

RSLFW at the NTCIR-18 FairWeb-2 Task

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1. Background

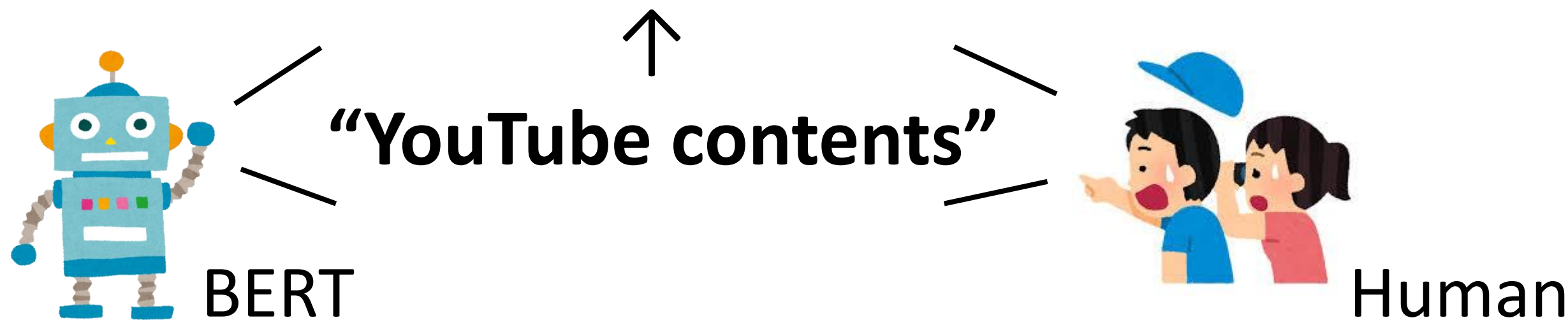
► RSLFW at FairWeb-1 (NTCIR-17)

COIL Baseline (+ PM algorithm)

- ✓ **COIL** (Contextualized Inverted List)
 - Retrieve using inner products of dense embeddings for **matching tokens only**
- ✓ **PM** algorithm
 - Election-based approach for fairness

1. “Relevance $\propto$ Fairness” ???

<https://www.youtube.com/watch?v=yDPxTXJOTWU>



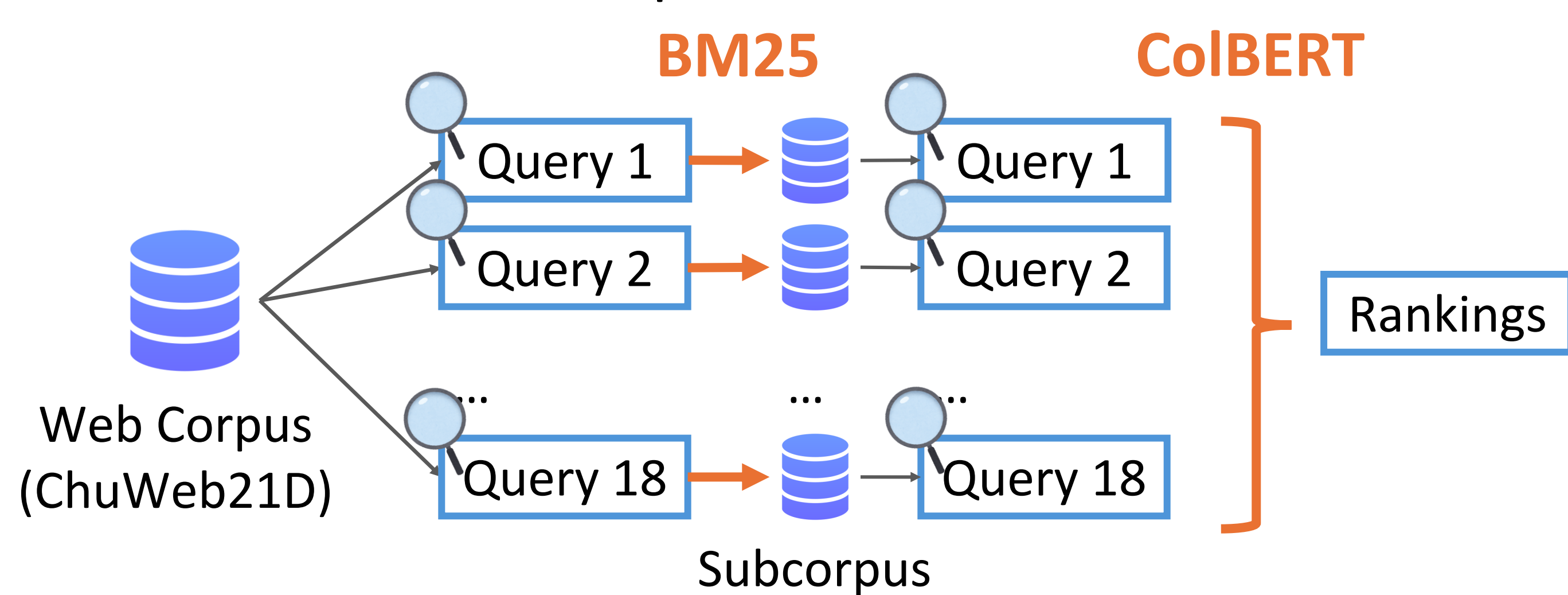
2. “URL Effect for Retrieval” ???

2. Experiments

► RSLFW at FairWeb-2 (NTCIR-18)

(BM25 +) ColBERT-v2 (+ PM algorithm)

- ✓ **ColBERT** (Contextualized Late interaction over BERT)
 - Sum over **max** inner products per query token across all token pairs



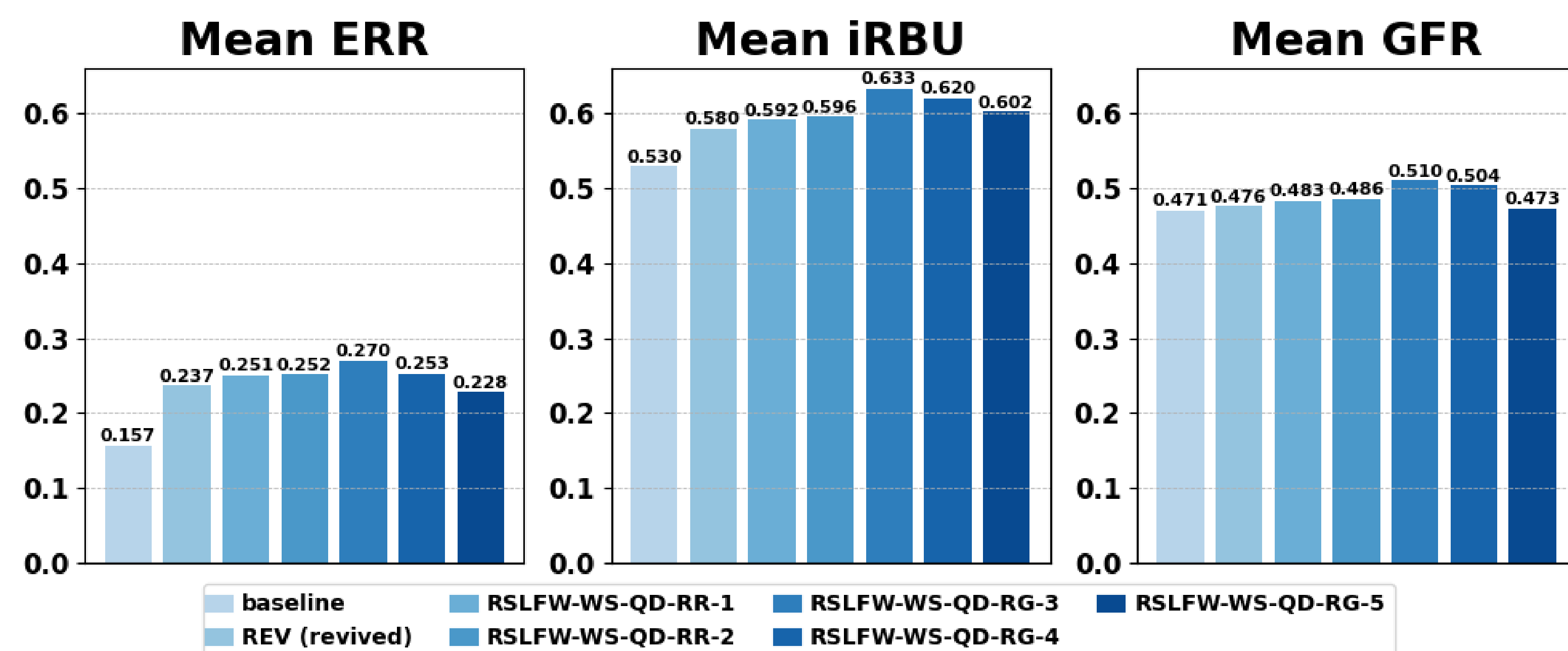
- ◆ Run1 : RSLFW-WS-QD-RR-1
→ a baseline subcorpus + ○ URL + ColBERT
- ◆ Run2 : RSLFW-WS-QD-RR-2
→ a baseline subcorpus + ✗ URL + ColBERT
- ◆ Run3 : RSLFW-WS-QD-RG-3
→ bm25 subcorpora + ○ URL + ColBERT
- ◆ Run4 : RSLFW-WS-QD-RG-4
→ bm25 subcorpora + ✗ URL + ColBERT
- ◆ Run5 : RSLFW-WS-QD-RG-5
→ bm25 subcorpora + ○ URL + ColBERT + PM

► Evaluate with **ERR** • **iRBU** • **GFR**

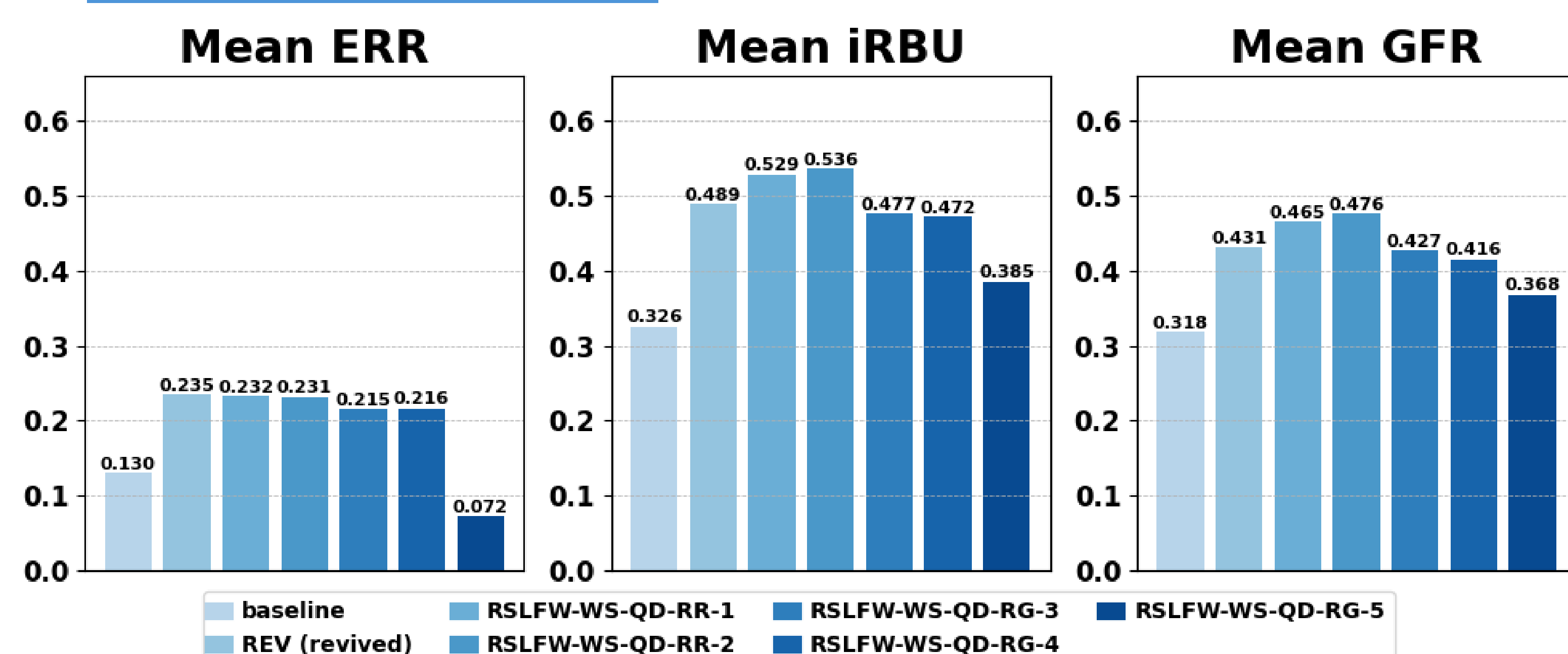
- ✓ **ERR**: Higher-ranked relevant documents
- ✓ **iRBU**: Documents within scoring scope

3. Results

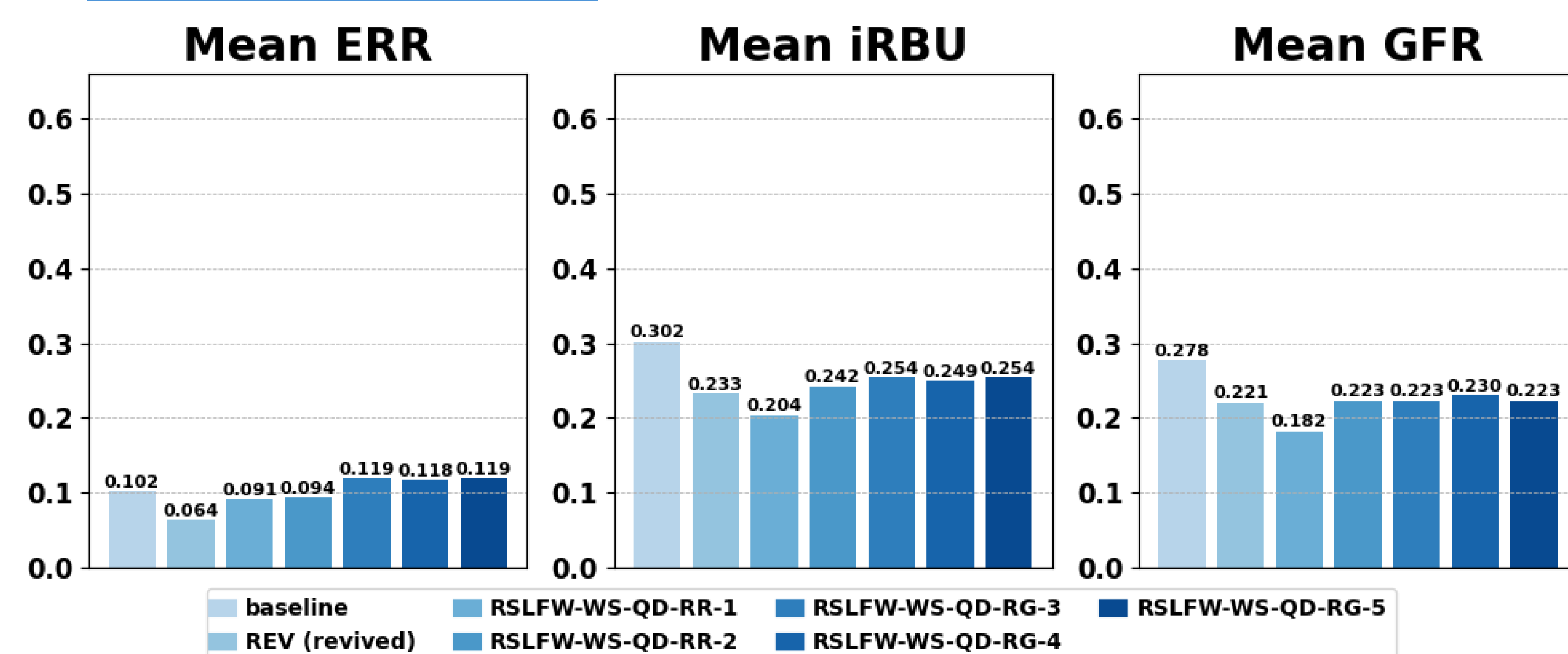
M (Movie) topics



R (Researcher) topics



Y (YouTube) topics



- ◆ baseline < BM25 (1st stage retrieval)
- ◆ Relevance (ERR, iRBU) $\propto$ Fairness (GFR)

► URLs

- ✓ number of URLs / doc (BM25 corpora)
 - average: 2.65
 - median: 0.00

◆ fail to extract URL

- extract only from text in <a> tags
but URLs are in href in <a> tags ...

4. Summary

- Achieved **the highest-scoring run** (Run3)
- Need to assess:
 - the effect of URLs on retrieval ?
 - GFR is suitable as a fairness measure ?