Using large language models to summarize student feedback

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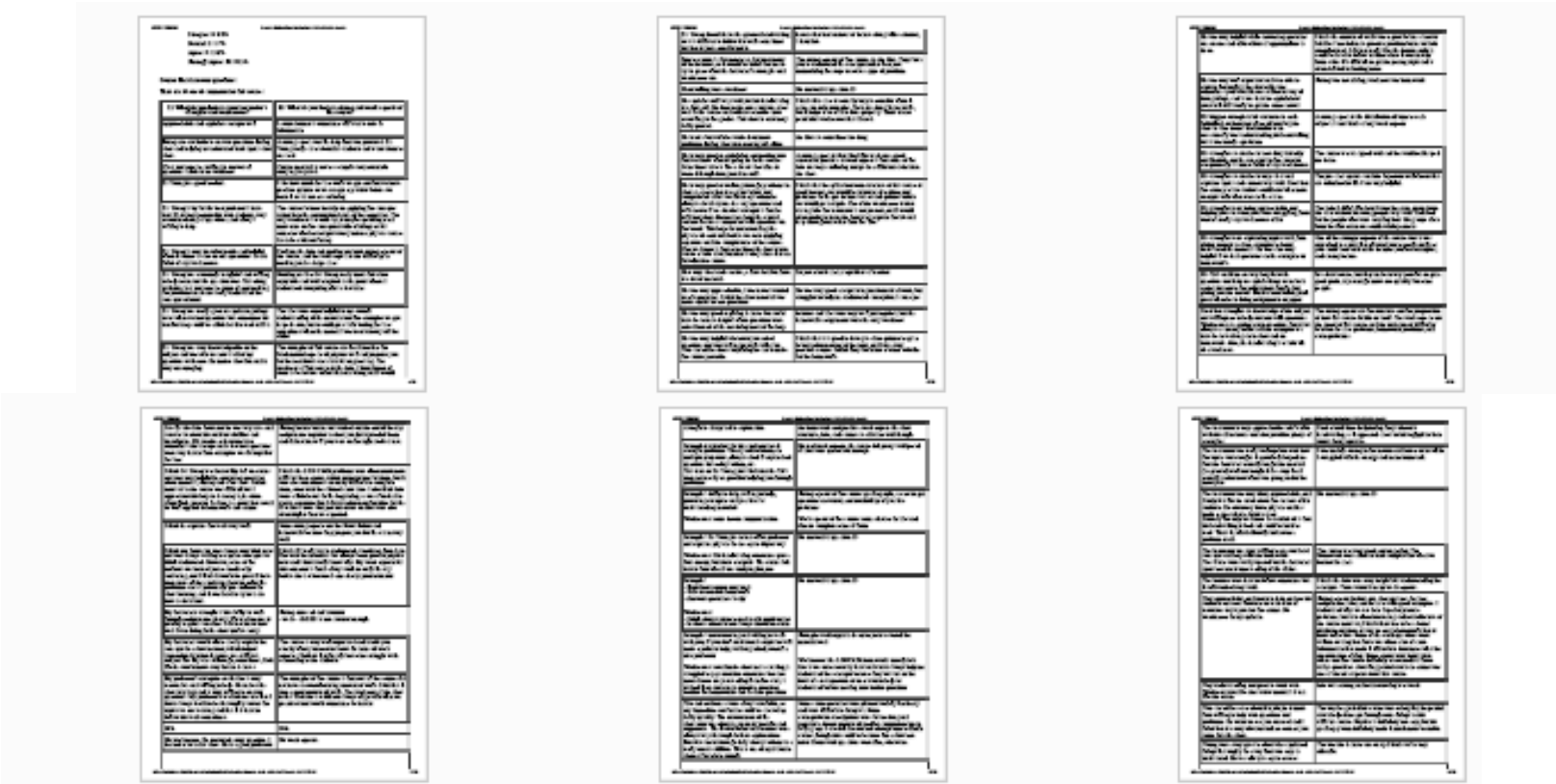
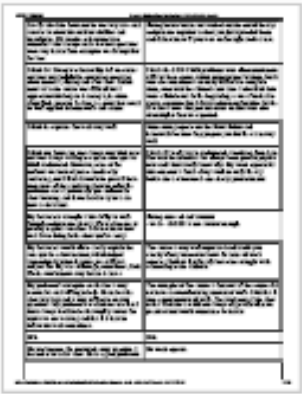
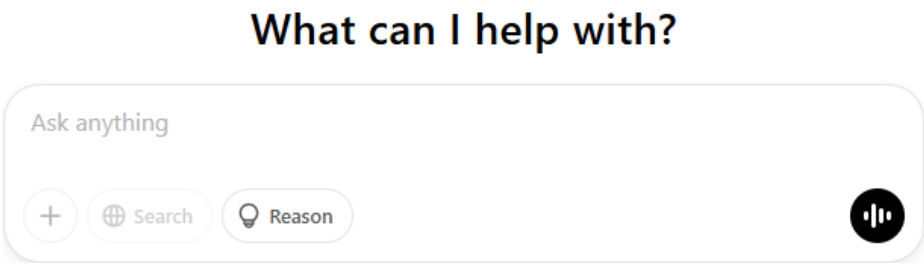


Chatbots can summarize text and could be a useful tool to quickly understanding student feedback





Pu et al 2023; Parker et al 2024

What's the problem then?

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- Unstructured text

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- Sample size

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- Unstructured text
- Sample size
- Hallucinations

Xu et al 2025

Determine how well LLMs can extract key insights from student feedback

Data

- Student responses to two-questions on end of course feedback survey
  1. *What do you feel are your instructor's strengths and weaknesses?*
  2. *What do you feel are the strong and weak aspects of the course?*
- 9 courses taught by 3 unique instructors

Methodology

- 5 instructors read each set of student feedback and create a summary
- Same feedback files shared with 4 AI tools
  - LLMs have inherent randomness so did 5 trials with each model

Methodology

- Prompt: "For responses to open-ended questions, the goal is to focus on the useful information and identify trends or themes that appear. Note the frequency of themes, areas of agreement and disagreement among students, and suggestions students have for changes you might make. Please ignore the comments that are nonspecific. For the remaining comments, please sort them into three categories: positive, actionable suggestions, and nonactionable suggestions before identifying trends or themes"

https://ctl.uga.edu/teaching-resources/feedback-and-evaluation-of-teaching/interpreting-responding-to-student-evaluations-of-teaching/

Analysis

- Majority voting (3 of 5) to be included in final summary for each tool and 3 of 5 instructors

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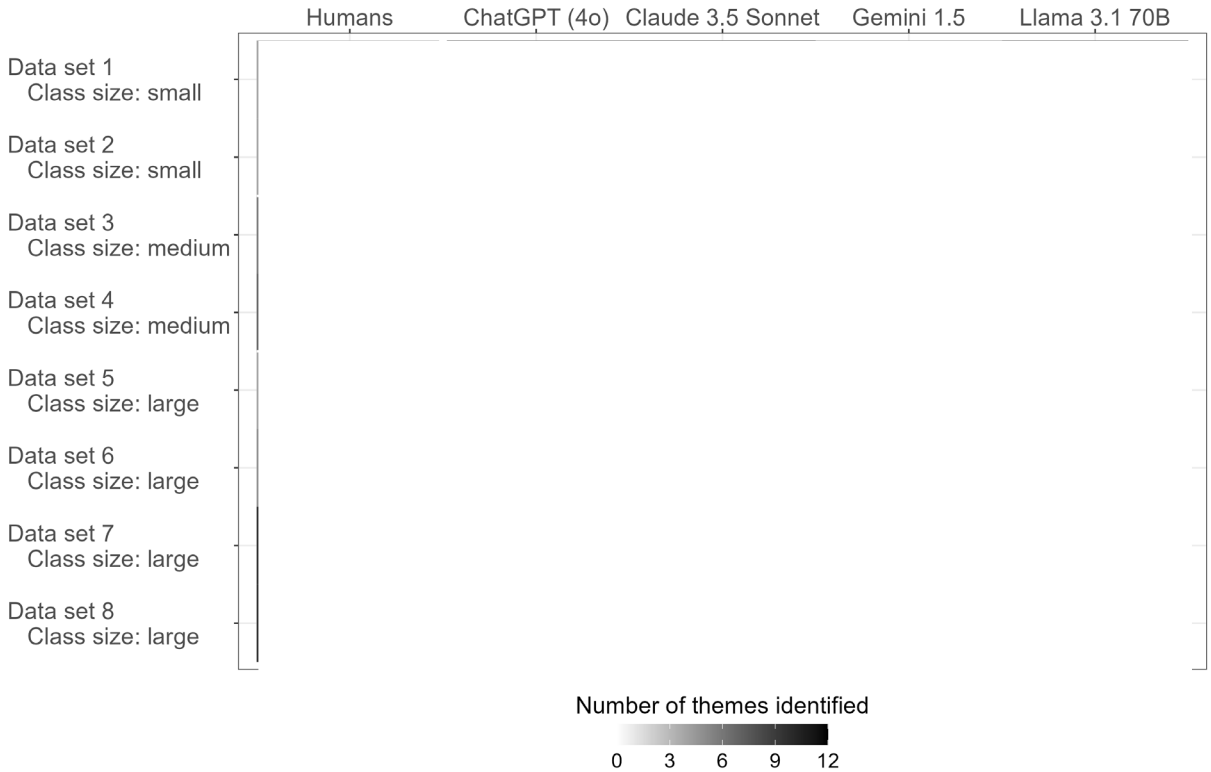
- Results preliminary, about halfway through data

Results: themes identified by group



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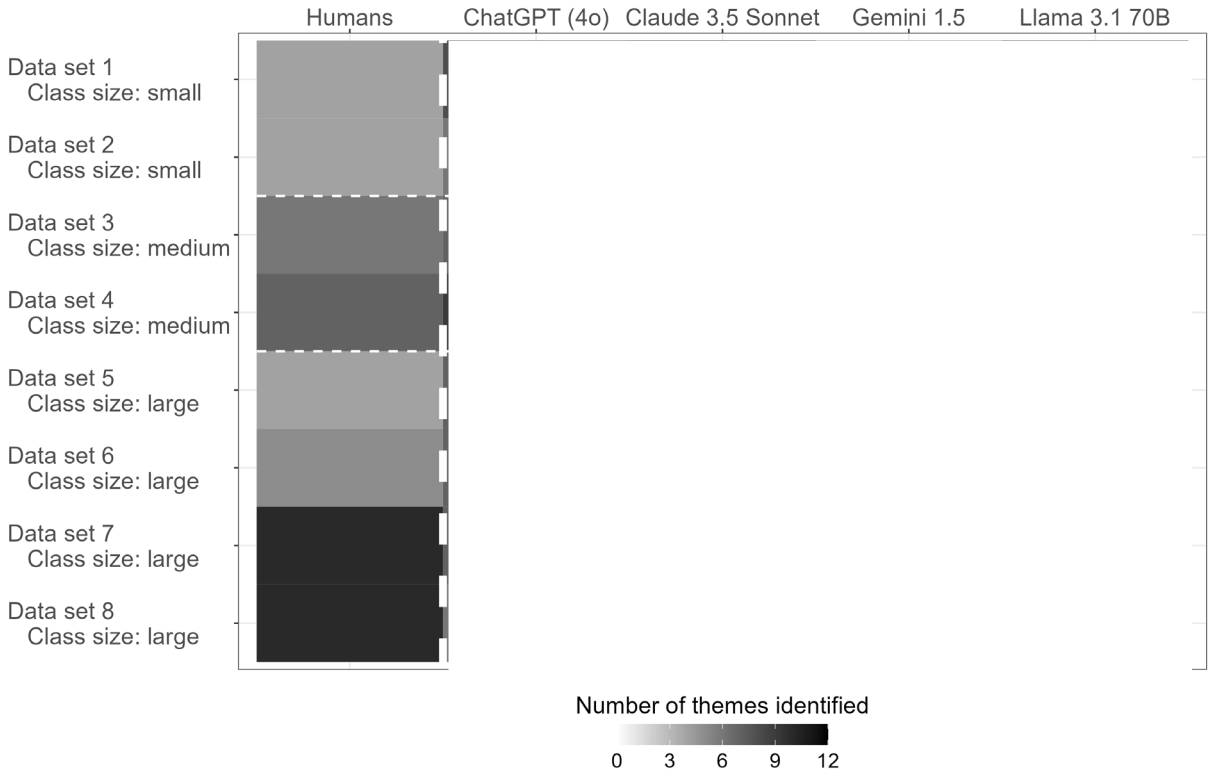
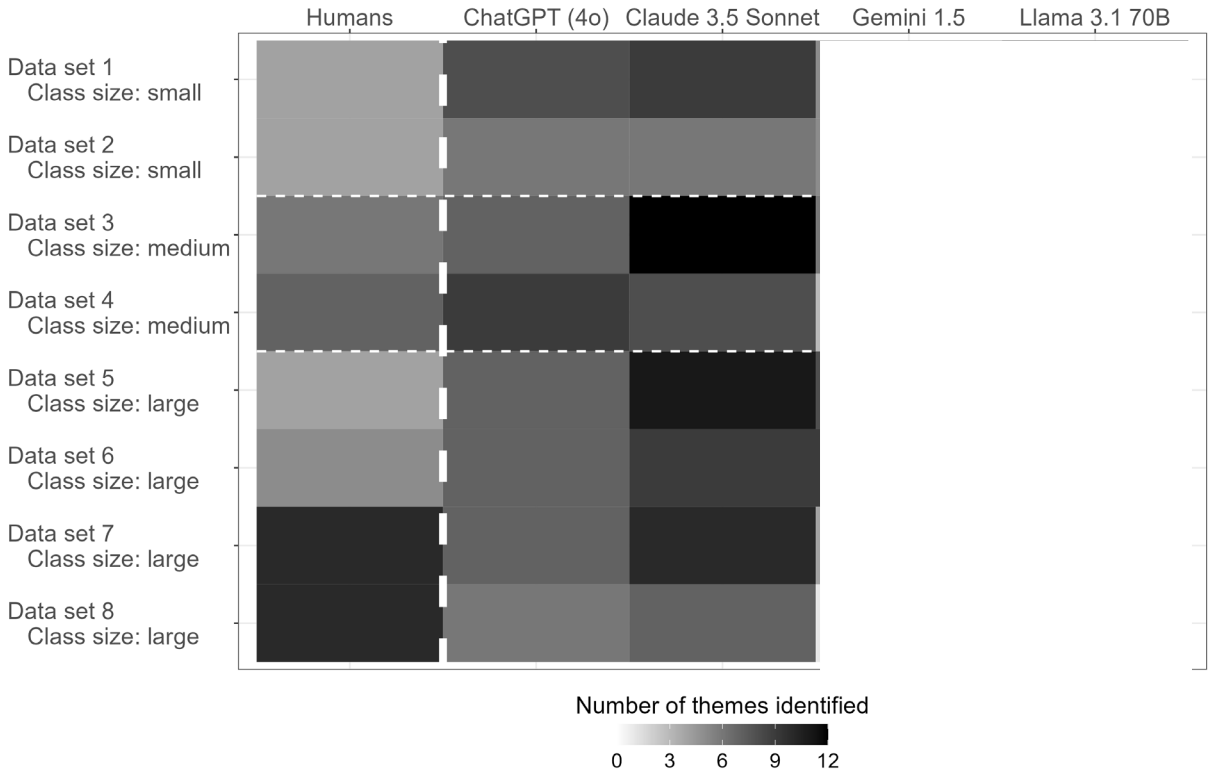
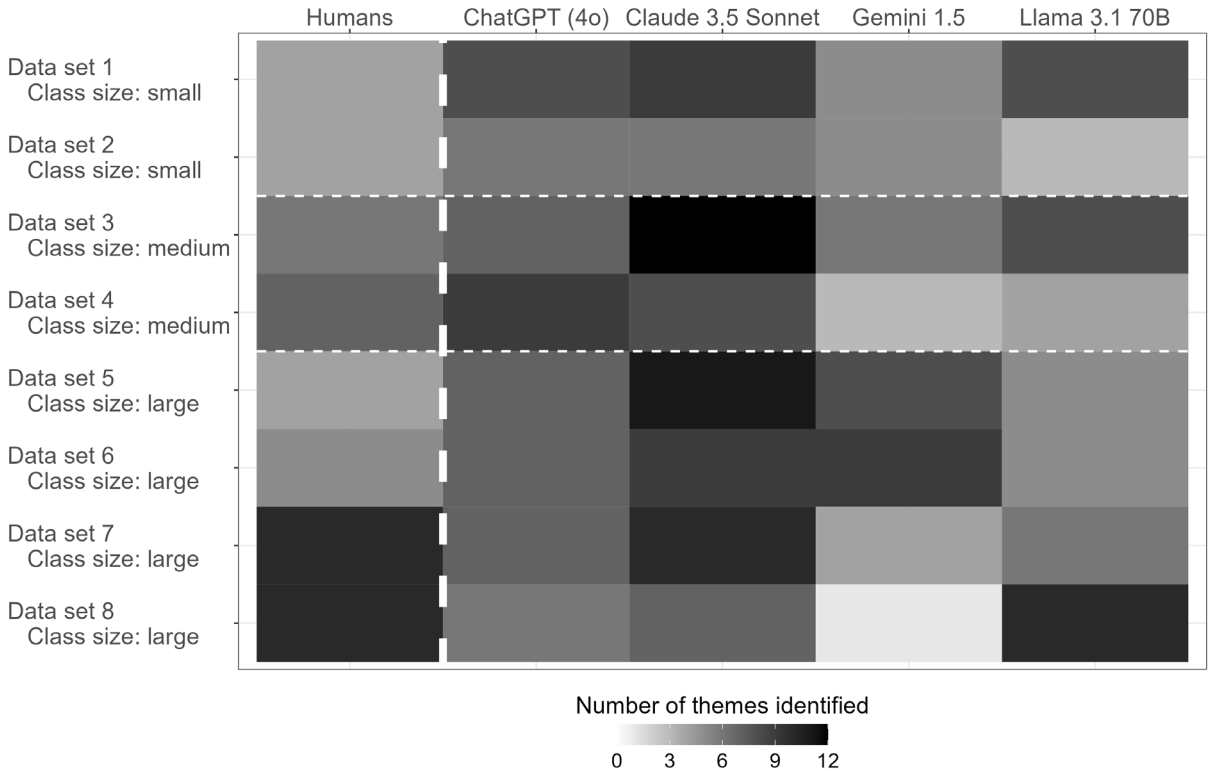


Results: ChatGPT and Claude identify more themes than instructors do

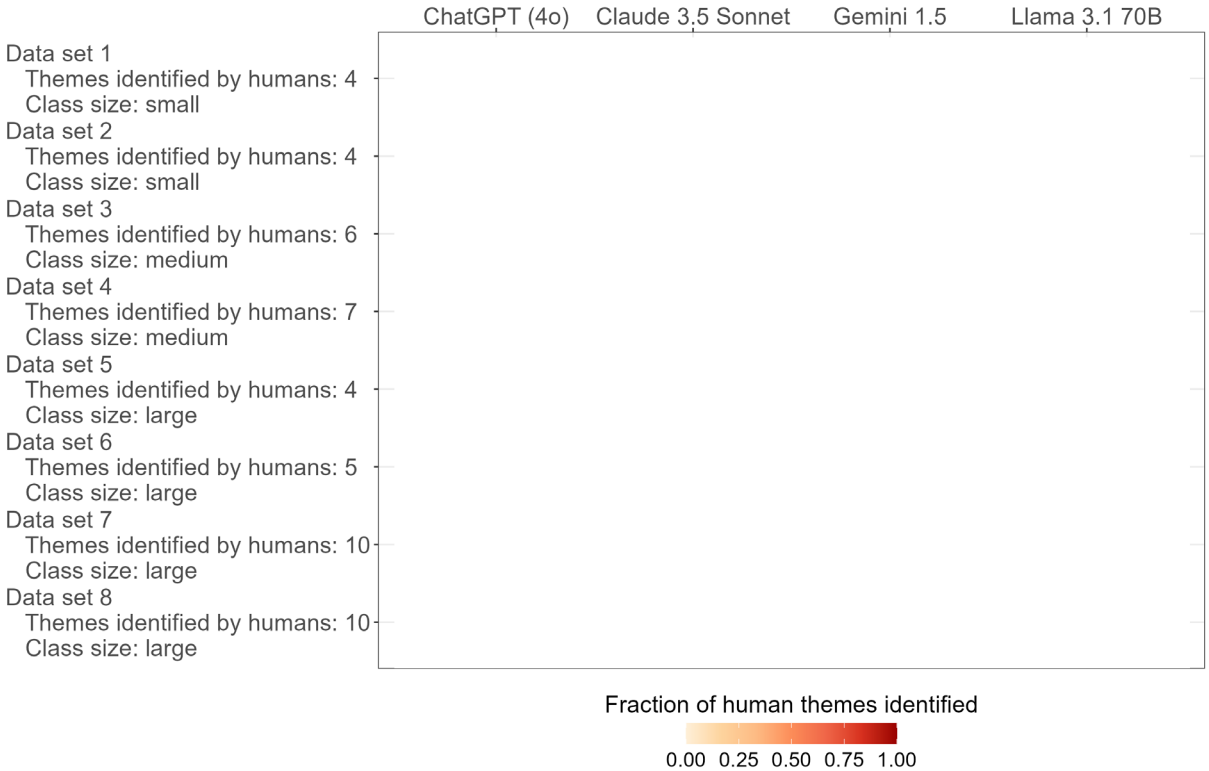


Results: Gemini and Llama identify fewer themes than instructors do

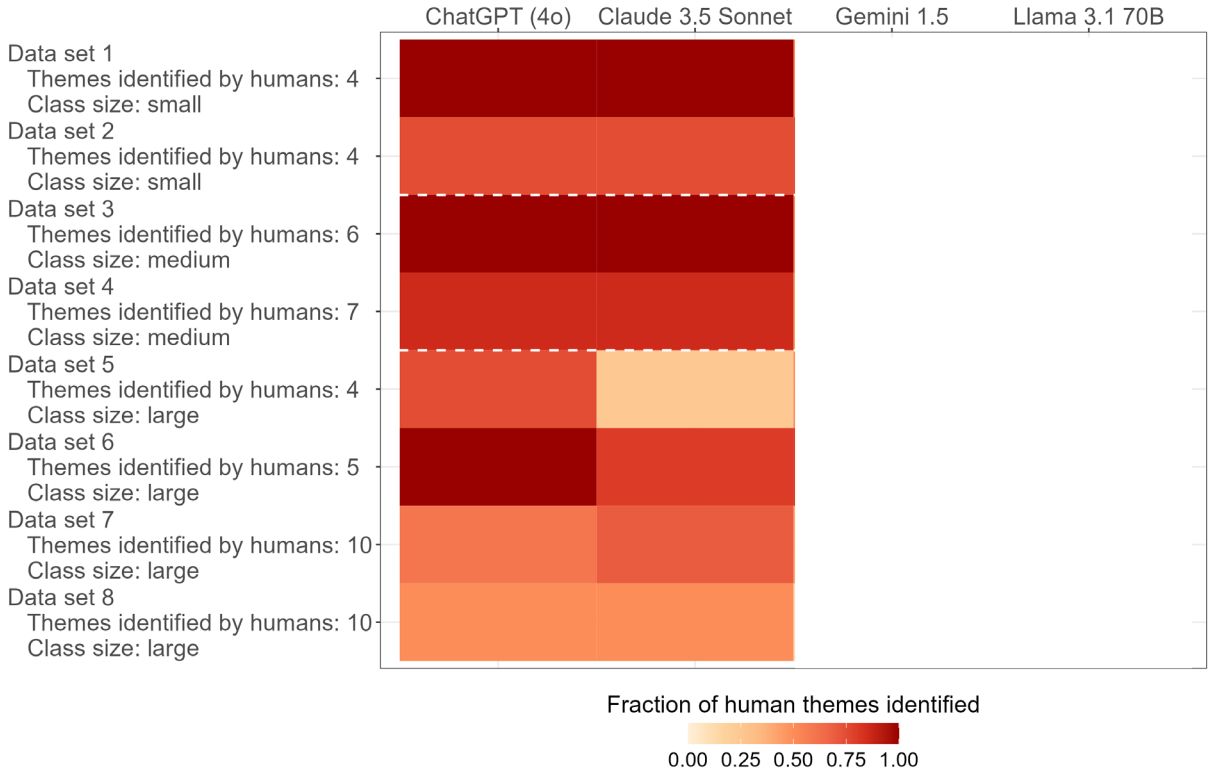


How do the LLMs do in comparison to the instructors?

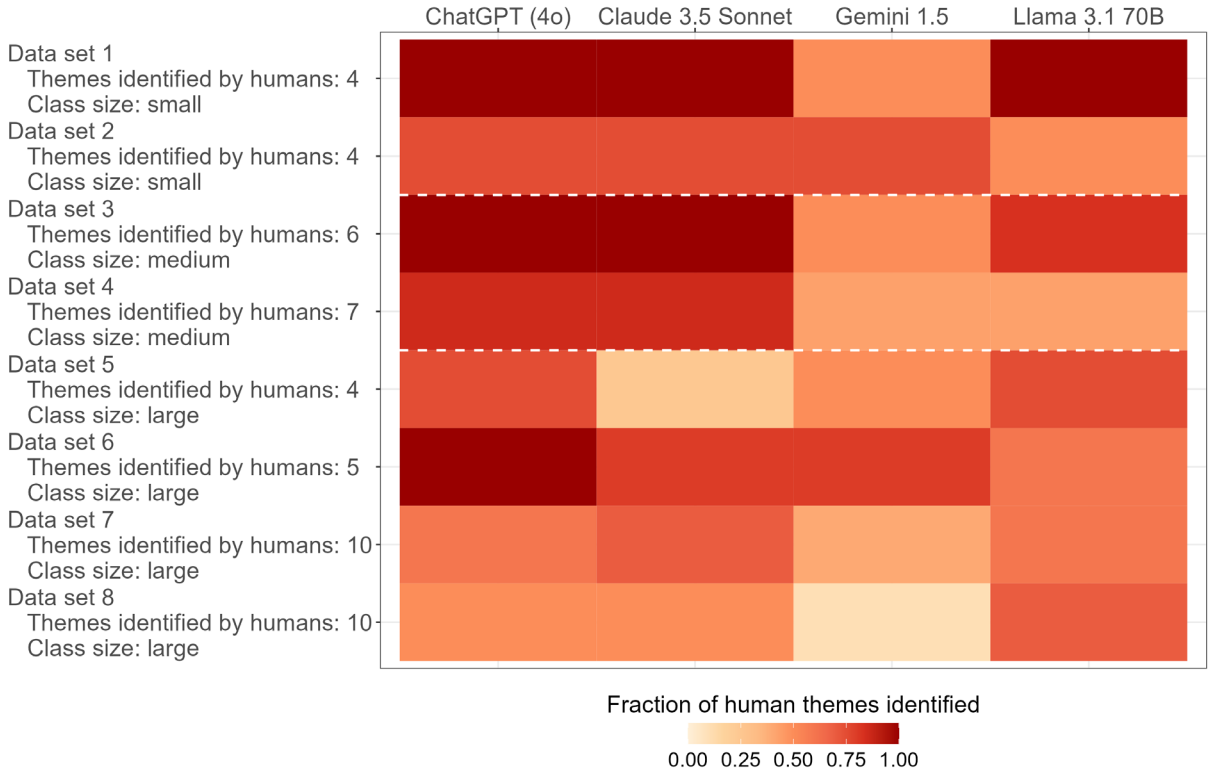
Results


ChatGPT (4o)
Claude 3.5 Sonnet
Gemini 1.5
Llama 3.1 70B
Data set 1
Themes identified by humans: 4
Class size: small
Data set 2
Themes identified by humans: 4
Class size: small
Data set 3
Themes identified by humans: 6
Class size: medium
Data set 4
Themes identified by humans: 7
Class size: medium
Data set 5
Themes identified by humans: 4
Class size: large
Data set 6
Themes identified by humans: 5
Class size: large
Data set 7
Themes identified by humans: 10
Class size: large
Data set 8
Themes identified by humans: 10
Class size: large
Fraction of human themes identified
0.00 0.25 0.50 0.75 1.00

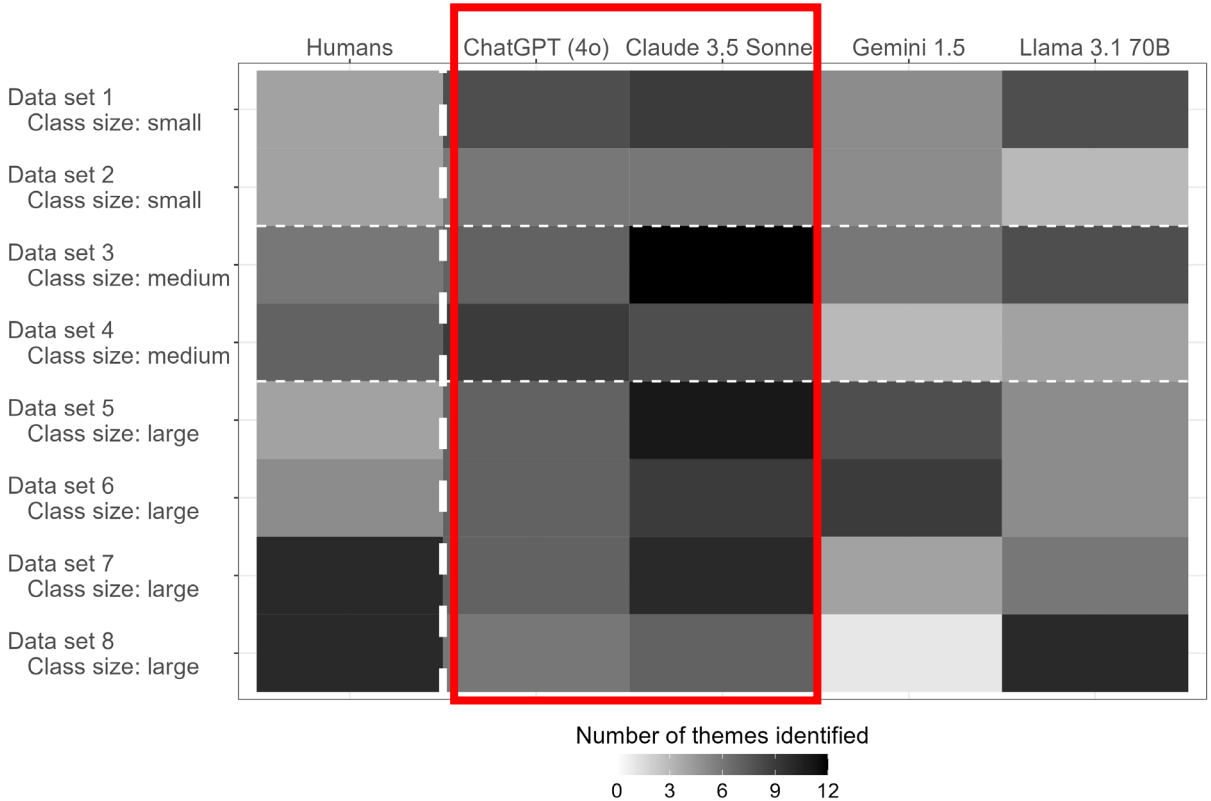
Results: ChatGPT and Claude generally detect most themes



Results: Gemini and Llama tend to miss many of the human themes



What about the themes not identified by humans?



Are the extra themes hallucinations?

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- Probably not
  - Likely result of only 1 or 2 instructors identifying theme

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Questions?

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