Headline generation with GAN-fine-tuned Transformer

DS 595 Natural Language Processing

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Outline

- Introduction
- Methodology
- Result
- Discussion

Headline?

- Given the paragraph of news, we want to have catchy "headline" that *summarize* the content.

Why can’t we just summarize it?

- Because summary is different from headline.
- *A handful of other journalists and I had camped outside Basra for days, hanging back out of range of the mortars that puffed in the dry, empty land. We spent our time interviewing the refugees that trickled out of the town or the British soldiers waiting to move in.*
- we spent our time interviewing the refugees that trickled out of Basra.
- Basra, 2003: Looting and Mystery

How?

- Use pre-trained T5 model and Pegasus as the baseline model
- Then, fine-tune it with *the data*.
- Fine-tune T5 model with GAN (minmax approach)
- Compare the result

How?

Introduction
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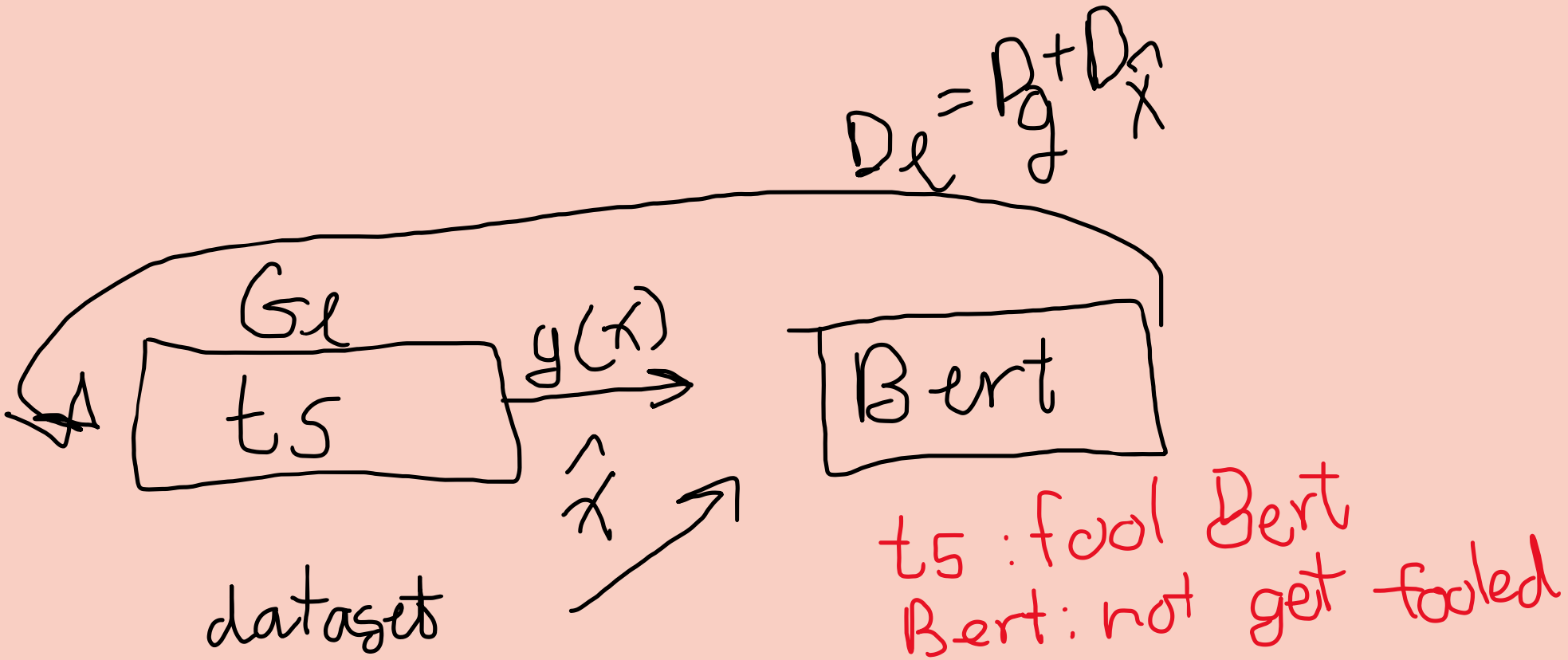
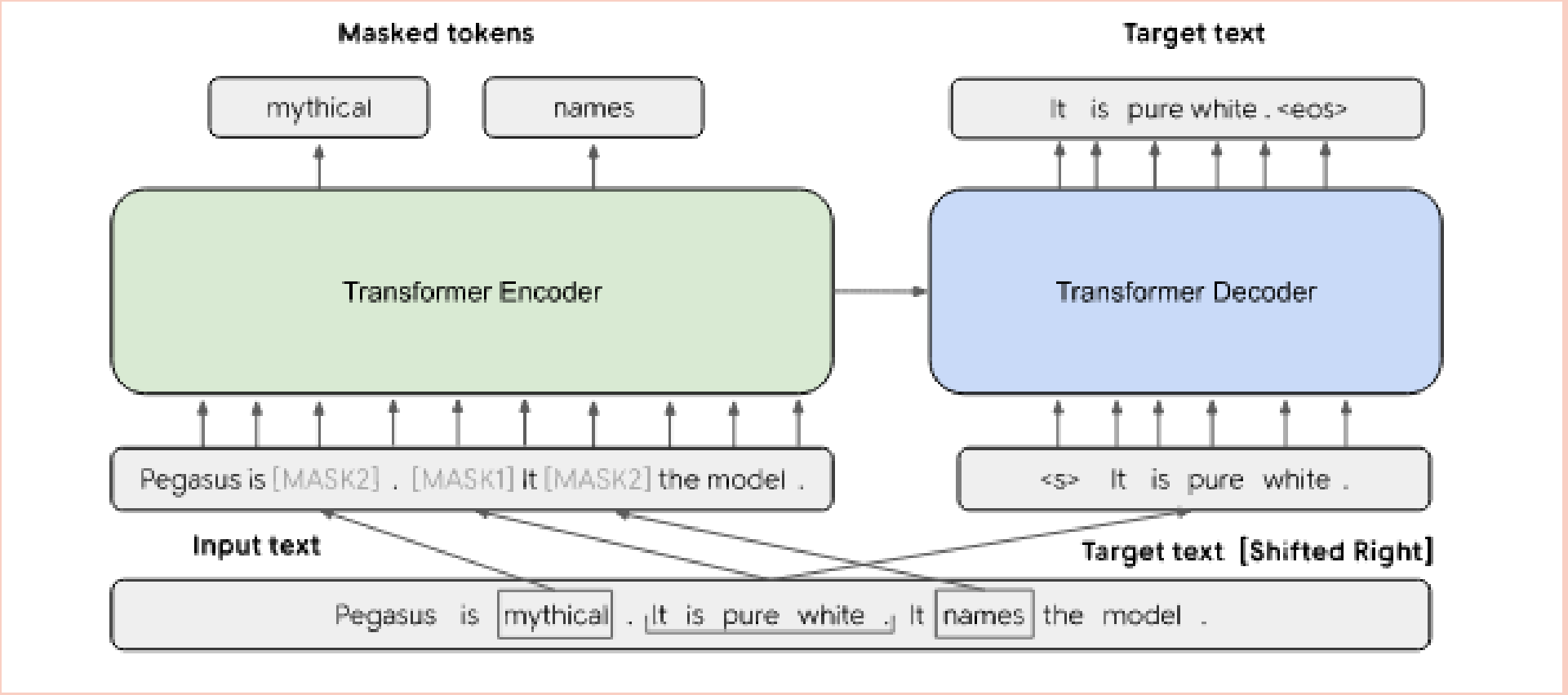


PEGASUS?



PEGASUS: Pre-training with Extracted Gap-sentences for Abstractive Summarization [https://arxiv.org/pdf/1912.08777.pdf]

Out-of-the-box model

But even as partygoers embraced the New Year, a surge of attacks on Monday served as a potent reminder that 2007 was the bloodiest on record.

T5: surge of attacks on monday reminds of 2007 being the bloodiest on record [0.074]

Pegasus: New Year's Eve revelers gathered in Times Square in New York to ring in the new year. [0.108]

Goal: Iraqi Revelers Embrace the New Year [0.138]

Out-of-the-box model

A police officer in Russia uses the Internet to challenge the country's leaders to address rampant corruption.

T5: police officer in Russia challenges country's leaders to address corruption. officer uses the internet to [0.758]

Pegasus: A police officer in Russia uses the Internet to challenge the country's leaders to address rampant corruption. [1.000]

Goal: Russia's YouTube Whistle-Blower [0.00]

Fine-tuned model

But even as partygoers embraced the New Year, a surge of attacks on Monday served as a potent reminder that 2007 was the bloodiest on record.

T5: a New Year's Resolution: A New Year in the Blood [0.125]

Pegasus: Intensifies Violence on New Year's Eve in Britain [0.064]

Goal: Iraqi Revelers Embrace the New Year [0.138]

Fine-tuned model

A police officer in Russia uses the Internet to challenge the country's leaders to address rampant corruption.

T5: Russian Police Officer Uses Internet to Challenge Leaders [0.167]

Pegasus: Watch Her Corrupt Leaders on the Internet [0.174]

Goal: Russia's YouTube Whistle-Blower [0.00]

GAN!!!

But even as partygoers embraced the New Year, a surge of attacks on Monday served as a potent reminder that 2007 was the bloodiest on record.

T5: a surge of attacks on a partygoer on monday served as a pot [0.424]

Goal: Iraqi Revelers Embrace the New Year [0.138]

GAN?

A police officer in Russia uses the Internet to challenge the country's leaders to address rampant corruption.

T5: a police officer in Russia uses the Internet to challenge the country's leaders. [0.815]

Goal: Russia's YouTube Whistle-Blower [0.00]

So, no new paper called “T5GAN: State of the art …”?

- Clearly, that is not the case here.
- However, longer training would help a lot.
- Fine-tune discriminator?