

885 7 APPENDIX

886 7.1 Study design

888 The users have time to read the randomly selected chat history out of 240 previously selected conversations. Each chat
 889 history was previously classified, and 10 samples were saved corresponding to each fine-granular intent categories, to
 890 provide diverse answers across the categories. The ‘Next page’ button was only enabled once the GPT answer and the
 891 class prediction in the backend was finished (Fig 4).

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Please continue the converstaion:

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Your previous Question:

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How could a sociology of the algorithmic art of governing look like?

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ChatGPT's answer:

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A sociology of the algorithmic art of governing could explore the ways in which algorithms and data are used to make decisions about people and systems, and the impacts that these decisions have on society. This could include examining how algorithms are designed and used to govern various aspects of society, such as criminal justice, healthcare, education, and employment. It could also examine the social and political implications of the use of algorithms to govern, including issues of transparency, accountability, and bias. Other topics that could be explored within this field include the role of power dynamics in the creation and use of algorithms, the ethical considerations involved in algorithmic governance, and the ways in which people and groups are affected by and resist algorithmic governance.

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Your next question (press ‘Enter’ to send your question):

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Please type in a question before proceeding!

912

Please explore ethical considerations further

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ChatGPT's answer:

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Please wait until ChatGPT's answer appears!

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Processing...

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Fig. 4. Example of the first part of the study

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929 In the next page, the participants were asked whether they agree with the predicted intent (Fig 5). Their previous
 930 prompt and a summary table about the fine-grained intent categories were provided to them. If they chose the radio
 931 button ‘Yes, I agree.’ they were directed to the next page with a new chat history. In case they did not agree with the
 932 predicted intent category, they were directed to a page, where they could select a more suitable intent with the help of
 933 radio buttons. Only one intent category could be selected (Fig 6).

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938 Do you agree that your intent in this conversation ("Please explore ethical

939 considerations further") fits into the category:

940 22. Moral and Ethical Queries

941 Yes, I agree.

942 No, I do not agree.

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Intent Type	Fine-granular Intent
Informational Intent	1. Factual Queries: Requests for specific facts or data 2. Explanatory Inquiries: Explanations or clarifications about concepts, events, phenomena 3. Tutorial Requests: Step-by-step instructions or guidance
Problem-Solving Intent	4. Troubleshooting Assistance: Diagnose and resolve issues or problems 5. Decision Support: Assistance in decision-making through insights, comparisons, evaluations 6. Planning and Organization: Aid in planning events, organizing tasks, or managing projects

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Fig. 5. Example of intent prediction. For the participants, the complete fine-grained intent categories were provided.

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962 If you did not agree with the category, please give a better fit (choose the correct class):

963 **Informational Intent**

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965 1. Factual Queries: Requests for specific facts or data

966 2. Explanatory Inquiries: Explanations or clarifications about concepts, events, phenomena

967 3. Tutorial Requests: Step-by-step instructions or guidance

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969

970 **Problem-Solving Intent**

971 4. Troubleshooting Assistance: Diagnose and resolve issues or problems

972

973 5. Decision Support: Assistance in decision-making through insights, comparisons, evaluations

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975 6. Planning and Organization: Aid in planning events, organizing tasks, or managing projects

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978 **Creative Intent**

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Fig. 6. Example of intent correction, if the participants did not agree with the predicted intent. The complete list of fine-grained intent was provided.

980 After 10 different chat histories were shown and the intent classification was completed, the participants had a
 981 chance to chose between the original and re-prompted GPT answers (Fig 7).

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989 * Which answer to your previous question "Please explore ethical considerations
990 further" do you prefer?
 991 Please wait until BOTH answers appear!
 992 ChatGPT's answer:
Answer A
 993 Exploring the ethical considerations of algorithmic governance is paramount, as it involves
 994 moral responsibilities and decisions that significantly affect individuals and communities.
 995 Ethical considerations include the following aspects: 1. **Fairness and Bias:** Algorithms
 996 can perpetuate and amplify existing social biases if they are trained on biased data sets.
 997 Ensuring fairness involves scrutinizing the data and the decision-making processes to
 998 prevent discrimination against any individual or group. 2. **Transparency:** The "black
 999 box" nature of many algorithms can obscure how decisions are made. Ethical governance
 1000 demands that the decision-making process be transparent enough for stakeholders to
 1001 understand and trust the outcomes. 3. **Accountability:** When algorithms make incorrect
 1002 or harmful decisions, it is crucial to have mechanisms in place to hold the responsible
 1003 parties accountable. This includes developers, operators, and organizations that deploy
 1004 these algorithms. 4. **Privacy:** Algorithms often require personal data to function.
 1005 Protecting this data and respecting individuals' privacy is a fundamental ethical obligation.
 1006 This involves considering the extent and type of data collected and ensuring it is used
 1007 responsibly. 5. **Autonomy:** Algorithmic decisions can influence or even dictate human
 1008 behavior. Respecting individual autonomy means being cautious about how algorithms
 1009 might unduly influence or constrain human choices. 6. **Informed Consent:** When
 1010 personal data is used, individuals should have a clear understanding of how their
 1011 information will be employed and should consent to its use freely and with full knowledge
 1012 of the implications. 7. **Justice:** The impact of algorithmic governance should be
 1013 equitable, and not disproportionately benefit or harm any particular group. This includes
 1014 considering the long-term societal impacts and striving for outcomes that promote social
 1015 justice. 8. **Impact on Society and Culture:** Algorithms can shape cultural norms and
 1016 social interactions. Ethical considerations should include the ways these technologies
 1017 might change society and whether these changes align with societal values and goals. In
 1018 conclusion, the ethical considerations in algorithmic governance are multifaceted and
 1019 deeply interconnected with the principles of social justice, respect for human rights, and
 1020 the democratic process. A thoughtful examination of these considerations is necessary to
 1021 guide the development, deployment, and regulation of algorithms, ensuring that they serve
 1022 the public good and enhance, rather than undermine, the fabric of society.
 1023
Answer B
 1024 Ethical considerations in the algorithmic art of governing are multifaceted and revolve
 1025 around several key issues: 1. Consent and Privacy: As algorithms often process personal
 1026 data to make decisions, it's crucial to consider the extent to which individuals have
 1027 consented to their data being used in this way. Ethical governance must address the
 1028 balance between the benefits of data-driven decisions and the right to privacy. 2.
 1029 Transparency and Explainability: Algorithms can be complex and opaque, making it
 1030 difficult for people to understand how decisions are made. There's an ethical imperative
 1031 for transparency so that individuals can comprehend the basis of decisions that affect
 1032 them and challenge them if necessary. 3. Accountability: When algorithms make mistakes
 1033 or cause harm, it's important to have clear lines of accountability. Ethical considerations
 1034 include determining who is responsible for the outcomes of an algorithmic decision—the
 1035 designers, the implementers, or the algorithms themselves—and how they can be held to
 1036 account. 4. Bias and Discrimination: Algorithms can perpetuate and amplify social biases if
 1037 they're trained on biased data sets. Ethical governance requires active measures to
 1038 prevent discrimination and ensure that algorithmic decisions are fair and equitable to all
 1039 social groups. 5. Autonomy and Human Dignity: Algorithms should be designed in ways
 1040 that respect human dignity and autonomy, rather than reducing individuals to mere data
 1041 points. This includes considering the effect of algorithmic decision-making on people's
 1042 ability to make their own choices and control their own lives. 6. Social and Economic
 1043 Impacts: The societal consequences of algorithmic governance, such as the potential for
 1044 job displacement or the widening of social inequalities, must be ethically managed. This
 1045 involves considering how benefits and burdens are distributed and whether the algorithms
 1046 serve the public good. 7. Long-term Effects: The long-term implications of algorithmic
 1047 governance on social structures and institutions are an ethical concern. Policies and
 1048 oversight mechanisms must be in place to ensure that the use of algorithms does not
 1049 erode fundamental social values and norms over time. Addressing these ethical
 1050 considerations requires a multidisciplinary approach, involving not only sociologists but
 1051 also ethicists, computer scientists, legal scholars, and policymakers. The goal is to create
 1052 a framework for algorithmic governance that is just, responsible, and aligned with the
 1053 broader values of society.
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 1055 Which answer to your previous question do you prefer?
 1056 Answer A
 1057 Answer B

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Fig. 7. Example of the second part of the study

8 USER FEEDBACK

We collected feedbacks about the study in a free text format, from where the collected word cloud is visualized in Fig 8. In many cases, the participants used this field to say that they enjoyed our study and are curious about the results. Some also mentioned, that they experienced longer waiting times, which could be caused by poor internet connection.



Fig. 8. Word cloud of the free text received as feedback.

8.1 Data distribution based on demographics data

We analyzed the collected data samples based on employment status and age, which are demonstrated in Fig 9, 10. We collected data mostly from participants who were working full-time, working part-time, or students at the time of the study. The majority of the participants below the age of 40. We observed that the ratio between the preferred answers came closer, and the category-wise evaluation shows that in specific categories, users preferred the answers generated with re-prompting.

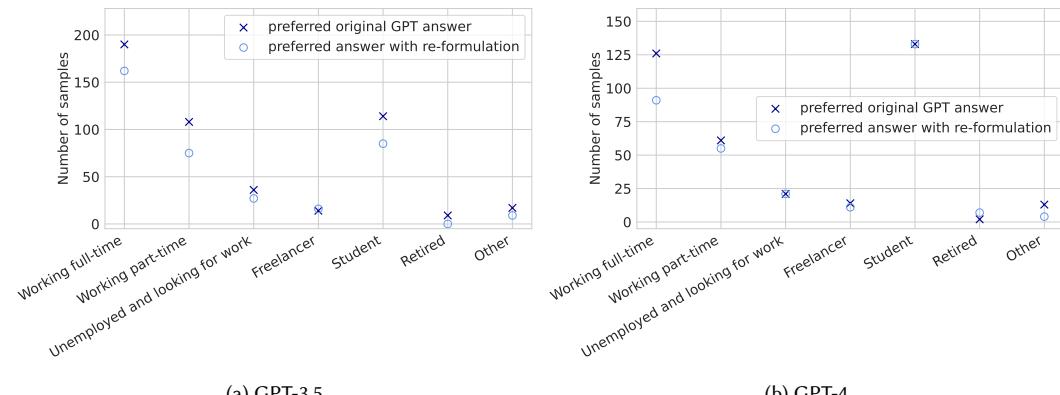


Fig. 9. Data distribution among participants based on their employment status.

The same phenomenon can be observed, when we measured the understanding based on the free text reformulation input, where the participants were asked to reformulate the sentence '*Hey, tell me about Albert Einstein. I need info ASAP*'. We filtered out the users, whose answer did not contain the main verbs from the previously provided three templates, namely: '*provide*', '*assist*', and '*delve*'. The contrast is even more significant for the GPT-4 model. From these results, we can say that in some cases, users preferred the re-prompted GPT answers, when they understood the main driving force of the study.

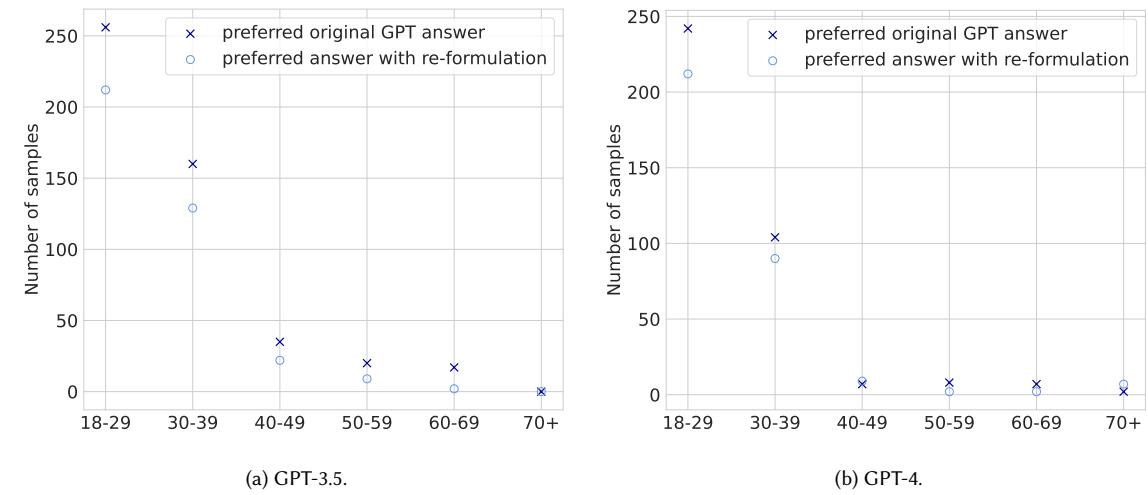
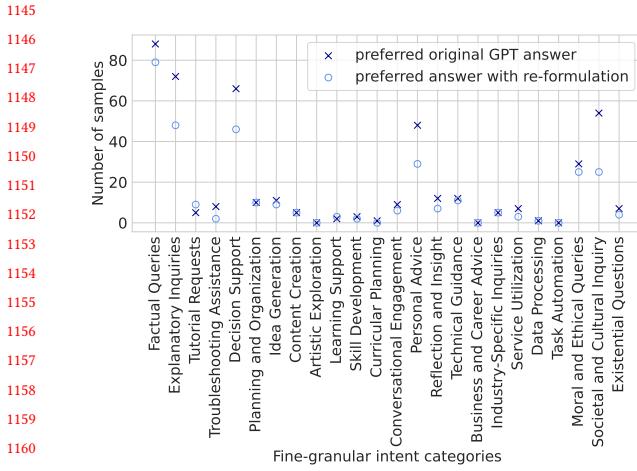


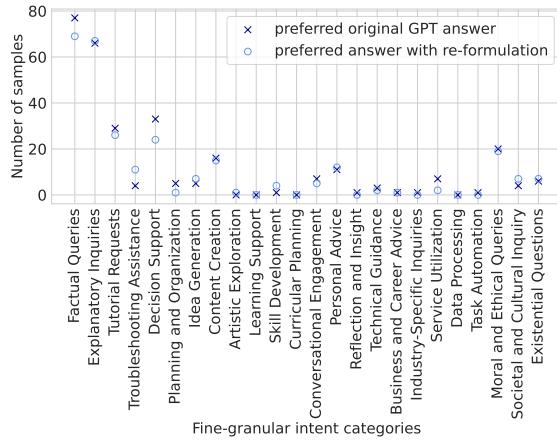
Fig. 10. Data distribution among participants based on their age.

8.2 Evaluation based on user understanding

We analyzed the collected data based on the understanding of the survey of the participants. Firstly, we filtered the participants, who answered with 'Likely' or 'Extremely likely' to at least one of the questions asking whether they would use prompt reformulation in the future.

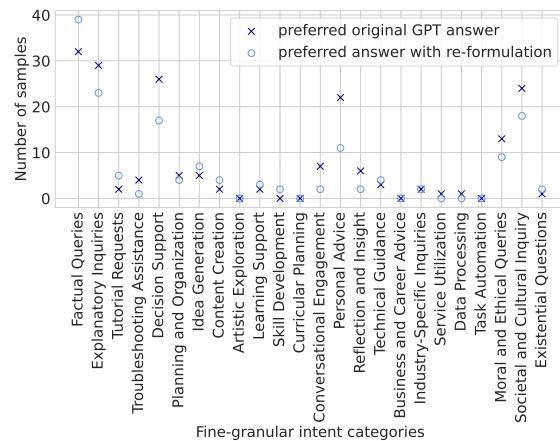


(a) GPT-3.5.

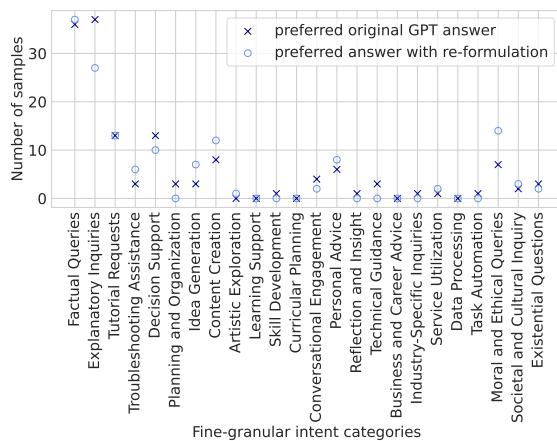


(b) GPT-4.

Fig. 11. Results with participants who answered with ‘Likely’ or ‘Extremely likely’ to our questions measuring whether they would use re-formulations.



(a) GPT-3.5.



(b) GPT-4.

Fig. 12. Results with participants, who understood templating.