

MPII at the NTCIR-15 WWW-3 Task

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Overview

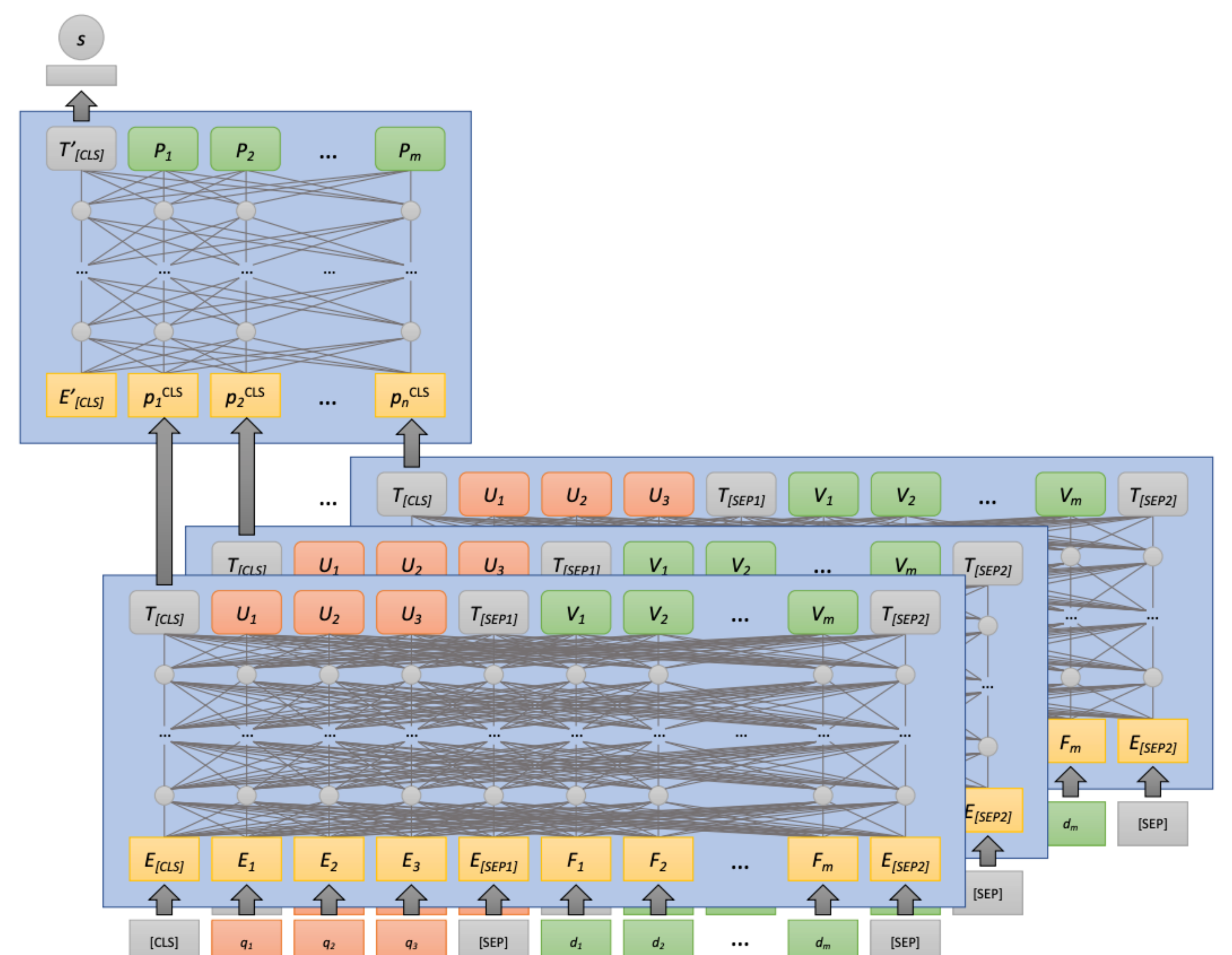
MPII participated in the English subtask of WWW-3 at NTCIR-15 with several variants of our recent PARADE model. Our results support the findings in the PARADE paper [1]: aggregating representations is more effective than aggregating scores, and effectiveness increases with the complexity of the aggregation approach.

Methodology

We evaluated variants of the PARADE model, including $\text{PARADE}_{\text{Max}}$, $\text{PARADE}_{\text{Attn}}$, and PARADE.

- $\text{PARADE}_{\text{Max}}$: Max-pooling over the passage representations.
- $\text{PARADE}_{\text{Attn}}$: Importance weighting on the passage representations.
- PARADE: Building a Transformer block on top of the passage representations and using a [CLS] token to aggregate the representations.

More details about PARADE can be found in the original work [1].



Results

Effectiveness. We trained PARADE on the NTCIR WWW-1 and WWW-2 queries. The results support the findings in [1] that aggregating passage representations is more effective than aggregating passage scores and that the full PARADE model is more effective than the simpler variants

Error Analysis. Models fail severely in the following queries:

- *You want to visit the website "www.freeweblayouts.net".*
- *You want to find the official website of Akron Beacon Journal*
- *You want to knowhow Zeus is described in the Greek Mythology.*

Observation: For the queries seeking websites, regarded as known-item search, it might not be necessary to employ a full-document ranking model.

Run Name	PARADE variant	nDCG@10	Q@10	nERR@10
mpii-E-CO-NEW-3	$\text{PARADE}_{\text{Max}}$	0.6337	0.6556	0.7395
mpii-E-CO-NEW-2	$\text{PARADE}_{\text{Attn}}$	0.6743	0.6905	0.7787
mpii-E-CO-NEW-1	PARADE	0.6897	0.7016	0.8090

Results from WWW-3.

[1] Li, C., Yates, A., MacAveny, S., He, B., Sun, Y., parade: passage representation aggregation for document reranking. In: Arxiv (2020).