

# Background Summarization of Event Timelines



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On June 25th, 2009, Dr. Conrad Murray found pop star Michael Jackson unconscious at his Los Angeles mansion. Paramedics were called while Murray performed CPR. The "King of Pop" later died at UCLA medical center. Los Angeles police interviewed Dr. Murray and the DEA raided the doctor's clinic and home. He was found to be over \$780,000 in debt. A cocktail of drugs was found in the singer's body, whose death by acute propofol intoxication was ruled a homicide. Murray pleaded not guilty to the charge of involuntary manslaughter, facing potentially up to four years in prison. In the high-profile trial, prosecutors alleged that Dr. Murray acted negligently in giving Jackson a lethal dose of propofol, ... After nine hours of jury deliberations, Dr. Conrad Murray was found guilty of involuntary manslaughter and was remanded in custody without bail until sentencing.

Provides background for Nov 29 update

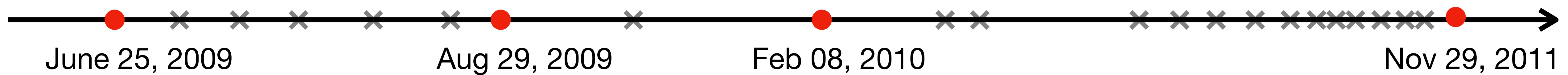
Dr. Conrad Murray finds Jackson unconscious in the bedroom of his Los Angeles mansion. Paramedics are called to the house while he performs CPR, according to a recording of the 911 call. Murray travels with the singer in an ambulance to UCLA medical center where Jackson later dies.

Jackson's death, by "acute propofol intoxication", is ruled a homicide by the Los Angeles coroner. A cocktail of drugs was found in his body, including sedatives Midazolam and Diazepam, painkiller Lidocaine and the stimulant Ephedrine.

Dr. Murray is charged with involuntary manslaughter. He pleads not guilty. Released on \$75,000 bail, he is allowed to resume practicing medicine, but the judge bans him from administering anesthetic agents, "specifically propofol".

After nine hours of jury deliberations, Dr. Conrad Murray is found guilty of involuntary manslaughter. He's remanded in custody without bail until sentencing.

Dr. Conrad Murray is sentenced to four years in county jail. Judge Michael Pastor says the evidence showed him to be guilty of a "continuous pattern of lies and deceit".



## New Summarization Benchmark

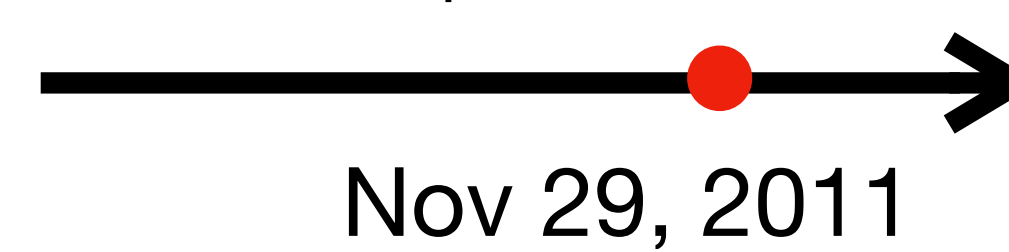
- Generate backgrounds for complex long-running events
- 14 major events from 2005—2014, over 1000 backgrounds
- Timelines from: Timeline17, Crisis, SocialTimeline
- 3 expert-annotated backgrounds per update

## New QA-based Evaluation Metric

- Utility of a background to news reader
- Crowdsourced and GPT-based

## Background Utility Score (BUS)

Dr. Conrad Murray is sentenced to four years in county jail. Judge Michael Pastor says the evidence showed him to be guilty of a "continuous pattern of lies and deceit".



Flan-T5 GPT-3.5 Human

Who is Dr. Conrad Murray and what was he accused of?

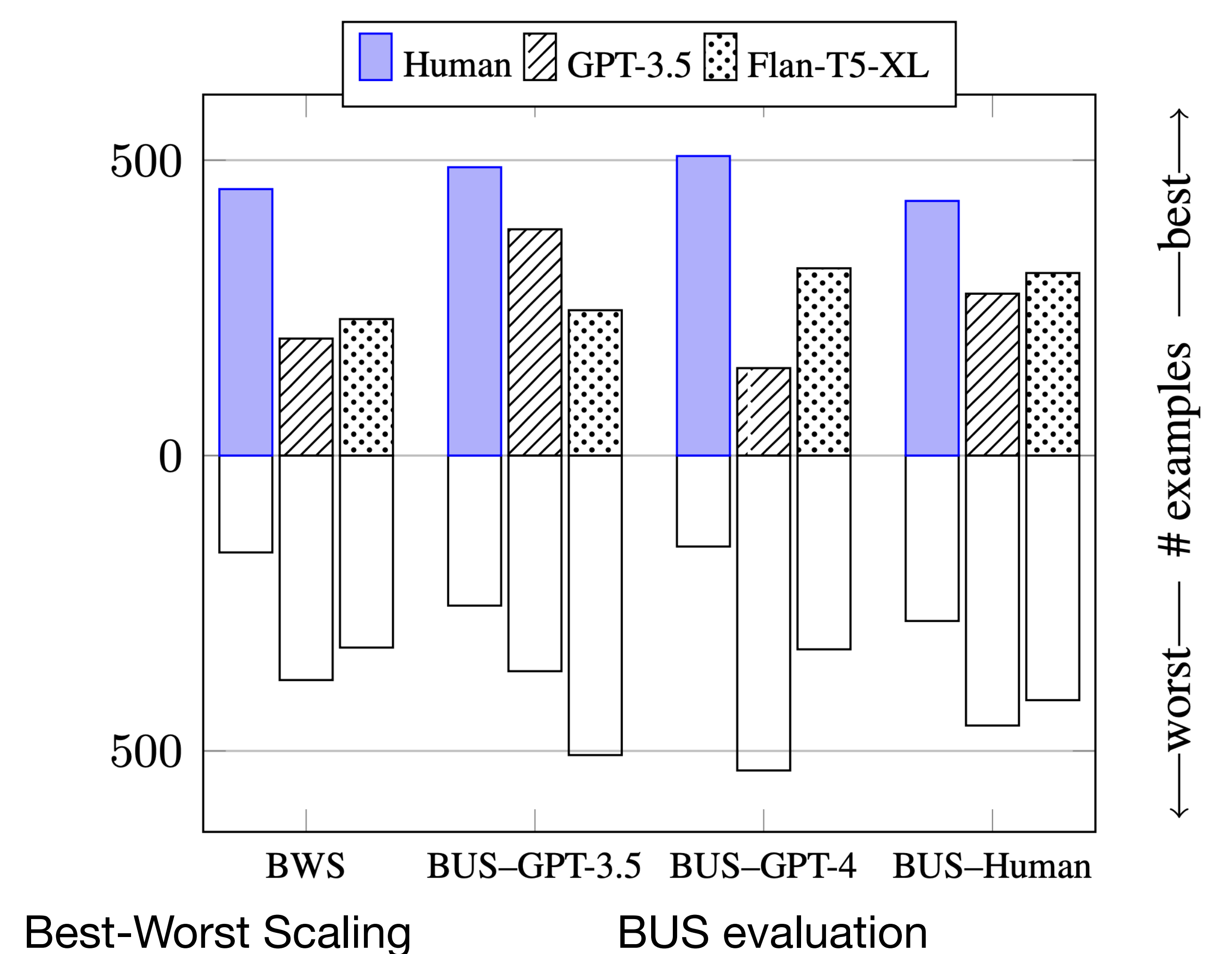
✓ ✓ ✓

What was the evidence presented against Dr. Murray?

✗ ✗ ✓

## Experiments

	ROUGE-1	ROUGE-2	ROUGE-L	QuestEval	BERTScore Precision
Generic summarization					
Flan-T5-XL	41.4	17.4	37.6	25.0	85.6
GPT-3.5 (zero-shot)	37.7	11.7	33.0	30.5	87.2
Query (current update) focused					
Flan-T5-XL	41.3	17.4	37.6	24.9	85.6
GPT-3.5 (zero-shot)	40.5	12.9	35.9	31.7	87.5



## Key Takeaways

- A new summarization benchmark
- Proposed utility based measure correlates well with human evaluation
- Zero-shot GPT-3.5 backgrounds are competitive to fine-tuned systems

## Future Directions

- Personalized backgrounds for news readers
- Utilize news articles and short-form content as event sources

