

Exploring the Use of LLMs for Agent Planning Strengths and Weaknesses



UNIVERSITÀ
DI TRENTO

DAVIDE MODOLO

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Supervisor PAOLO GIORGINI

Large Language Models' Capabilities

TEXT

MATH

PLAN

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1 Chain-of-thought prompting elicits reasoning in large language models – Wei et al., 2022

2 PDDL planning with pretrained large language models – Silver et al., 2022

LLM-based Planning

CoT

Few-Shots

1 Chain-of-thought prompting elicits reasoning in large language models – Wei et al., 2022

2 PDDL planning with pretrained large language models – Silver et al., 2022

But what happens if we strip strip
anything prior away?

Can an LLM, without additional training or
frameworks, effectively plan and navigate in an
unknown environment?

How well can LLMs make sequential
decisions unknown environments?

IDEA

LLM

Agent

Environment

Deliveroo.js

KnowNo Uncertainty

Prompt

Environment description:
Put the empty glass on the coffee table

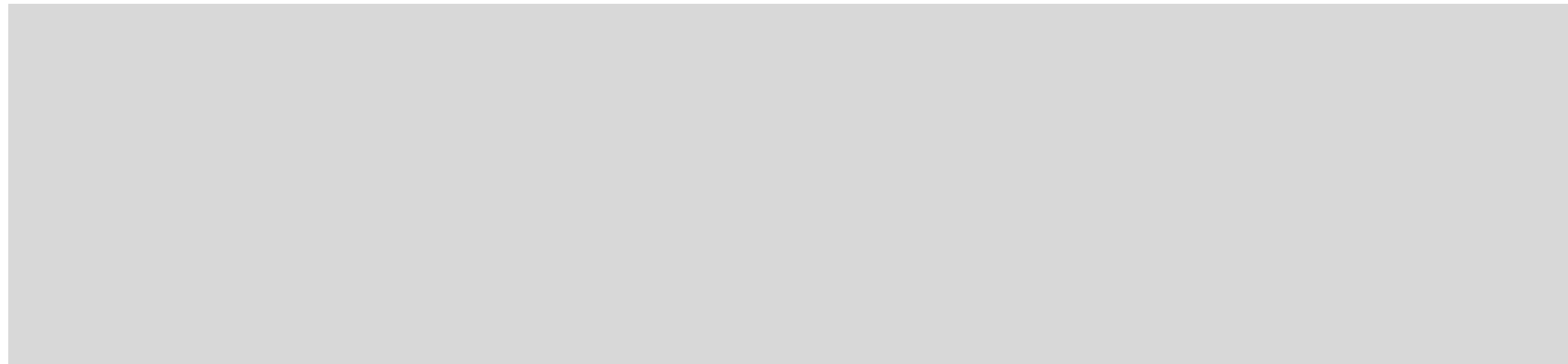
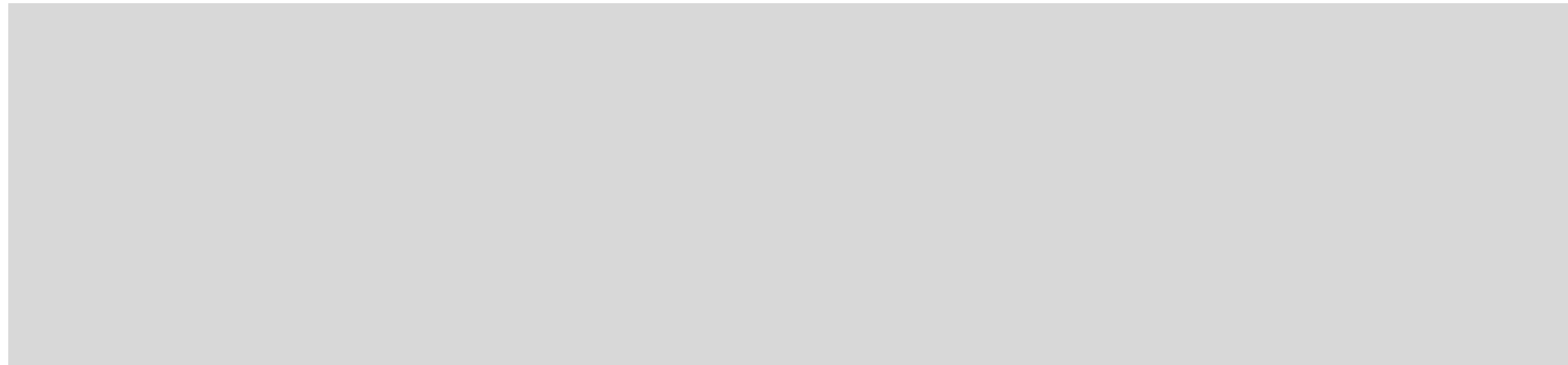
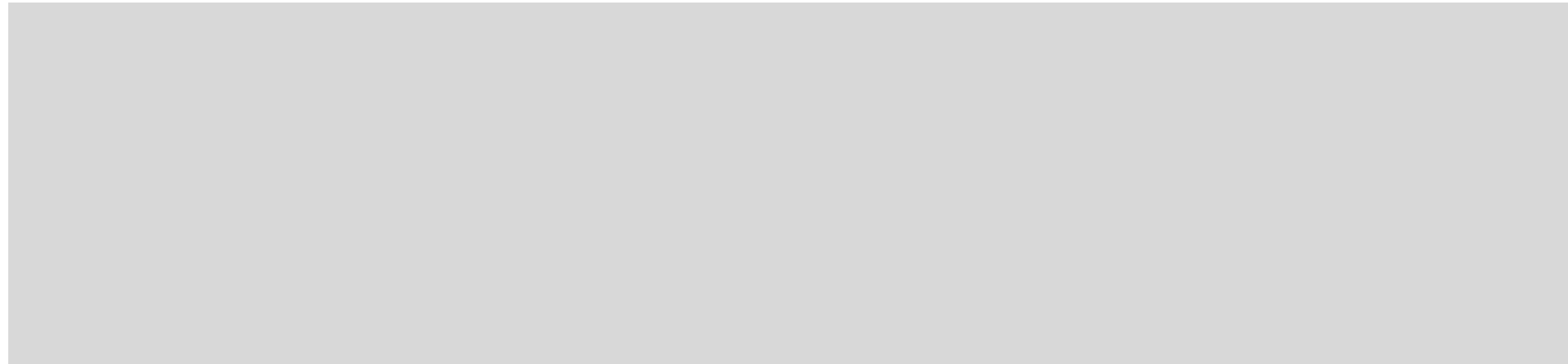
- A) take the empty glass and put it under the table*
- B) take the empty glass and put it on the table*
- C) take the empty glass and put it behind the table*
- D) take the empty glass and put it in the bin*
- E) none of the above*

Bias towards A, B, C, D, E with logit_bias parameter in API

LogProbs

"A"	->	-0.01
"B"	->	-11.1
"C"	->	-0.1
"D"	->	-5.3
"E"	->	-4.0

Prompting Strategy



Model

System Recap

HeatMap Creation #1

HeatMap Creation #2

Testing Strategy

Our Findings