Retrieval-Augmented Debating (RAD)

Touché'25 Task 1

Marcel Gohsen

Nailia Mirzakhmedova

Harrisen Scells

Mohammad Aliannejadi

Maik Fröbe

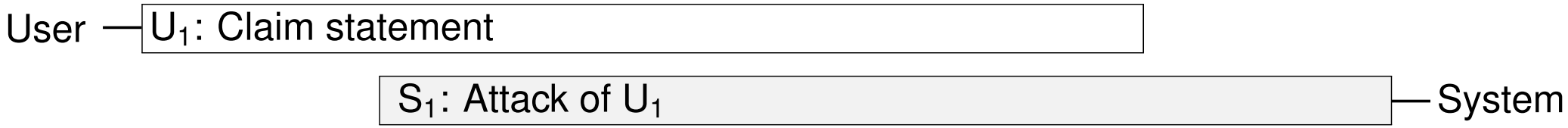
Johannes Kiesel

Benno Stein

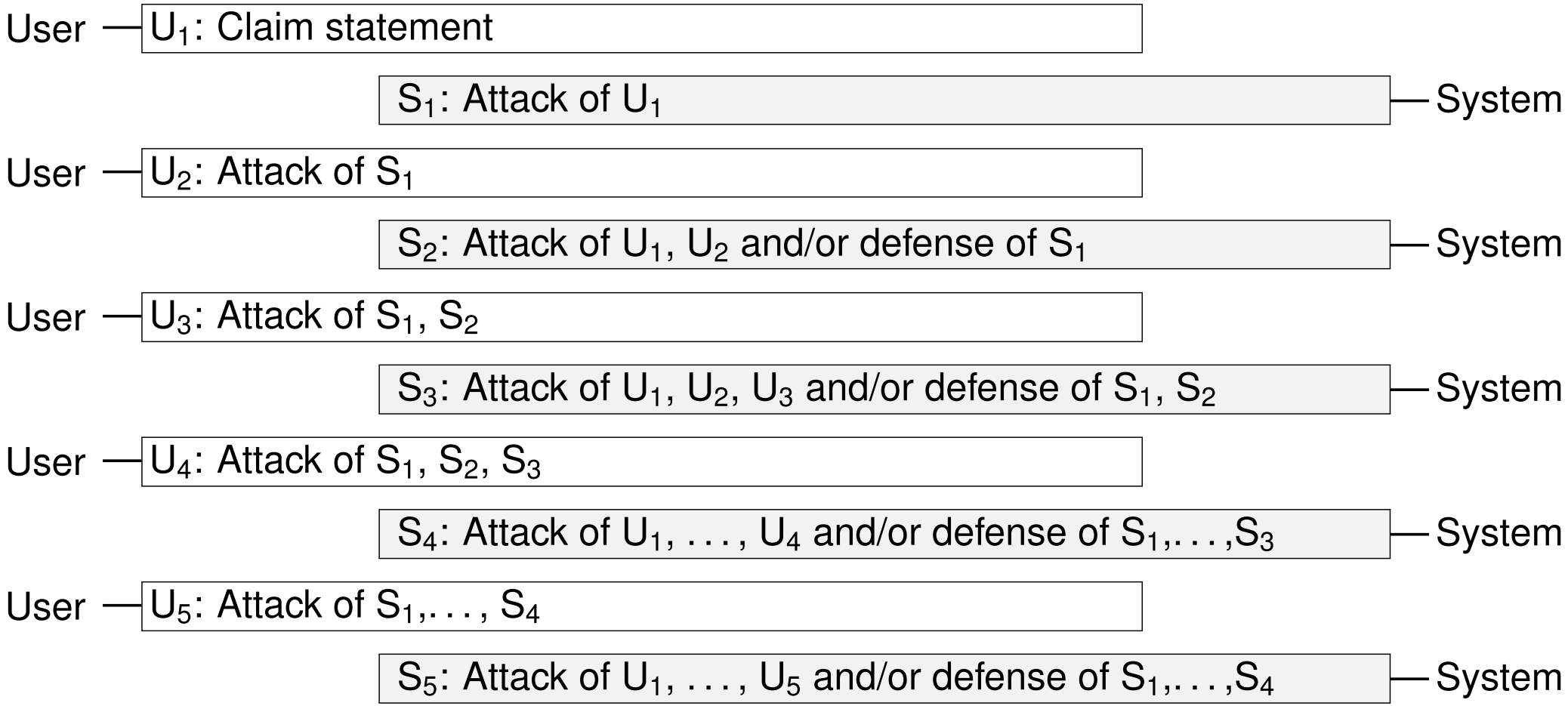
Retrieval-Augmented Debating (RAD)

User — U_1: Claim statement

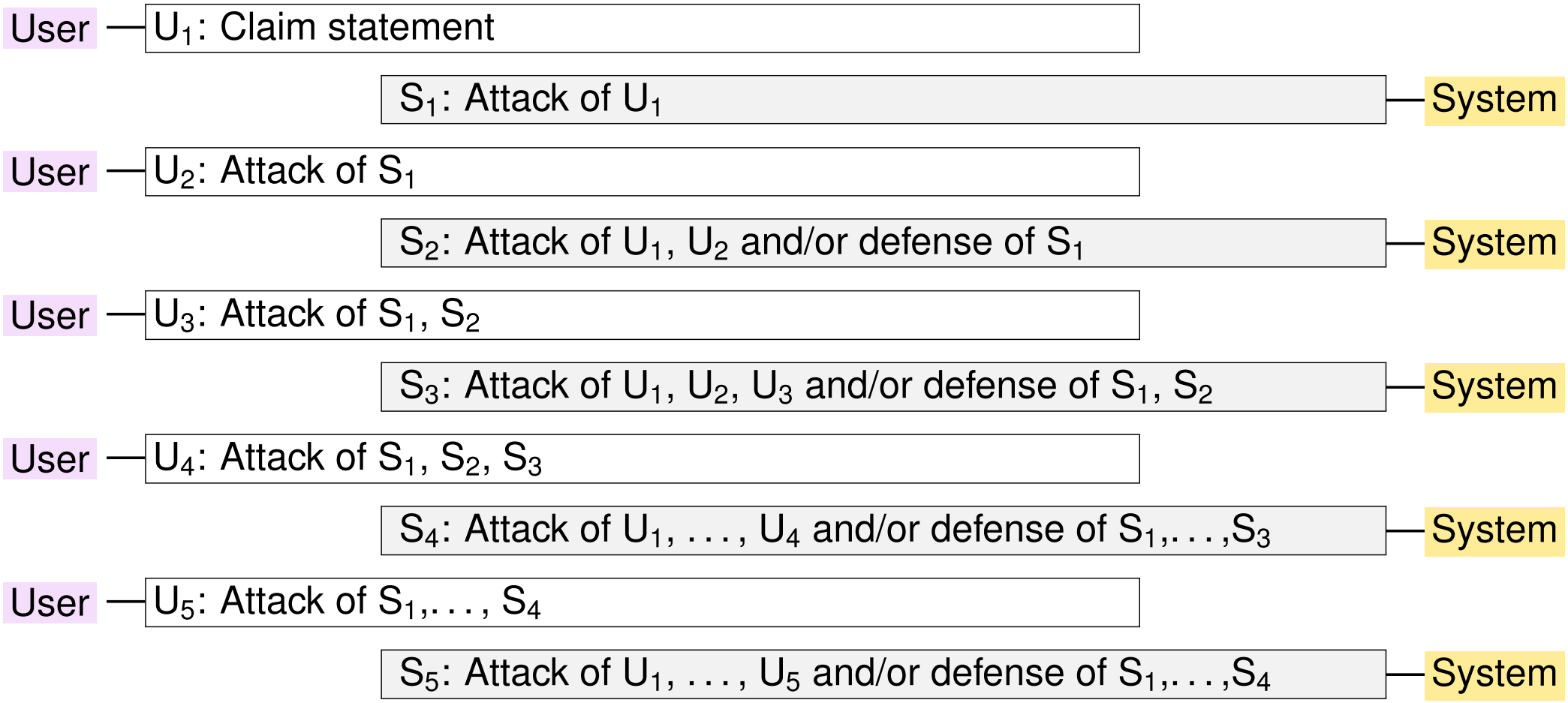
Retrieval-Augmented Debating (RAD)



Retrieval-Augmented Debating (RAD)



Retrieval-Augmented Debating (RAD)



User simulator Participant system

Retrieval-Augmented Debating (RAD)

Task Description

Scenario: Assisting people in forming an opinion on controversial topics and training argumentation skills

Sub-Task 1: Develop debate systems that retrieve and respond with counterarguments and evidence in simulated debates.

Sub-Task 2: Provide metrics to assess quality criteria based on Grice's maxims of cooperation.

- *Quantity:* at least one at most one of each attack/defense arguments?
- *Quality:* response grounded on retrieved arguments?
- *Relation:* response coherent with conversation?
- *Manner:* response clear and precise?

Retrieval-Augmented Debating (RAD)

Dataset

Arguments

- 300 000 arguments from ClaimRev[1]
- Pre-indexed in Elasticsearch

Argument:	*Pineapple on pizza is an insult to the Italian origins of pizza.*
Supports:	*Pineapple does not belong on pizza.*
Attacks:	*Pineapple belongs on pizza.*

Claims and debates

- 100 claims from the Change My View subreddit[2]
- 100 simulated debates for claims with annotations
- Annotation: binary labels for quality criteria

[1] Skitalinskaya et al., Quality Assessment of Claims in Argumentation at Scale. EACL 2021.

[2] https://www.reddit.com/r/changemyview/

Retrieval-Augmented Debating (RAD)

Results: Sub-Task 1

Rank	Team	Run	Score	Quantity	Quality	Relation	Manner
1	DS@GT	gpt-4.1	**0.70**	**0.95**	0.17	0.82	**0.84**
2	DS@GT	gemini-2.5	0.65	0.94	0.26	0.74	0.67
	org	baseline	0.62	0.35	**1.00**	0.32	0.80
3	SINAI	run	0.54	0.70	0.02	0.86	0.59
4	DS@GT	gemini-2.5-flash	0.50	0.70	0.07	0.80	0.41
5	DS@GT	claude-opus-4	0.42	0.41	0.31	0.87	0.09
6	DS@GT	gpt-4o	0.42	0.20	0.02	0.86	0.58
7	DS@GT	claude-sonnet-4	0.38	0.35	0.05	**0.94**	0.17

Criteria: percentages of responses that fulfill given criteria.

Score: Avg. percentage of responses across all criteria.

Retrieval-Augmented Debating (RAD)

Results: Sub-Task 2

Rank	Team	Run	Score	Quantity			Quality			Relation			Manner		
			F_1	P	R	F_1	P	R	F_1	P	R	F_1	P	R	F_1
	org	1-baseline	**0.67**	0.57	1.00	**0.73**	0.24	1.00	**0.38**	0.78	1.00	0.87	0.52	1.00	**0.68**
1	DS@GT	gemini-2.5-flash	0.64	0.59	0.86	0.70	0.18	0.66	0.29	0.81	0.99	0.89	0.52	0.99	**0.68**
2	DS@GT	gpt-4o	0.64	0.59	0.88	0.71	0.17	0.63	0.27	0.82	0.99	0.89	0.52	0.97	0.67
3	DS@GT	gpt-4.1	0.62	0.58	0.75	0.65	0.15	0.52	0.24	0.82	0.98	**0.90**	0.52	0.99	**0.68**
4	DS@GT	gemini-2.5-pro	0.62	0.59	0.67	0.63	0.17	0.52	0.25	0.84	0.97	**0.90**	0.52	0.98	**0.68**
5	SINAI	gritty-stock	0.56	0.60	0.60	0.60	0.19	0.40	0.25	0.84	0.86	0.85	0.50	0.57	0.53
6	DS@GT	claude-sonnet-4	0.56	0.56	0.43	0.49	0.15	0.36	0.21	0.83	0.92	0.88	0.51	0.93	0.66
7	SINAI	staff-frame	0.55	0.59	0.64	0.61	0.16	0.32	0.21	0.84	0.80	0.82	0.52	0.64	0.57
8	SINAI	radiant-tread	0.54	0.58	0.53	0.55	0.20	0.35	0.25	0.87	0.75	0.81	0.53	0.56	0.54
9	SINAI	iron-rhythm	0.52	0.57	0.46	0.51	0.15	0.37	0.21	0.84	0.79	0.81	0.50	0.63	0.56
10	DS@GT	claude-opus-4	0.51	0.49	0.21	0.29	0.16	0.31	0.21	0.85	0.90	0.88	0.51	0.92	0.66
11	SINAI	grating-dragster	0.49	0.59	0.63	0.61	0.20	0.58	0.30	0.84	0.39	0.53	0.50	0.54	0.52
12	SINAI	coped-message	0.39	0.57	0.32	0.41	0.17	0.21	0.19	0.84	0.67	0.74	0.45	0.16	0.24
13	SINAI	sizzling-coulomb	0.35	0.63	0.40	0.49	0.16	0.17	0.16	0.84	0.44	0.58	0.41	0.10	0.16

Retrieval-Augmented Debating (RAD)

Observations

- Some claims too hard to argue (e.g., the earth is flat).
  - Participant systems admitted defeat (*"you are right"*).
- Grounding responses in retrieved argument is hard.
  - Low quality score for most systems.
- LLMs do not recognize stance switches.
  - Systems pretended to disagree but argued for user stance.
- Common problem: wordiness.
  - Complex vocabulary, unclear argument, repetition.

$\rightarrow$ Building a persuasive debate system is a hard task.