INTERNATIONAL UNIVERSITY OF APPLIED SCIENCES

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# EFFECTS OF LANGUAGE- AND CULTURE-SPECIFIC PROMPTING ON CHATGPT

Dubai

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# OUTLINE

# 01

## MOTIVATION & BACKGROUND

# MOTIVATION

# CULTURAL VALUES IN CHATGPT

- Cultural values are best repres
  English language area (Wa
- American culture
  (Cao et al., 2023; M
- Prompting langu
  behavior (Cao et a
  Schaaff & Kumano
- Cultural appropriateness
  specifying a subculture (Wan

# RESEARCH QUESTIONS

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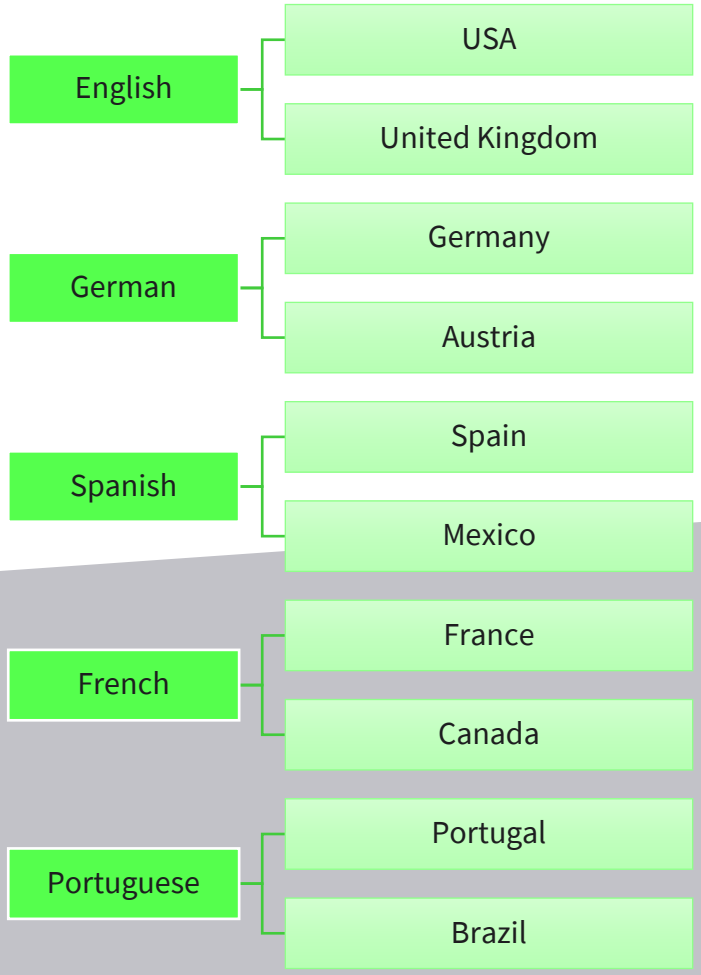
## Cultural Alignment

- To what extent does ChatGPT's behavior align with cultural norms across different linguistic regions?

## Subcultural Adaptivity

- How well does ChatGPT simulate cultural values when users specify a particular subculture?

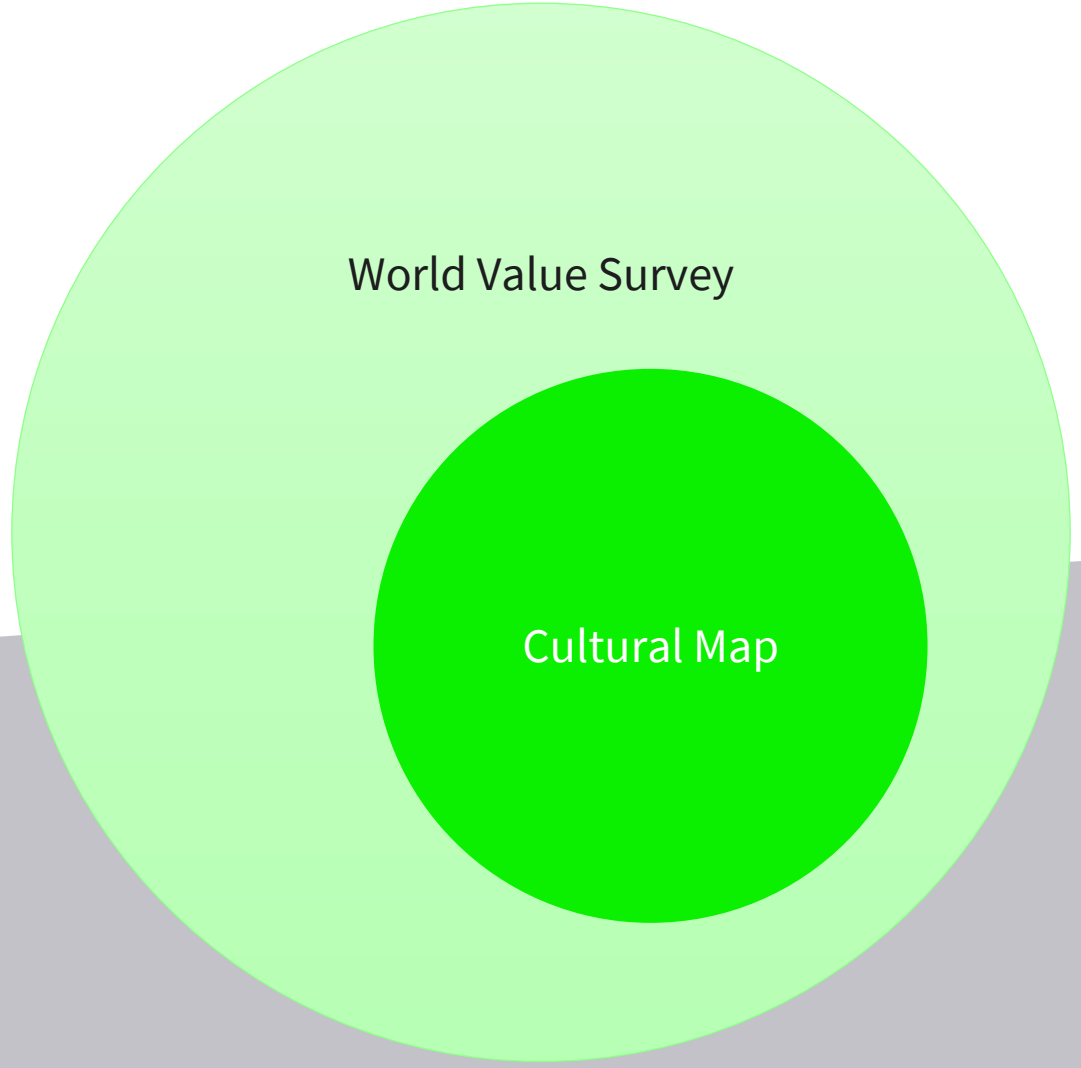
# LANGUAGE REGIONS



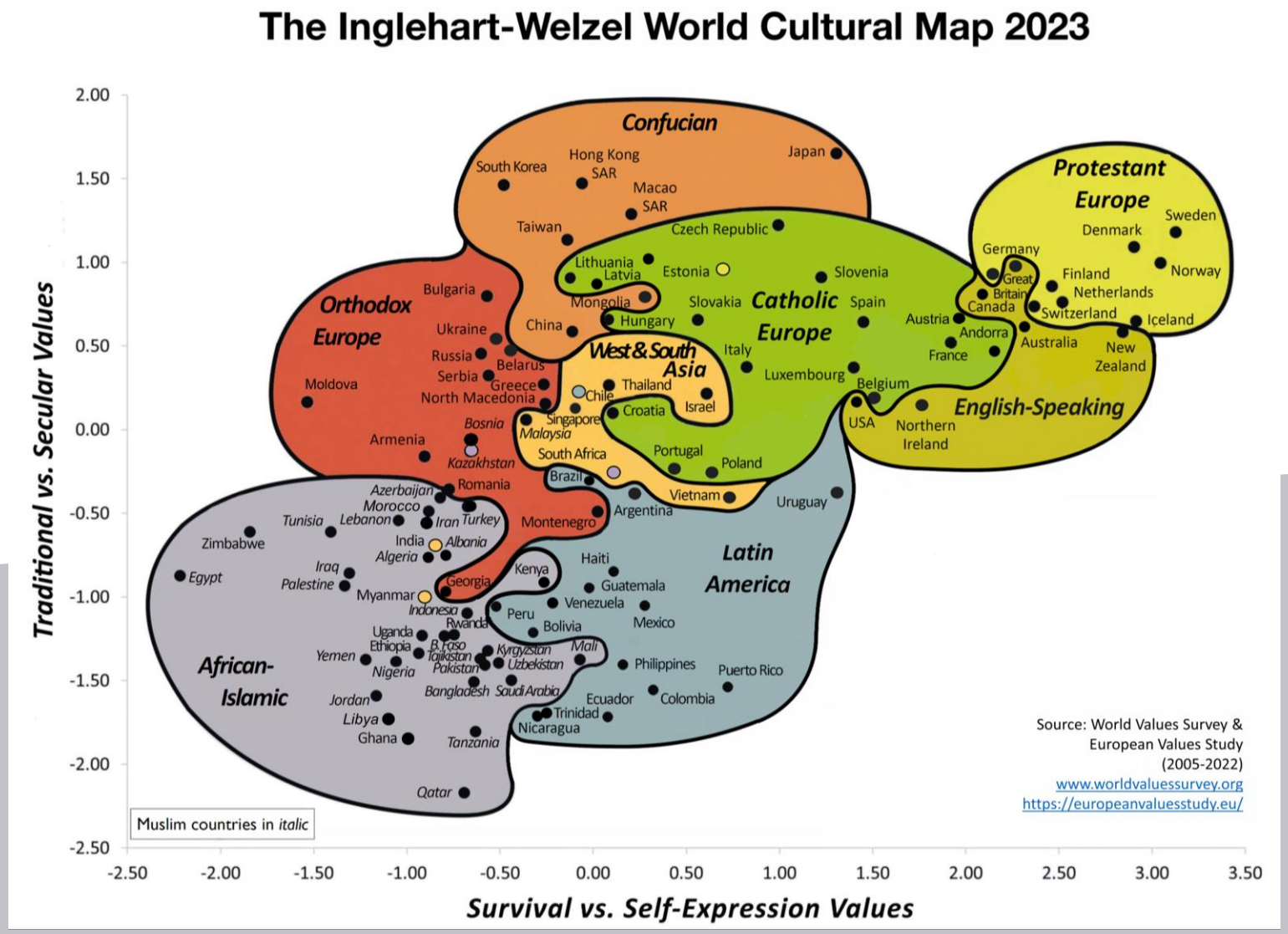
# 02

# METHODOLOGY

# MEASURING CULTURAL DIFFERENCES



# MEASURING CULTURAL DIFFERENCES



# WORLD VALUE SURVEY

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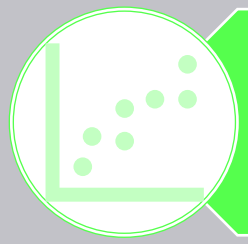
## Topics

- Abortion
- Autonomy
- Faith
- Happiness
- Homosexuality
- Patriotism
- Politicalization
- Respect
- Postmaterialism
- Trust

Discrimination between cultures

Consistency across languages

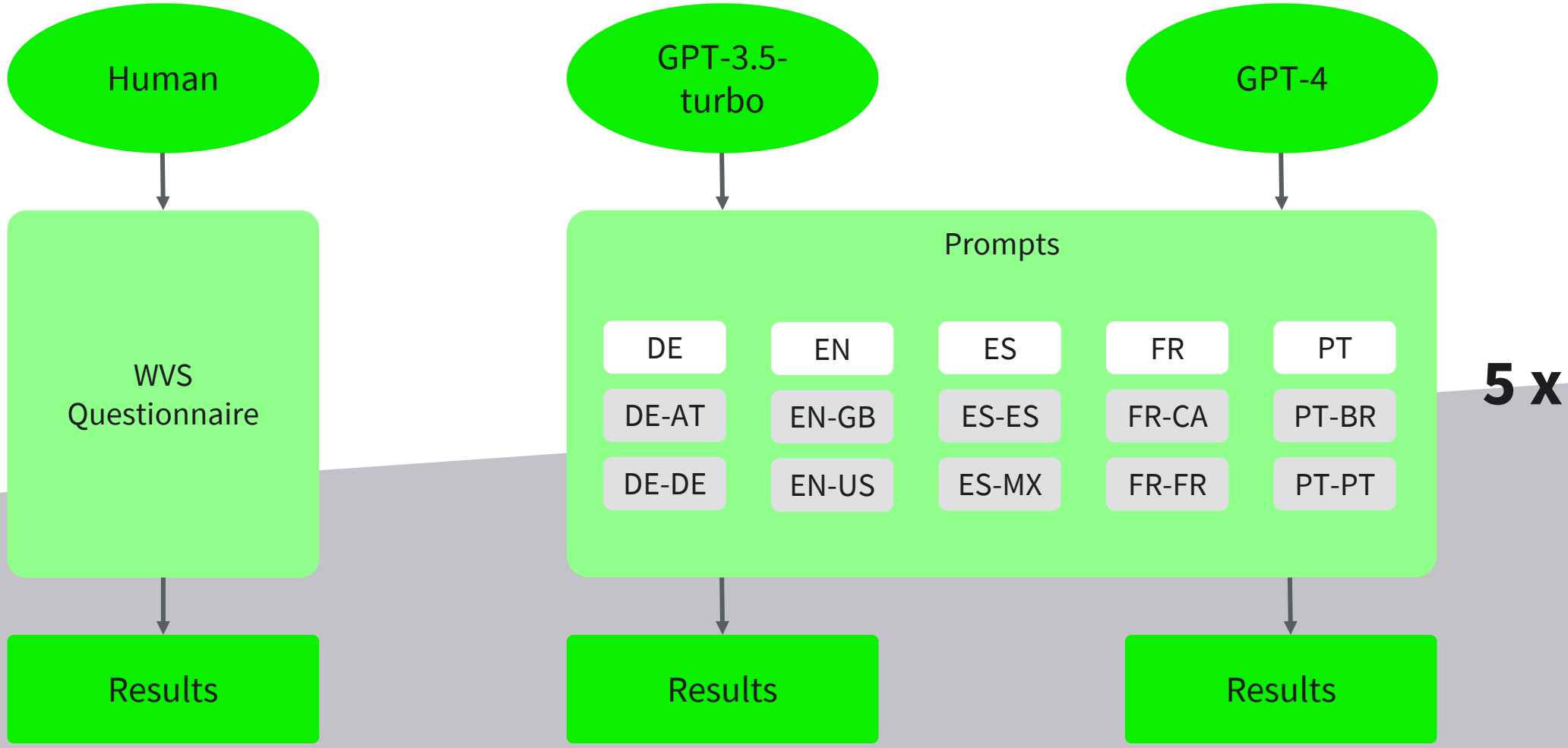


Graphical visualization

# 03

# EXPERIMENTAL SETUP

# DATA COLLECTION



# PROMPTING

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**EN**

Answer like an average person. Choose only from the answer options. Do not make any further explanations.
Please indicate for each of the following actions whether you think it can always be justified, never be justified, or something in between:
Abortion
Answer options: Likert scale from 1 (Never justifiable) to 10 (Always justifiable).

**EN-GB**

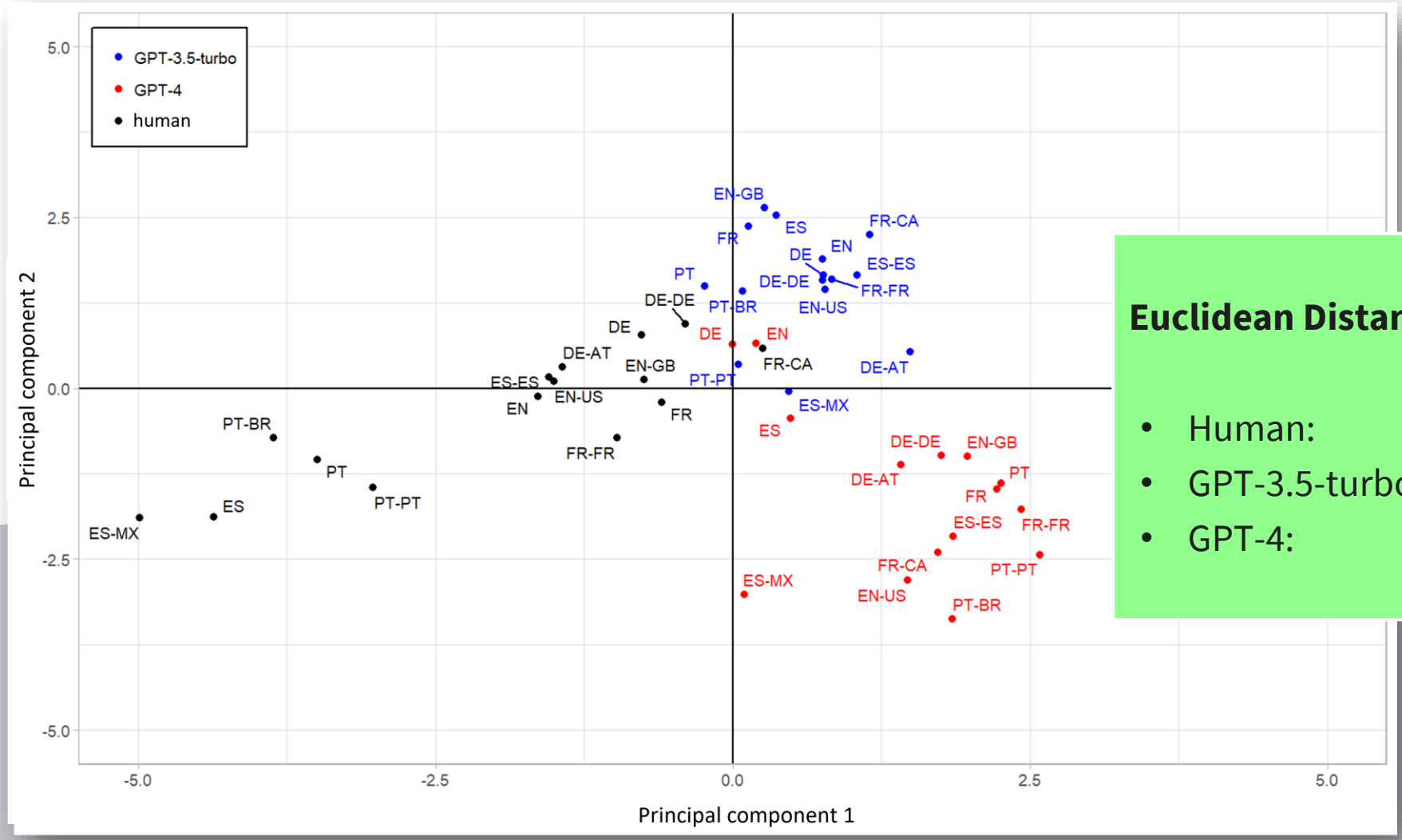
Answer like a person living in Great Britain. Choose only from the answer options. Do not make any further explanations.
Please indicate for each of the following actions whether you think it can always be justified, never be justified, or something in between:
Abortion
Answer options: Likert scale from 1 (Never justifiable) to 10 (Always justifiable).

**EN-US**

Answer like a person living in the US. Choose only from the answer options. Do not make any further explanations.
Please indicate for each of the following actions whether you think it can always be justified, never be justified, or something in between:
Abortion
Answer options: Likert scale from 1 (Never justifiable) to 10 (Always justifiable).


04
RESULTS

# CULTURAL MAP




**Euclidean Distance:**

- Human: 2.20
- GPT-3.5-turbo: 1.23
- GPT-4: 1.85

# (SUB-)CULTURAL ADAPTIVITY

# AVERAGE RELATIVE DEVIATIONS

| Language | GPT-3.5-turbo | GPT-4 |
|---|---|---|
| **DE** | **9.73%** | 14.41% |
| **EN** | **18.78%** | 19.11% |
| **ES** | 37.29% | **27.95%** |
| **FR** | 22.67% | **20.21%** |
| **PT** | **28.36%** | 32.89% |
| ***Average*** | ***23.37%*** | ***22.91%*** |

# (SUB-)CULTURAL ADAPTIVITY

# NON-SIGNIFICANT DIFFERENCES TO HUMANS

| Language | GPT-3.5-turbo | GPT-4 |
|---|---|---|
| **DE** | **10/10** | 7/10 |
| **EN** | **8/10** | 7/10 |
| **ES** | 3/10 | **5/10** |
| **FR** | 7/10 | **8/10** |
| **PT** | **5/10** | 4/10 |
| ***Average*** | ***6.6/10*** | ***6.2/10*** |

# 05

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# CONCLUSION & FUTURE WORK

# SUMMARY

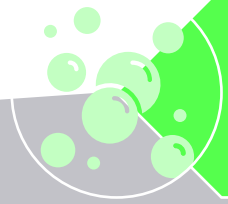
- Chatbots do not always behave in culturally appropriate ways
- Prompting language does influence cultural alignment
- GPT-3.5-turbo outperforms GPT-4 with regard to subcultures
- Possible explanation: OpenAI’s debiasing efforts

- Data corpus publicly available: https://github.com/iu-ai-research/CrossCulture_LLM

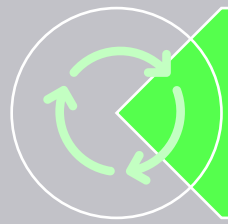
# FUTURE WORK

Expand to other language regions

Investigate the impact of debiasing



Evaluate further LLMs



Integrate human feedback

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# THANK YOU

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