Unsuccessful Approach to Apply Summarization in Information Retrieval

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Our Team

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Information Retrieval

- Users
- Queries
- Documents

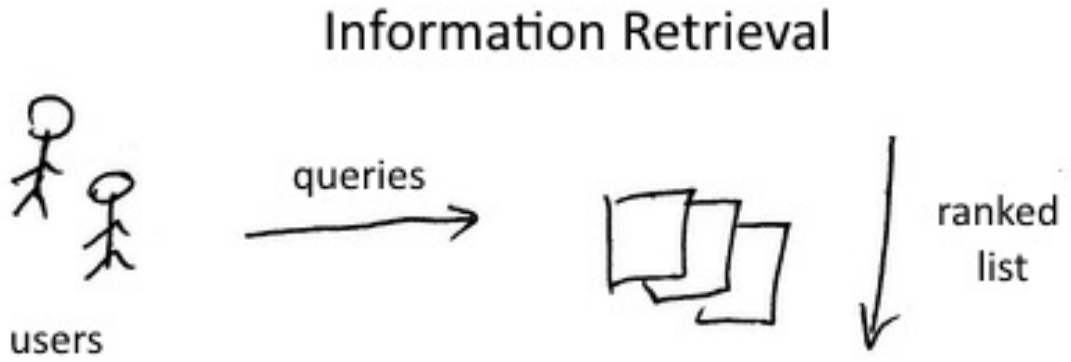

Image from MLWiki.org

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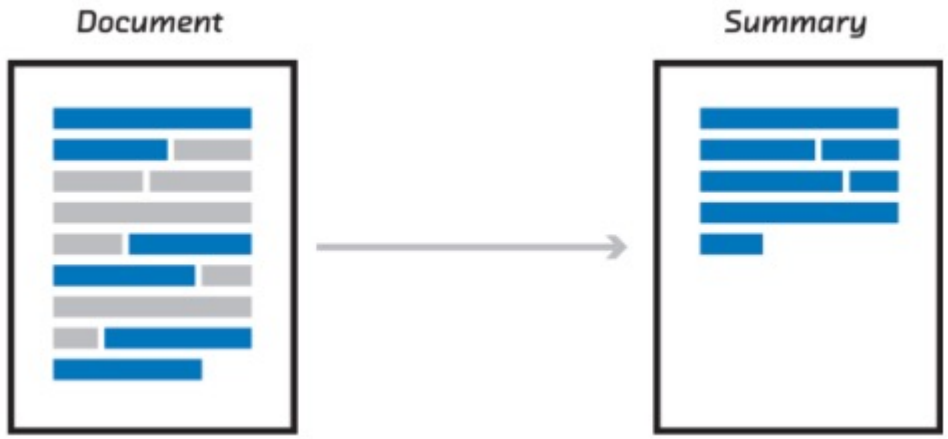
Summarization

- Document
- Summary



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Our Setup

- Corpora
- MS MARCO
- CNN / DailyMail

- Summarization
- TextRank
- mBART

- Ranking
- ColBERT

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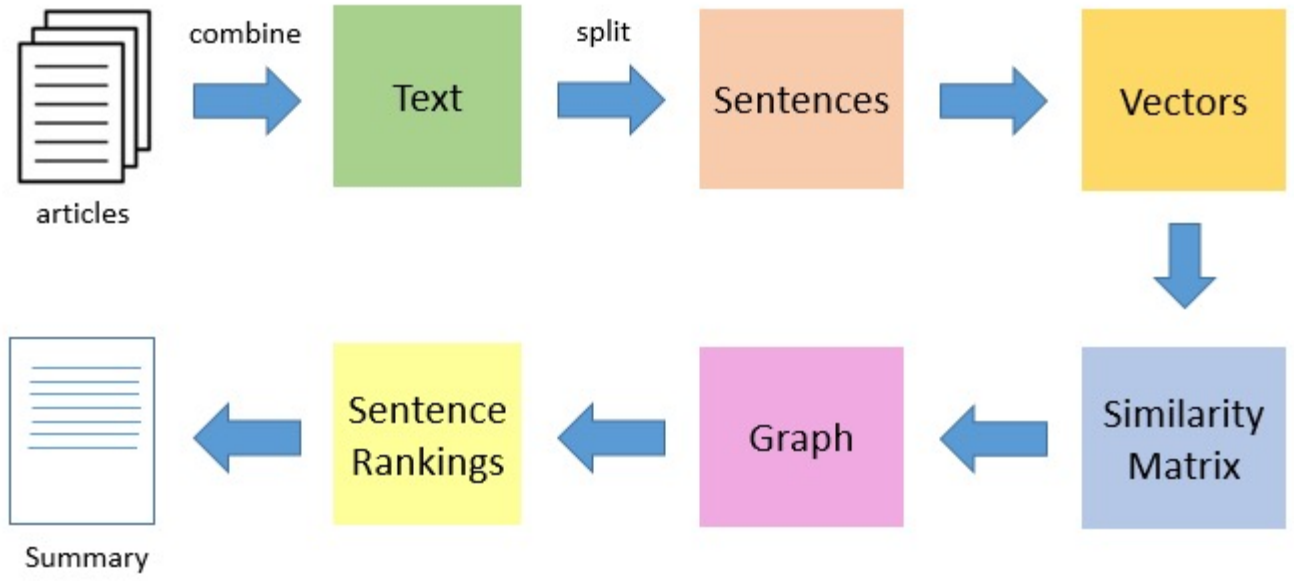
Summarization Models



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Summarization Models

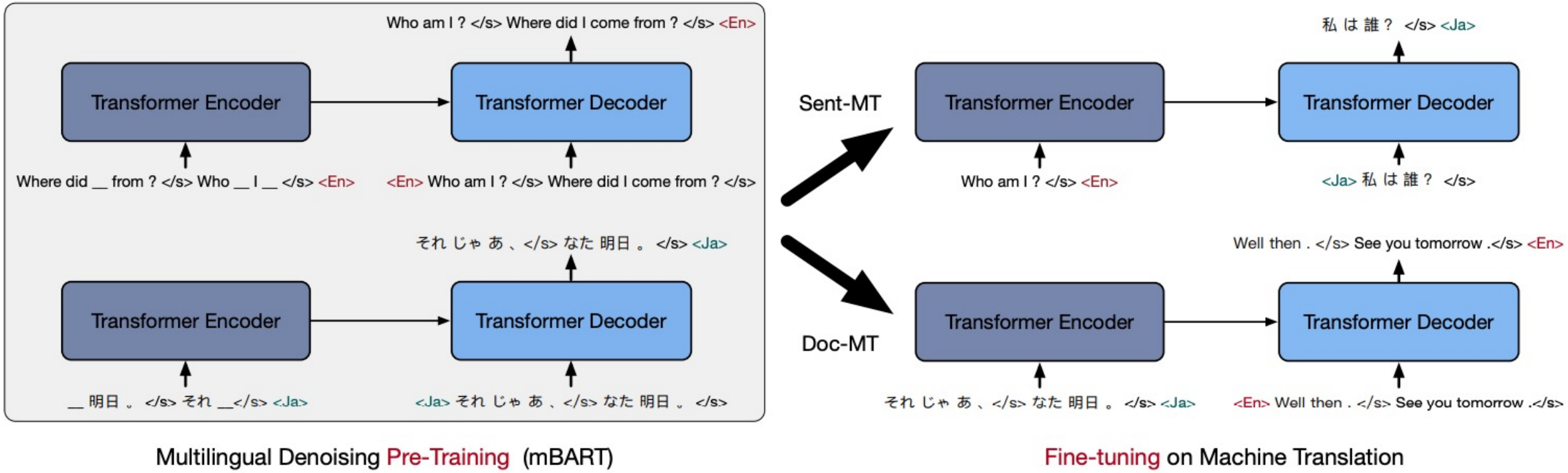

Figure 1: Framework for our Multilingual Denoising Pre-training (left) and fine-tuning on downstream MT tasks (right), where we use (1) sentence permutation (2) word-span masking as the injected noise. A special language id token is added at both the encoder and decoder. One multilingual pre-trained model is used for all tasks.

Ranking Model

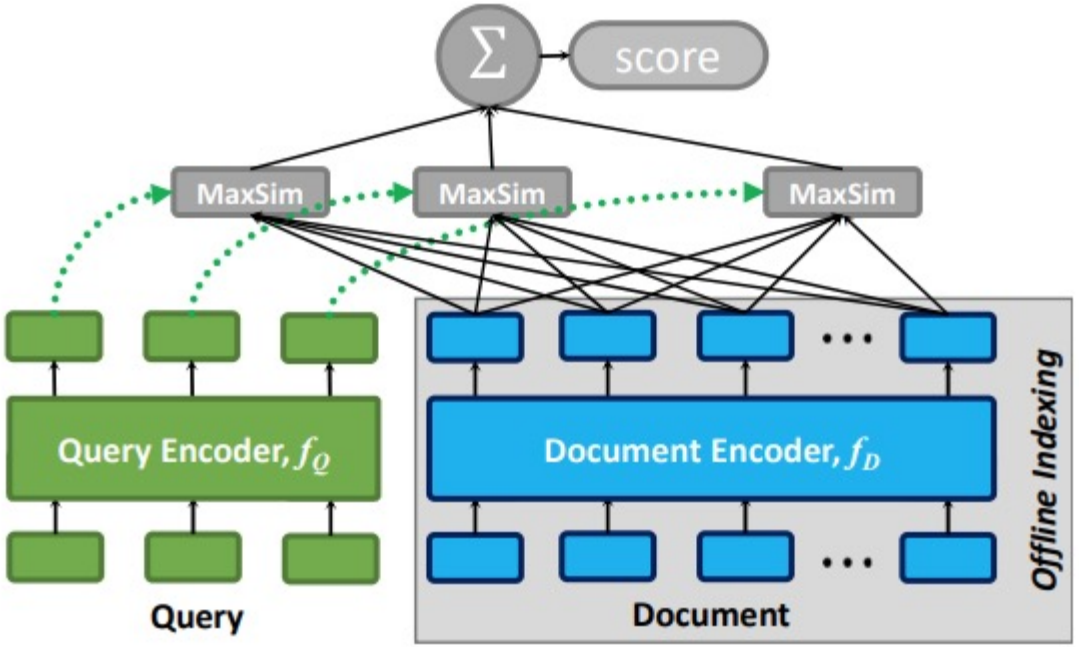

Figure 3: The general architecture of ColBERT given a query q and a document d.

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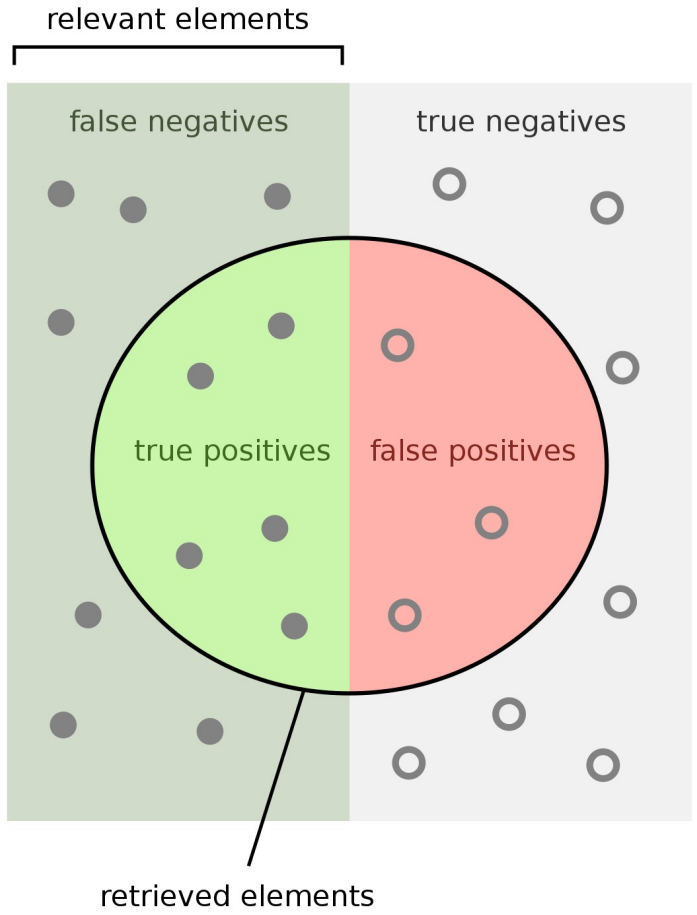
Metrics

Recall@k



How many retrieved items are relevant?

$$\text{Precision} = \frac{\text{true positives}}{\text{retrieved elements}}$$

How many relevant items are retrieved?

$$\text{Recall} = \frac{\text{true positives}}{\text{relevant elements}}$$

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Preliminary Results

Summarizer Model	Index size (Gb)	Avg. document length	Recall@100	Recall@10
Full documents	59	1124	0.866	0.603
First 512	10	512	0.854	0.605
TextRank	10	165	0.776	0.507
mBART (fine-tuned on CNN)	10	194	0.824	0.575

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Key Takeaways

- Even the best abstract summarization could be not enough
- There is more than main idea in the text

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Thank you

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