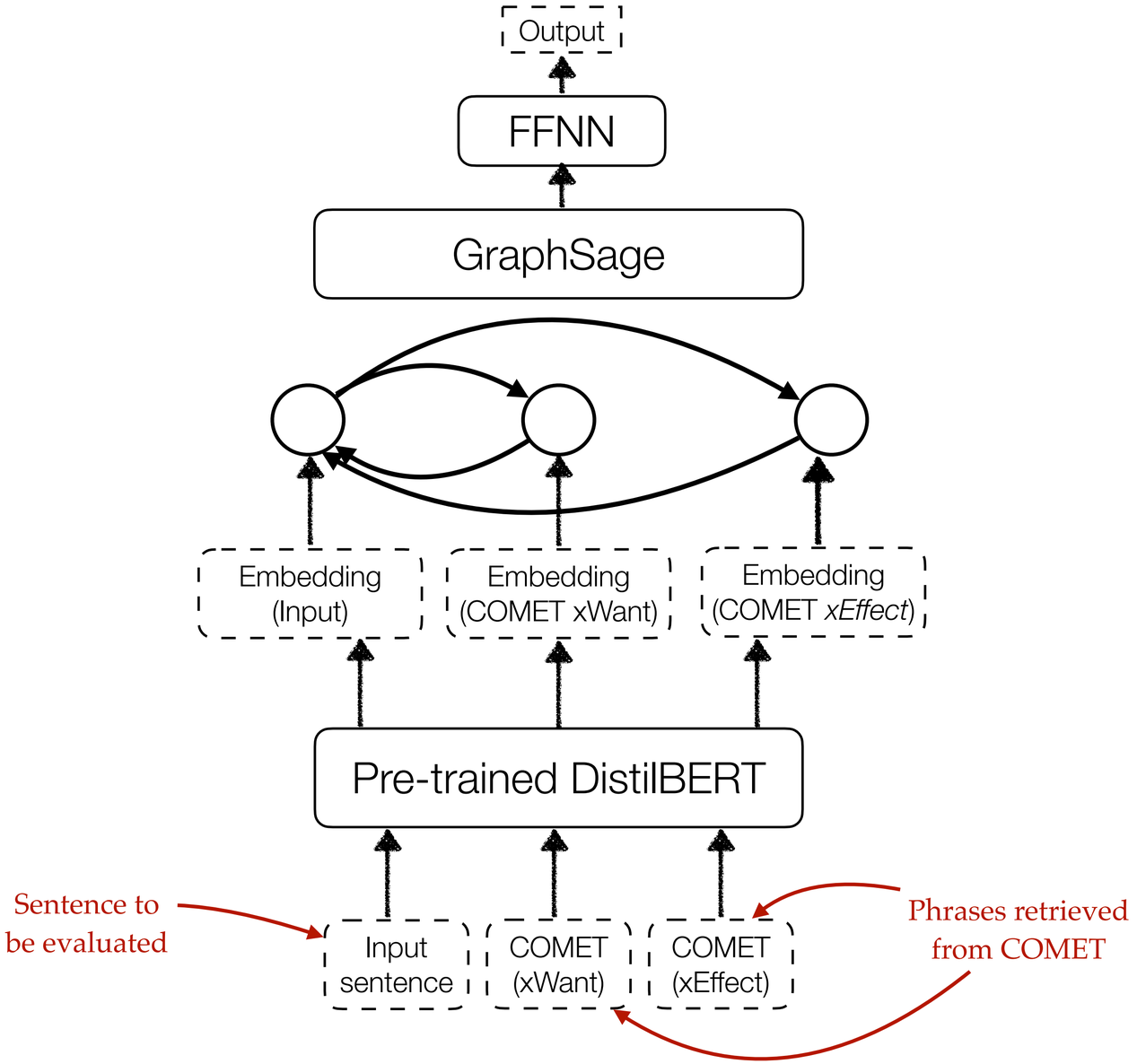
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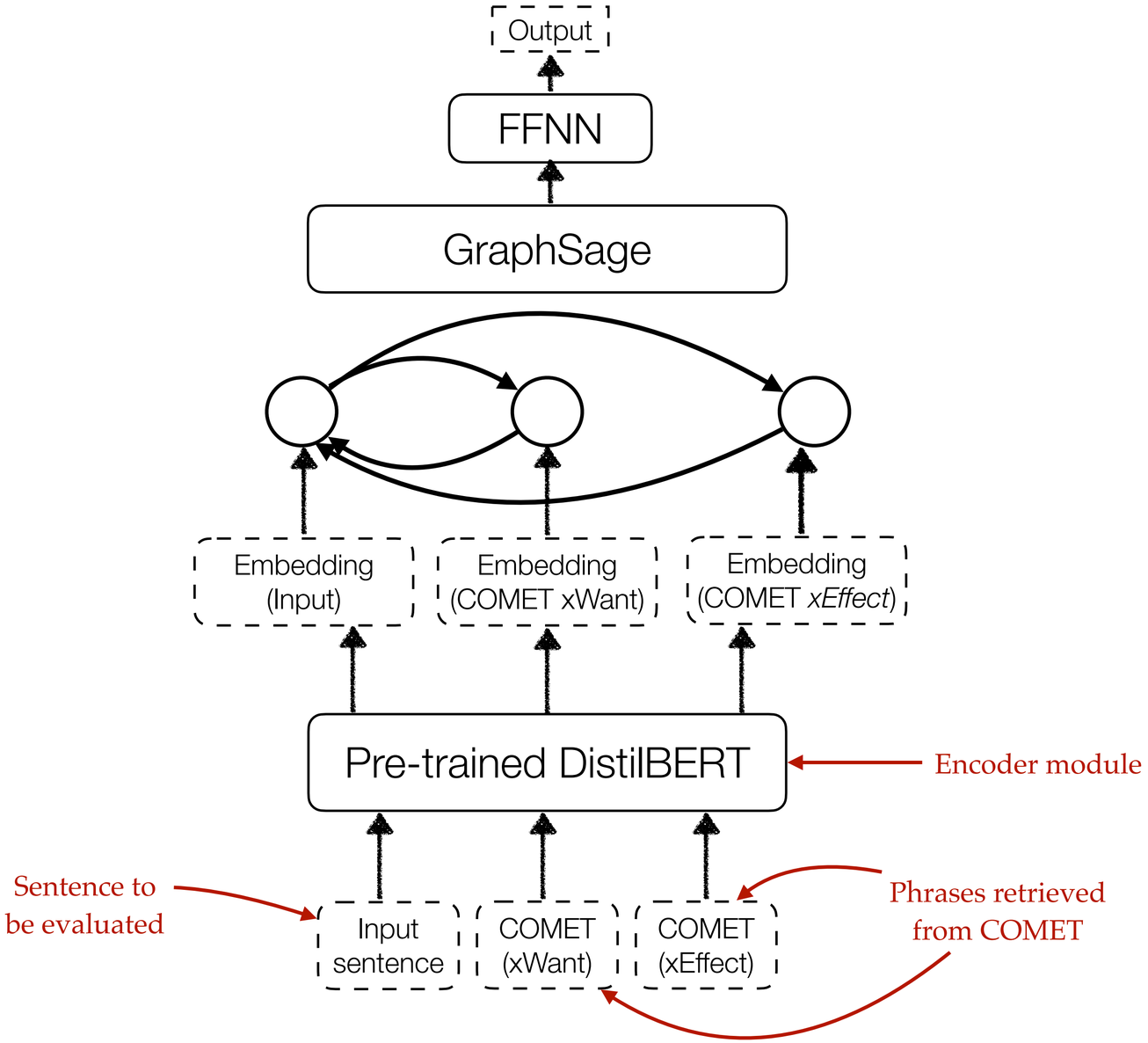
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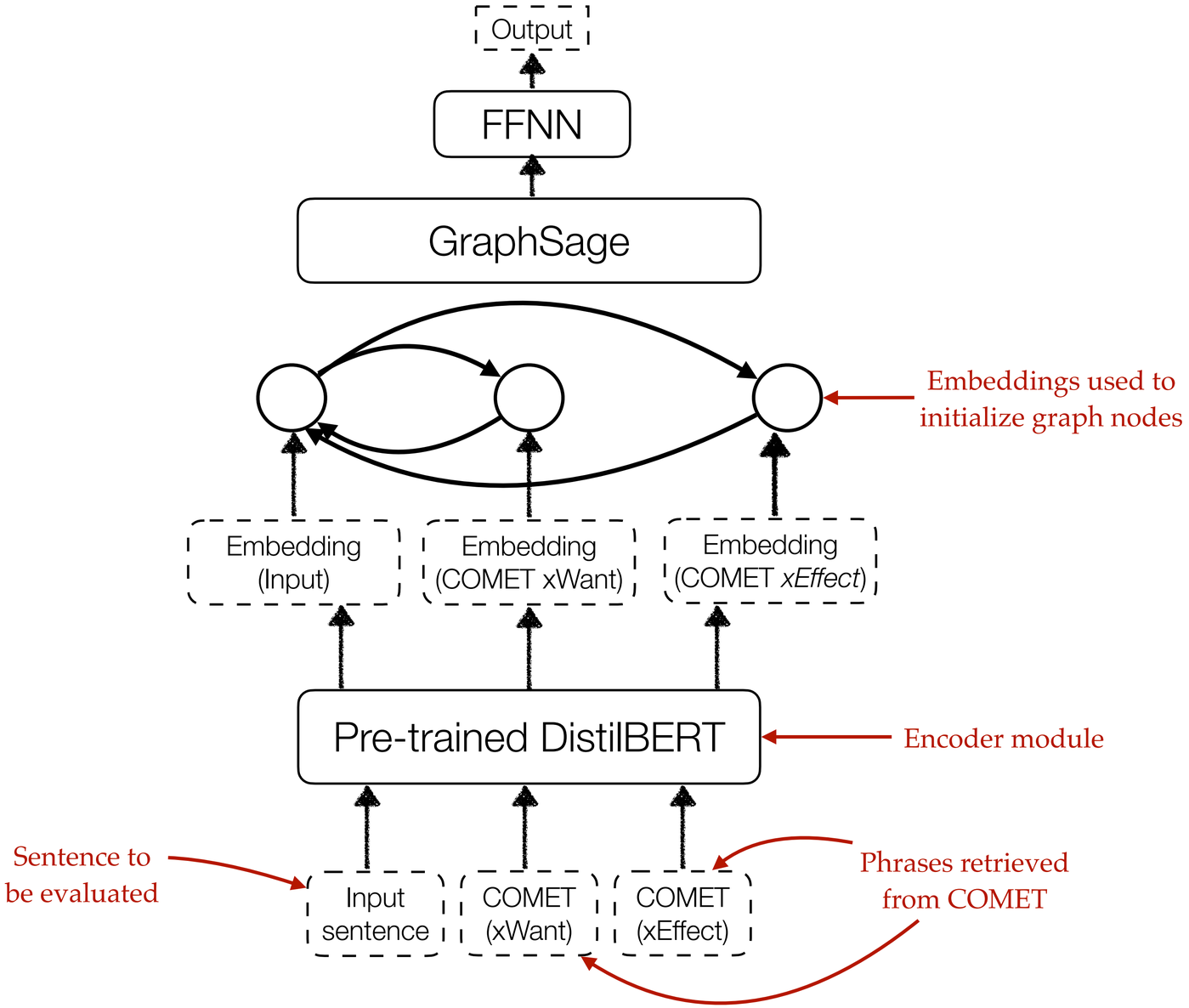
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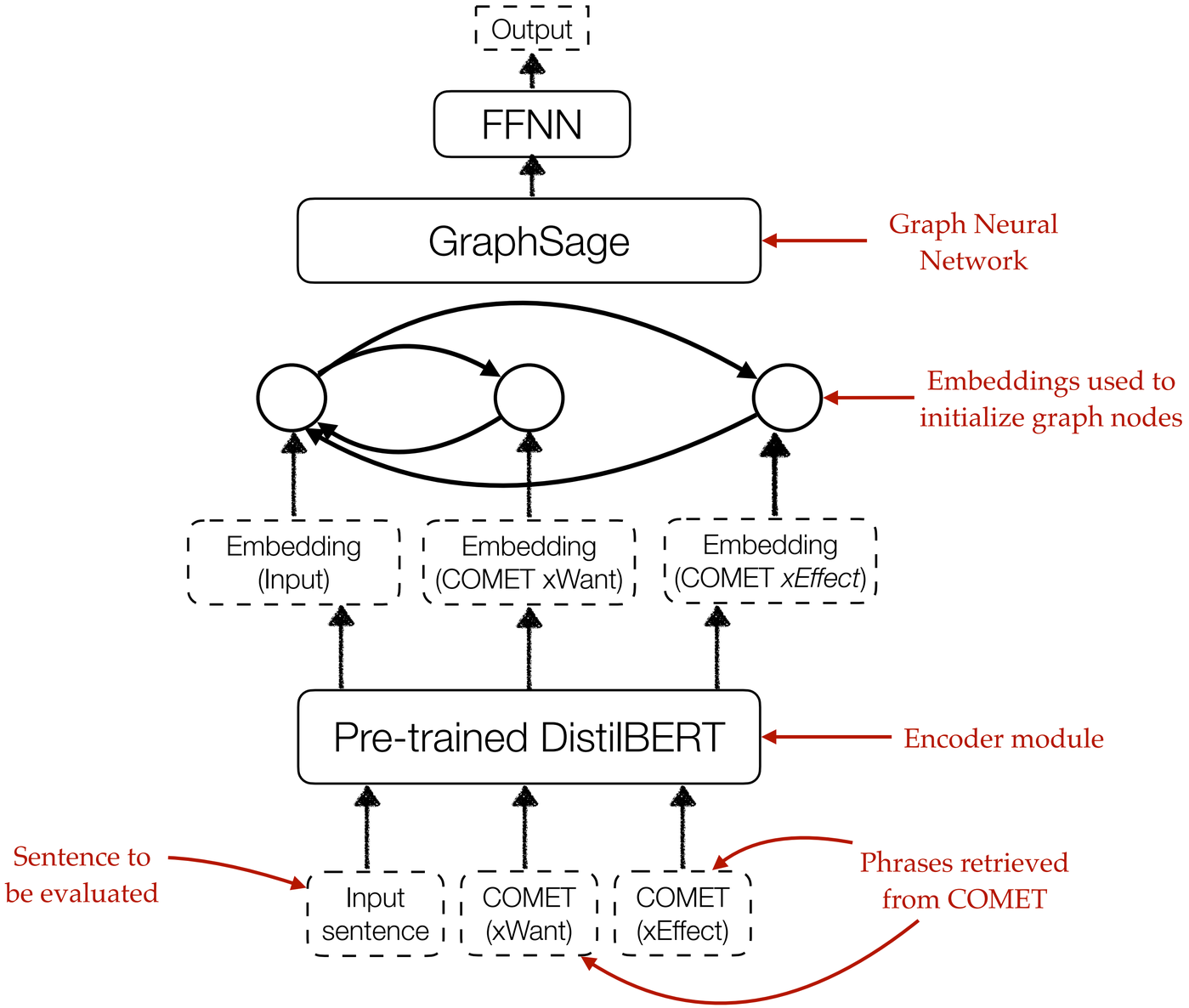
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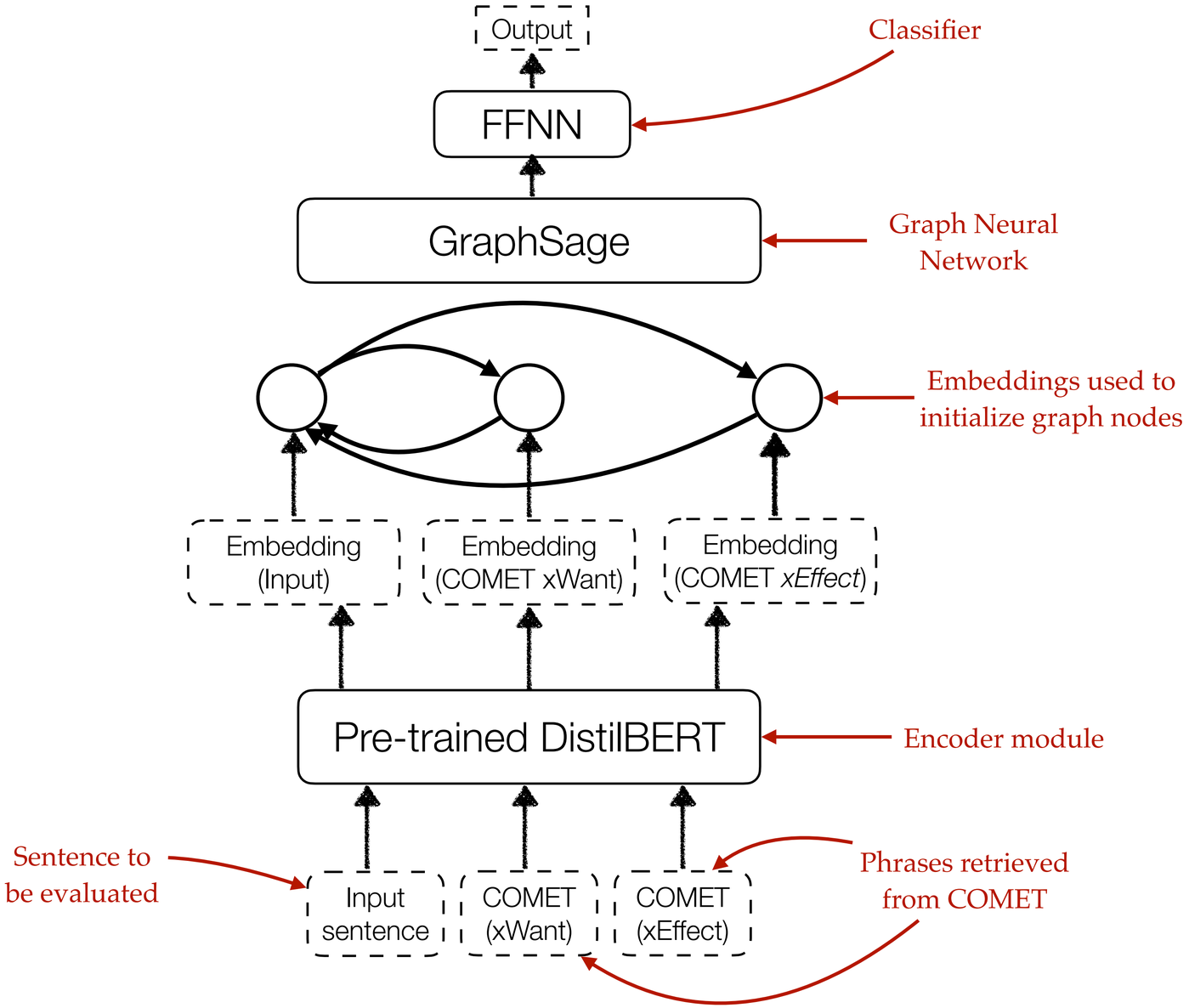
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Classifier
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Enriching COMET phrases

- to watch the movie
- to watch it
- to go to the theatre

“I **loved** the movie so much that
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"to watch the movie"

Enrichment Scheme:

[subject] [MASK] [raw COMET sequence]

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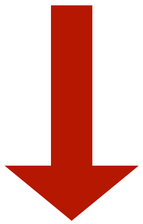

[I] [want] [to watch the movie]

- to watch the movie
- to watch it
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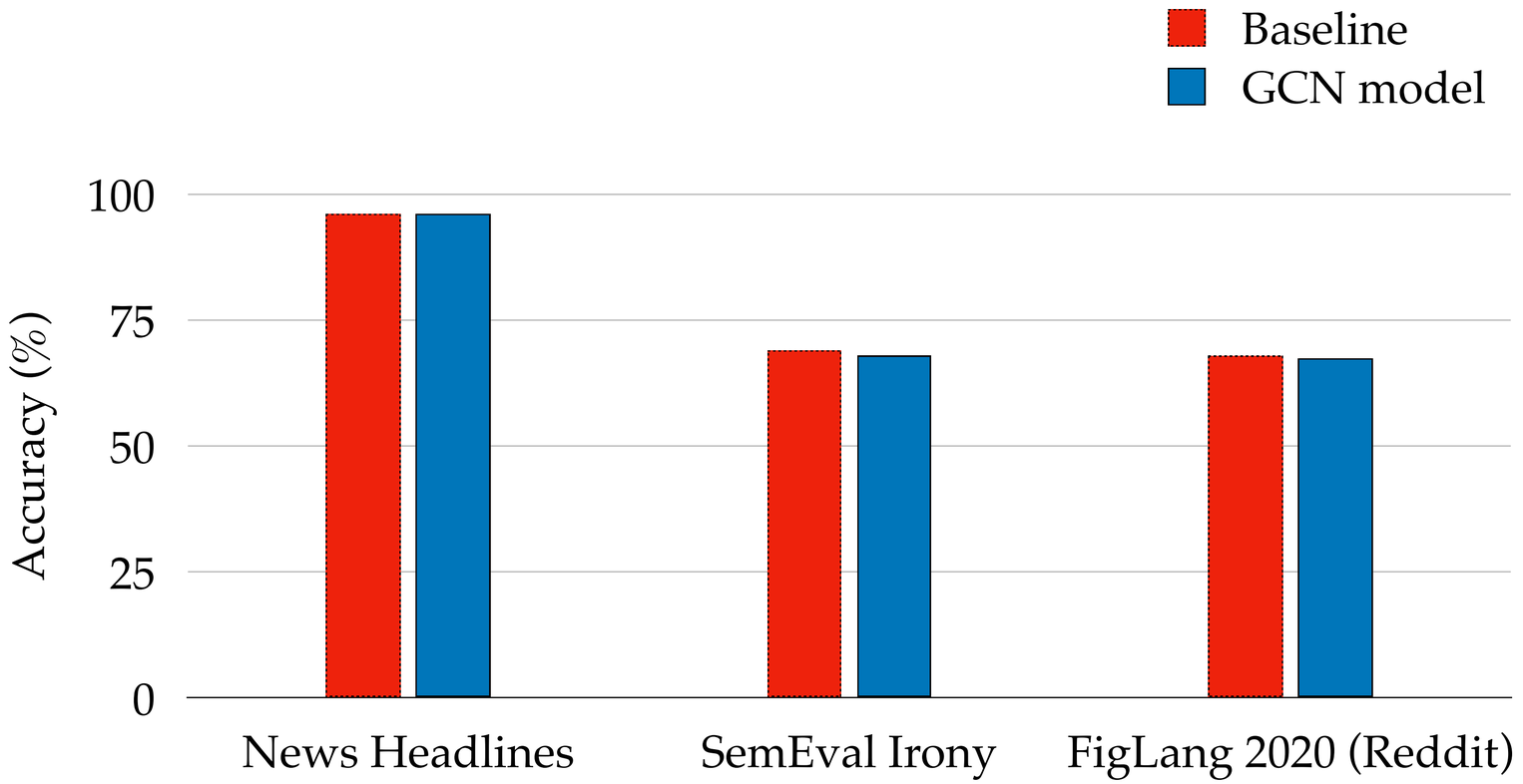
Results


Baseline
GCN model
100
75
50
25
0
Accuracy (%)
News Headlines
SemEval Irony
FigLang 2020 (Reddit)

Analysis

Evaluate if GCN model is able to learn something new by gauging the test-set prediction overlap with baseline model.

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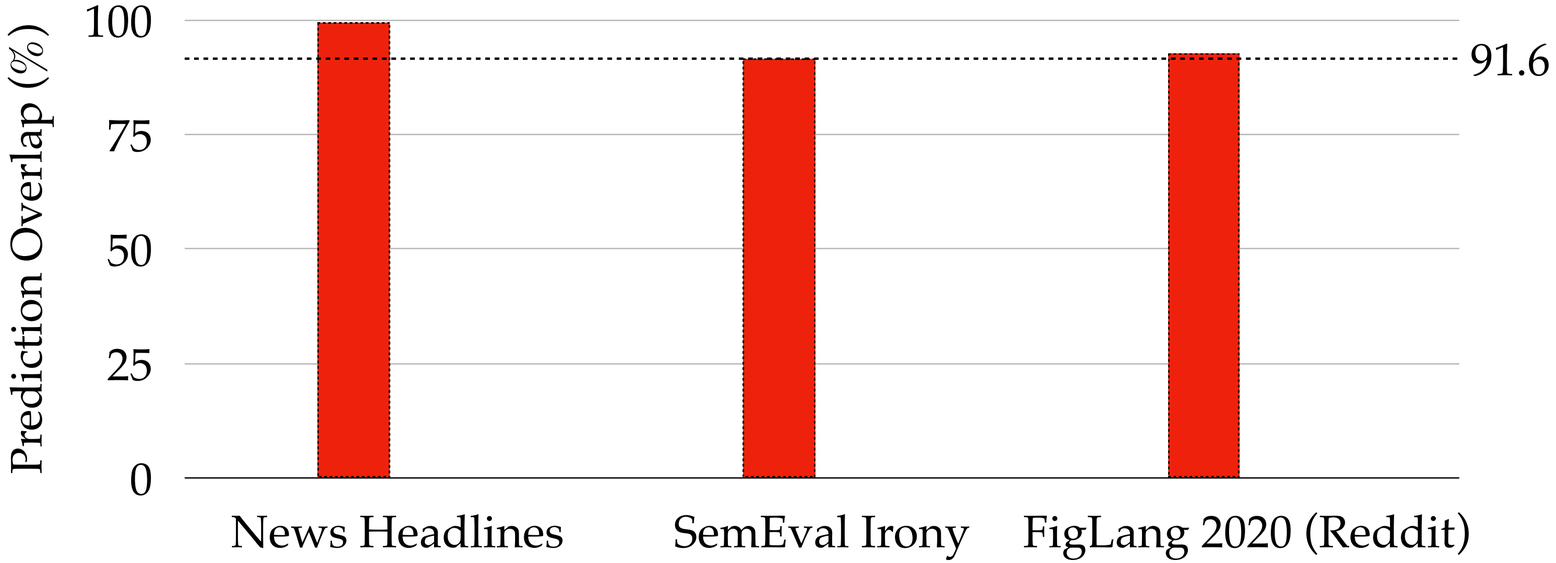

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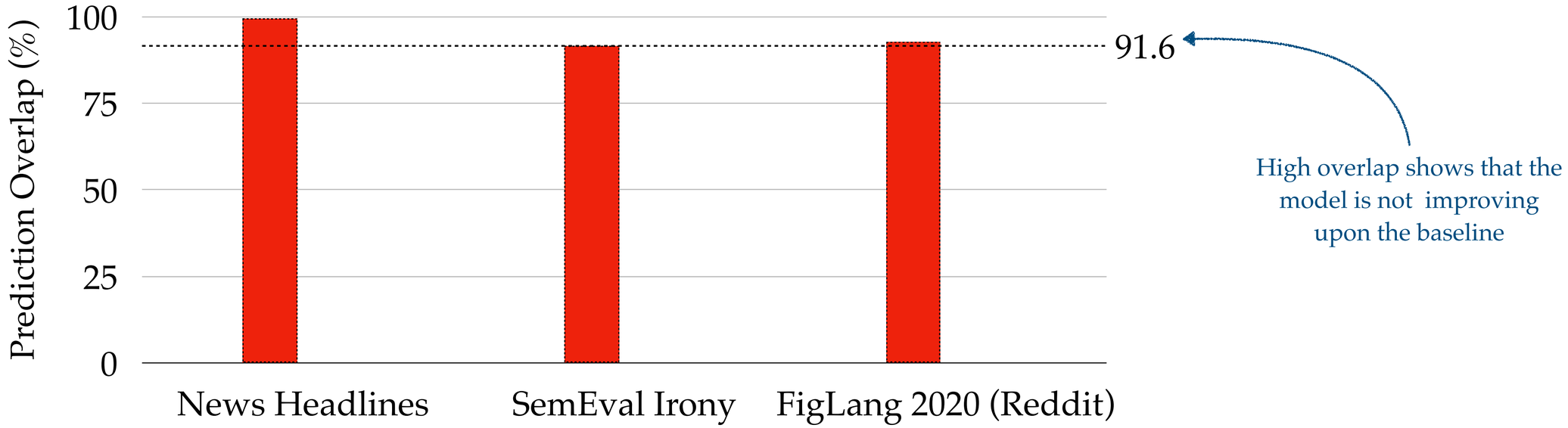

Saliency Test

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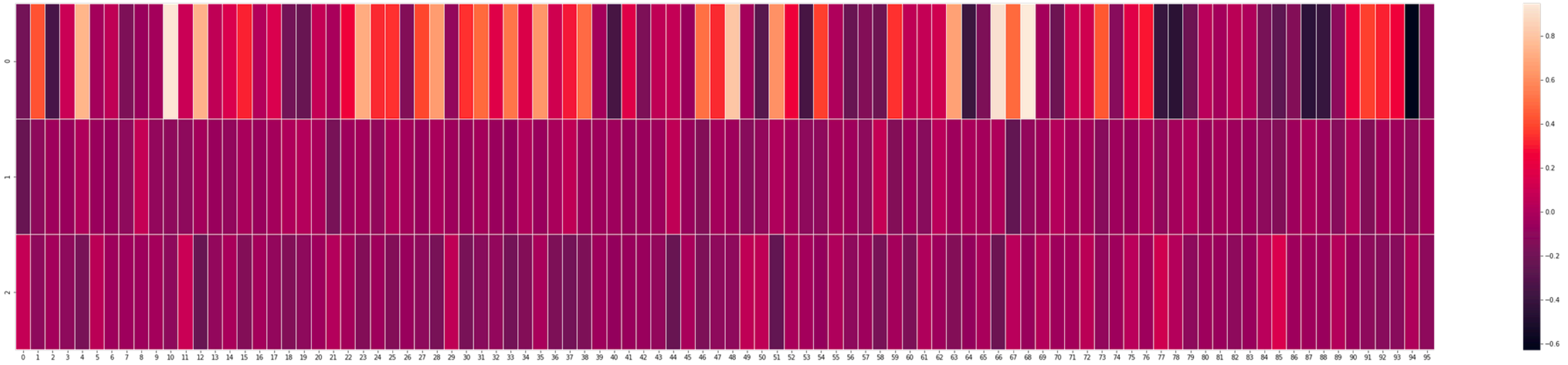

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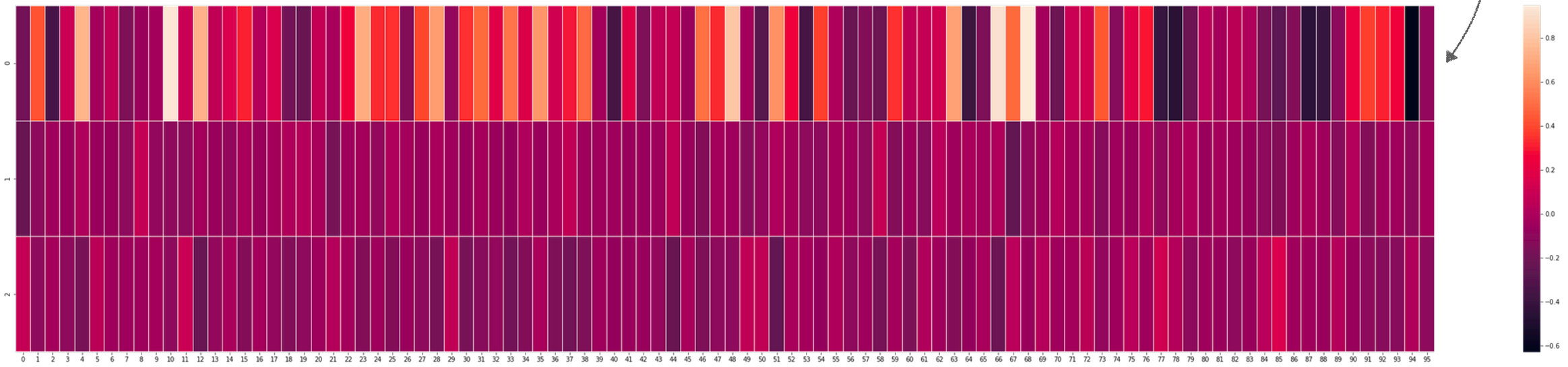
1st row correspond to input sentence representation's saliency map



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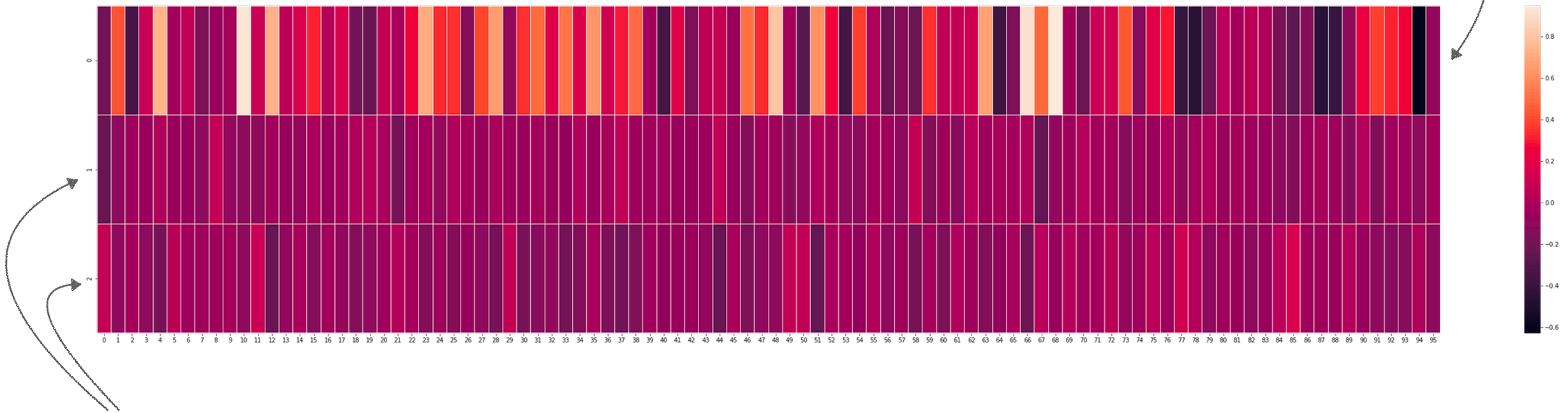

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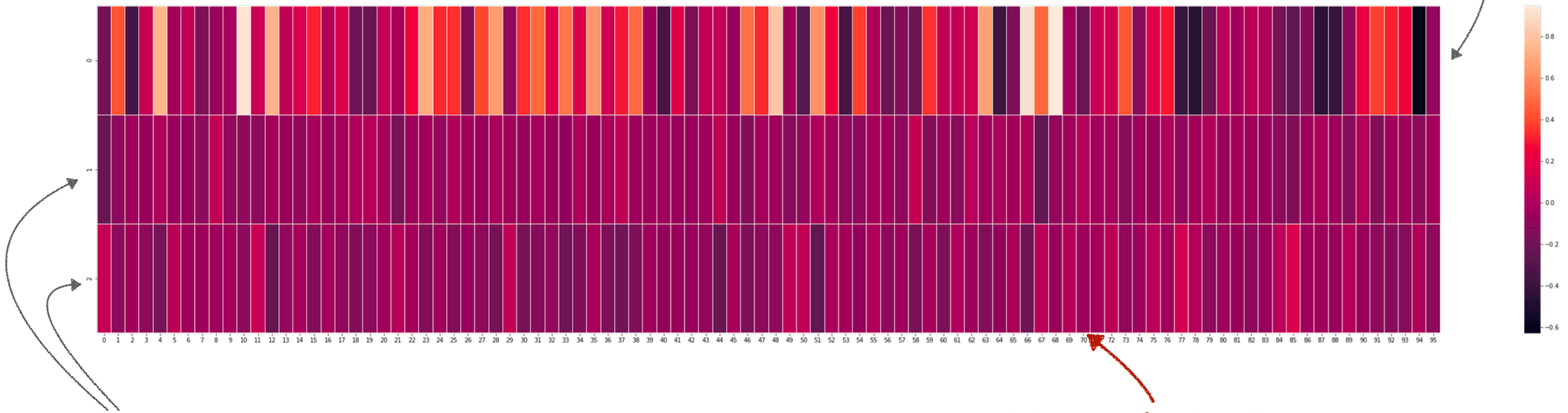

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Final two rows show low saliency values

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We evaluate performance when input sentence and COMET features are occluded

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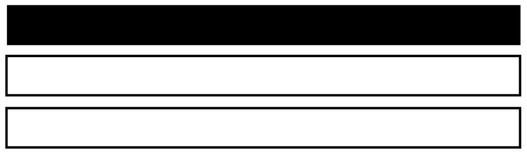
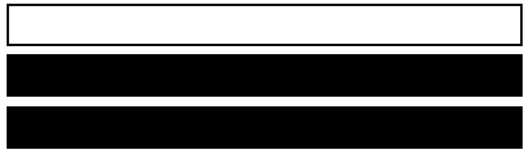


(a) Input representation occluded



(b) COMET representations occluded

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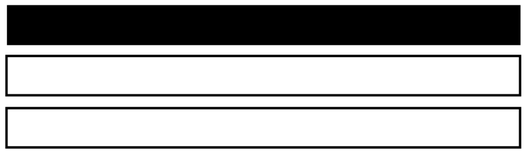

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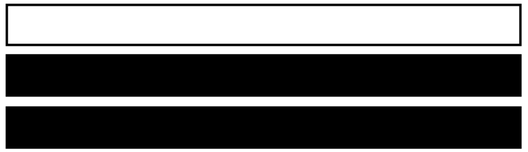

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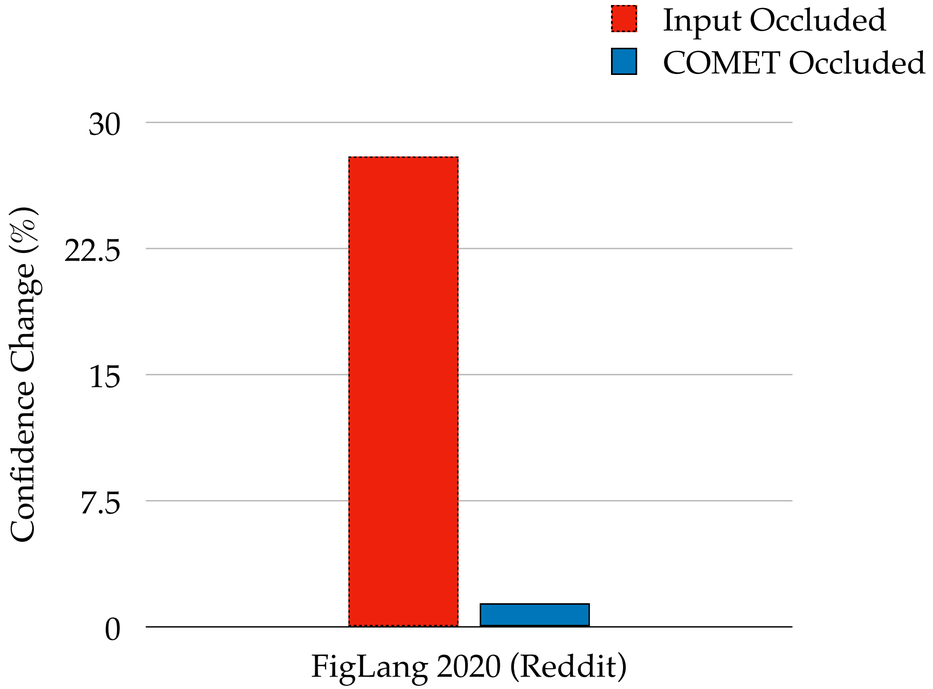
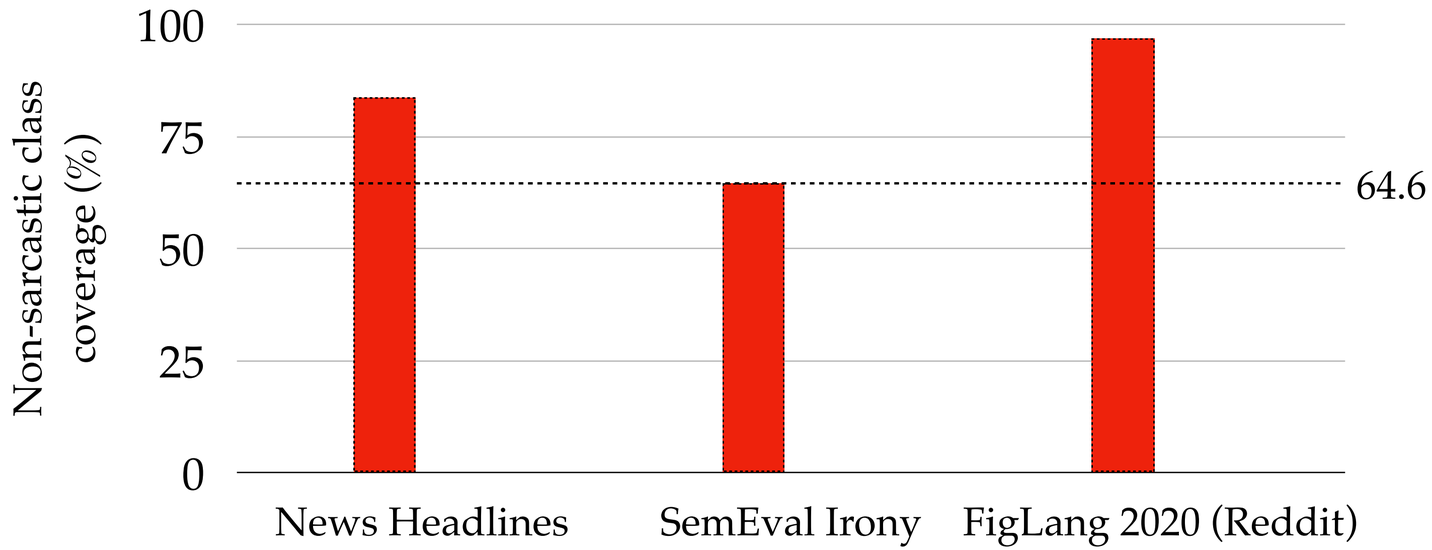


Non-sarcastic Class Coverage

We focus on samples where the model's prediction is wrong but the baseline is correct.



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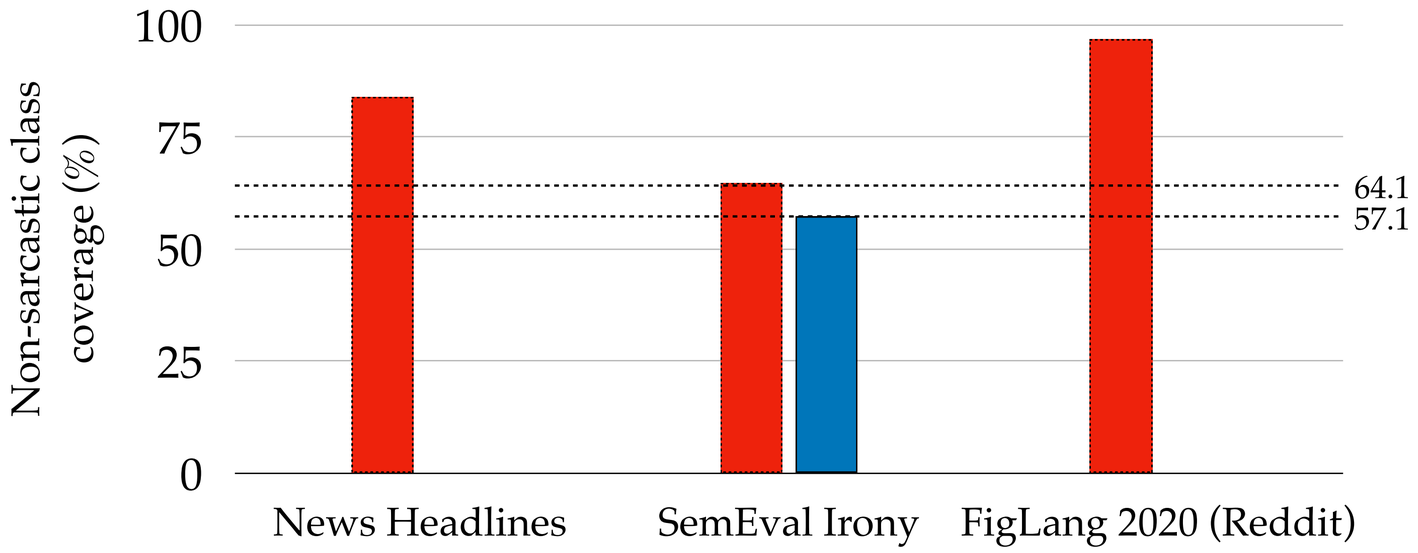

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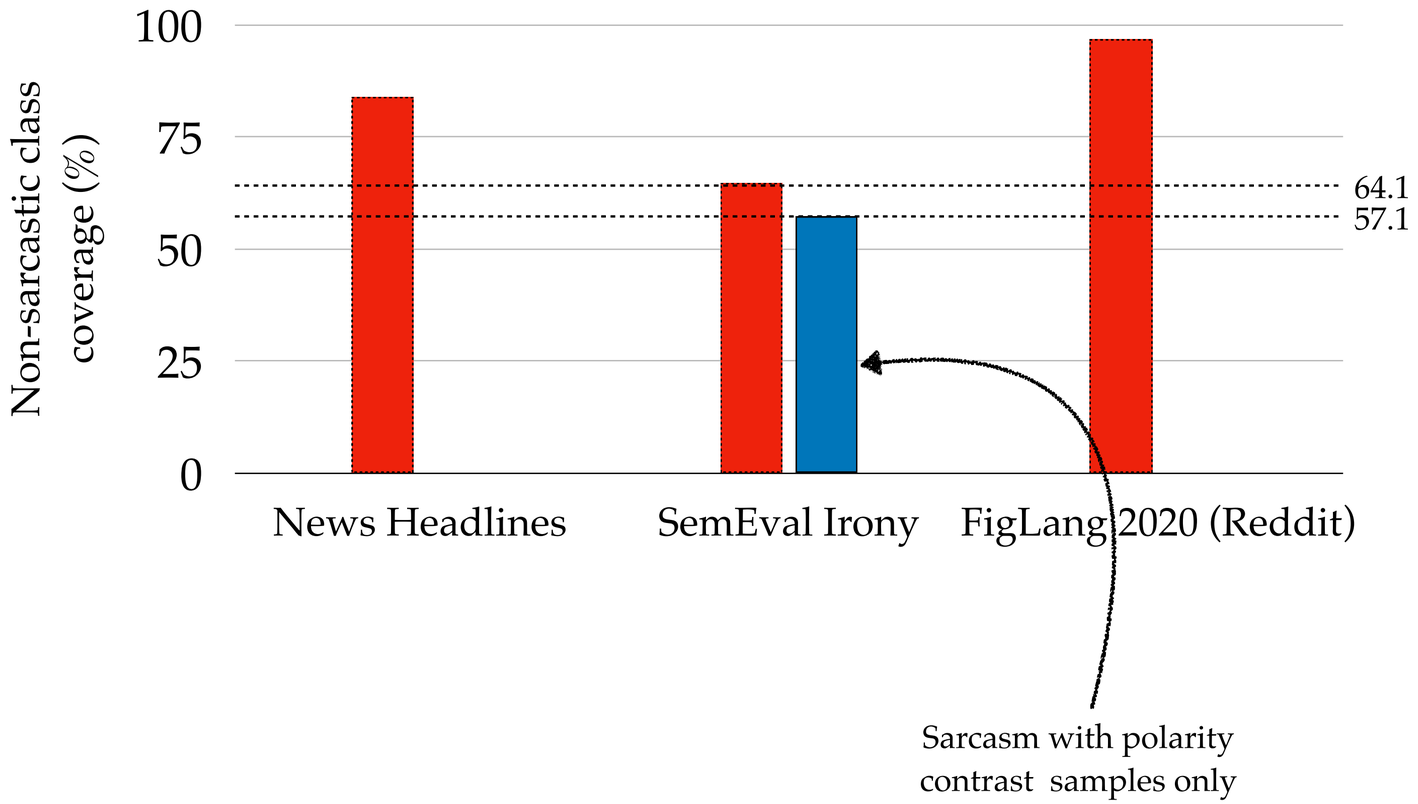

Takeaways

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@SomnathBrc

brcsomnath/commonsense-sarcasm

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