

MANY FACES OF A CHATBOT: THE USE OF POSITIVE AND NEGATIVE POLITENESS STRATEGIES IN ARGUMENTATIVE COMMUNICATION WITH A CHATBOT

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Abstract: With the ever-growing development of artificial intelligence, communication and argumentation processes are no longer limited to face-to-face and computer-mediated communication with other humans. They now involve communication with machines. This fact has given rise to chatbots, computer programs trained to produce human-like communication through the use of highly specified algorithms. The aim of this study was to determine whether a chatbot has been trained in accordance with positive and negative face wants, which were a part of the politeness theory introduced by Brown and Levinson. More specifically, the aim was to determine whether positive and negative politeness strategies would affect the quality of answers a chatbot produces. The chatbot was asked 10 questions in total, grouped into five sets of questions that prompted answers followed by argumentation. Each set contained two questions on the same topic, one question asked utilizing positive politeness strategies, and the other question asked using negative politeness strategies. The results show that 1) there were no significant differences in the answers given to the two types of questions, 2) the chatbot did not select only one type of politeness strategies, 3) more elaborate answers to one of the questions from the sets were produced in relation to the topic of that question rather than the politeness strategies. The most dominant argumentation structure is based on coordinative arguments, with causal schemes appearing most frequently. All of the answers are acceptable in the sense that they give coherent arguments for a standpoint, except for one answer where the opposite standpoints were provided.

Keywords: argumentation, politeness theory, positive and negative politeness strategies, chatbot, artificial intelligence

1. Introduction

With the constant development of computer software and artificial intelligence, everyday communication has shifted from being exclusively face-to-face toward computer-mediated conversation, and now we can

even conduct a fully-fledged conversation with AI-based computer programs known as chatbots. The term *chatbot*, or *chatterbot*, was first introduced by Michael L. Mauldin in 1994 (Molnár and Szűts 197). It is defined as a computer program that, in a conversation, responds like an intelligent entity (Khanna et al. 277). A chatbot can recognize and interpret human language through the information fed to it (Khanna et al. 277). More precisely, it relies on a *Knowledge Base* as a set of questions and answers triggered according to certain keywords noticed in a conversation (El Azhari et al.).

The first chatbots appeared during the mid-20th century, with two notable examples being ELIZA, from 1966, which played the role of a psychotherapist, and ALICE (Artificial Linguistic Internet Computer Entity), from 1995 until 2000 (Molnár and Szűts 197). Nowadays, chatbots have wide applications spanning various fields, including media, healthcare, medicine, and education, with a predominant interest in language learning. The 2020s are characterized by a great deal of research on the topic of communication between chatbots and humans. Additionally, novel variants of such programs are produced with different purposes, but also to ensure that more reliable information is obtained for a chatbot conversation (Mavrodieva 23).

Current research is interested in the argumentation abilities of AI-powered chatbots, as seen in Section 2.3. More precisely, it is mostly interested in the processes through which chatbots are trained to produce argumentative answers. This paper is interested in the other side of the coin. Namely, the aim is to determine the quality of the argumentation produced by a chatbot, as related to the use of different politeness strategies.

2. Theoretical framework

2.1. Argumentation theory

The main interest of argumentation theory lies in the term *argument*. Here, *argument* has a specialized sense and refers to the process of giving reasons for the support or criticism of a claim, also known as a standpoint, which can be questioned or doubted (Walton 1). A successful argument, thus, means that good reasons to support or criticize a standpoint are stated. Walton (1) continues that this process implies two sides being involved in an argument which takes the form of a dialogue. A dialogue represents a “type of goal-directed conversation in which two participants (in the minimal case) are participating by taking turns” (Walton 2). Thus, it is suitable for the argumentative processes where one side puts forward reasons for supporting a claim, while the other side offers their reasons for doubting this claim.

Dialogues, besides arguments, can also be in the form of explanations, instructions for doing something, etc. Parties must take turns in a dialog so that argumentation is successful (Walton 1-2).

As defined by Walton (1), argumentation is a dynamic process in which arguments are connected for a certain purpose in a dialogue. Van Eemeren and Henkemans (1) offer the following definition:

Argumentation is a verbal, social, and rational activity aimed at convincing a reasonable critic of the acceptability of a certain opinion by advancing one or more propositions designed to justify that standpoint.

More precisely, argumentation happens as a response or anticipation of an opinion difference, either real or merely imagined. Argumentation, however, does not have to take the form of a fully-fledged dispute or a conflict. It can include cases when the other party only doubts a standpoint. The moment the defense of this view is not shared by all parties, argumentation comes into play. It is, of course, presumed that the other party has not been convinced yet when arguments are put forward. Otherwise, argumentation would be pointless (Van Eemeren et al. 2). Additionally, argumentation is a “communicative and interactional act complex” and, for its success, the rational reasoning of a judge, or here, the party doubting a standpoint, is of the utmost importance (Van Eemeren et al. 7).

According to its structure, argumentation can consist of single, multiple, coordinative and subordinative arguments (Van Eemeren and Henkemans 55). In *single argumentation*, in the most basic case, a single argument is given for the defense of a standpoint, or several single arguments can be combined in different ways. *Multiple argumentation* includes alternative arguments for the same standpoint, without them being dependent on one another. *Coordinative argumentation* is a set of arguments that must be taken together to defend a standpoint successfully. Finally, in *subordinative argumentation*, the defense of a standpoint is made in layers. Namely, each of the arguments is supported by an argument on the lower level (Van Eemeren and Henkemans 55-60).

As regards the *argument scheme*, it represents how the argument and the standpoint are connected. There are three types of argumentation schemes: symptomatic, causal, and argumentation based on analogy (Van Eemeren and Henkemans 83-84).

Argumentation in artificial intelligence has proved to be a very important topic. This interaction found its way into areas such as law, medicine, e-government, debating, etc. Nowadays, research is pointed

towards the production of certain persuasion systems, which would help in everyday decision-making. In the further work of integrating argumentation with artificial intelligence, there are plans to develop artificial agents communicating with other agents, just as two humans can argue about a particular standpoint (Atkinson et al. 34-35).

2.2. Brown and Levinson's politeness theory

In most general terms, as defined by the *Online Cambridge Dictionary of English*, politeness is "behaviour that is socially correct and shows understanding of and care for other people's feelings".¹ Politeness has been exhaustively researched in areas such as sociolinguistics, pragmatics, applied linguistics, anthropology, conversation analysis, etc. (Brown and Levinson 2). It is indeed a topic producing very different opinions. Some see it as a superficial characteristic of human language (Leech xi). Others, however, including Leech (ix), see it as a deeper phenomenon essential for human communication. Namely, politeness is a social phenomenon expressed largely through language, present in human behavior from the earliest childhood. Thus, we believe that politeness, as an essential characteristic of human communication, also has to be present in the interaction with AI, especially to increase its credibility and trustworthiness.

Brown and Levinson's view on politeness is based on the notion of *face* as introduced by Goffman in 1967. Namely, face represents a public image every member of society claims for themselves, or, more simply, how they want to be seen by others. To prevent face loss, that is humiliation and embarrassment, people cooperate and assume other people's cooperation in maintaining face in interaction. If a person threatens somebody else's face, then they risk having their own face threatened, and, thus, face maintenance is in everybody's best interest (Brown and Levinson 61).

Instead of seeing face as a set of social norms and values, it is rather treated as basic wants desired by every member of society. Therefore, face wants can be seen as negative face and positive face. Negative face does not necessarily imply anything bad, but rather a want of an individual that their actions are unimpeded by others. In other words, other society members are to respect this individual's independence so as not to threaten their face, and this is a politeness of a more formal

¹ Information retrieved from <https://dictionary.cambridge.org/dictionary/english/politeness>, accessed on 12 April 2024.

kind. On the other hand, positive face means that an individual's wants should be accepted and shared with at least someone (Brown and Levinson 62).

Besides expressing positive or negative on-record politeness, off-record politeness is also possible, based on a communicative act to which it is not possible to attribute one clear communicative intention (Brown and Levinson 211). A set of strategies is offered for each type of politeness (Brown and Levinson 91-227). Since this paper is interested in positive and negative on-record politeness, only those strategies will be mentioned. Positive politeness includes the following strategies pointed at the individual whose face is to be saved:

- 1) Notice, attend to their interests, wants, etc.
- 2) Exaggerate interests, approval, sympathy with them
- 3) Intensify interest to them
- 4) Use in-group identity markers
- 5) Seek agreement
- 6) Avoid disagreement
- 7) Presuppose/raise/assert common ground
- 8) Joke
- 9) Assert or presuppose knowledge of and concern for their wants
- 10) Offer, promise
- 11) Be optimistic
- 12) Include both us and them in the activity
- 13) Give (or ask for) reasons
- 14) Assume or assert reciprocity
- 15) Give them gifts (goods, sympathy, understanding). (Brown and Levinson 103-129).

Negative politeness toward somebody else's face wants is achieved through the following strategies:

- 1) Be conventionally indirect
- 2) Question, hedge
- 3) Be pessimistic
- 4) Minimize the imposition
- 5) Give defense
- 6) Apologize
- 7) Impersonalize us and them
- 8) State the face-threatening act (FTA) as a general rule
- 9) Nominalize
- 10) Go on record as incurring a debt, or as not indebteding them. (Brown and Levinson 129-211).

Before the appearance of interaction with AI, politeness theory, besides face-to-face communication, found its way into computer-mediated communication (CMC) between humans. The main interest in this area is rooted in determining how classical postulates of different politeness theories, developed before CMC evolved, can be applied to this specialized way of communication, along with all of its characteristics. For example, one of the topics covered is how politeness is achieved where non-verbal cues are not as obvious or are completely invisible, unlike in face-to-face communication (Taleghani-Nikazm; Pratama).

2.3. Previous research

As for more recent research in the area of positive and negative politeness strategies use, a lot of research was based in the EFL classroom. One such type of research was done by Mahmud, who was interested in the way university students of the English literature program in Indonesia utilize politeness strategies in the language recorder during their presentations. The conclusion was that both positive and negative politeness strategies had often been used by the students. Saleem and Anjum wanted to determine whether there exist certain differences in politeness strategies used by Pakistani Urdu speakers as compared to British speakers in apologizing. According to the results, Pakistanis mostly use positive strategies, with the British using a combination of the two.

An attempt to study politeness within argumentation was made by Ferenčík, who looked at whether interruption in radio call-ins can always be considered impolite. The findings were that in certain situations interruption in the argumentation process was seen as a discursive device. More precisely, interruption appears to constrain the other party's options, to control the content size of the talk, and, possibly, exercise power.

Before the increasing development of communication with AI, there was also a lot of interest in how politeness functions in computer-mediated communication, namely, the communication happening between human beings with the help of a computer. Therefore, Park (2008a, 2008b) set out to see what kind of politeness strategies were used in online peer groups. The results showed that since peers had already been acquainted with one another, they attempted to achieve even more social closeness through the use of mostly bold-on-record speech acts or positive politeness strategies. Wardoyo was interested in CMC in YouTube comments and realized that the politeness strategies used were usually influenced by an already existing comment.

Additionally, it appeared that the higher the level of disagreement was, the impoliteness became higher.

In studying the importance of politeness in human-machine interaction, through the literature review on this topic, Ribino concluded that, on the one hand, socially competent machines were more acceptable, while, on the other hand, once people interacted with machines sending social clues, people themselves implemented basic social norms and rules, partially in need of retaining their own positive face. Similarly, Burton and Gaskin set out to determine whether the level of politeness towards intelligent digital assistance would in any way affect human-to-human interaction in terms of politeness. The finding showed that, even though digital assistants were personified to a lesser degree, the interaction type with them would not affect the politeness levels existing in face-to-face human communication.

Most of the interest in AI language-related issues is based on the process of training AI, primarily chatbots, to produce human-like language. For example, Mukherjee, Hudeček and Dušek worked on training a chatbot to increase politeness in dialogue models. Furthermore, Dietz, Kakas and Michael proposed that the importance of training machines in argumentation leads to the development of human-centric AI. Chalaguine et al. were determined to train a chatbot in a persuasive argumentation to see whether persuasion produced by AI would affect people's beliefs about healthy lifestyle choices. The findings were such that arguments addressing the user's concerns have a more positive impact on changing their attitudes. Herbets de Sousa et al. believe that for a chatbot to produce successful argumentation, it must be trained to and, subsequently, it must be able to recognize argumentation schemes or patterns. The research, however, showed that chatbots can recognize only a limited number of argumentation schemes.

Mavrodieva, in analyzing human-machine rhetorical communication, concluded that chatbots are not sufficiently developed to give argumentation based on critical thinking and to transfer general information into popular language since they cannot use figurative language. Finally, Hinton and Wagemans, interested in how persuasive GPT 3 is, realized that an argument created by a chatbot is often unacceptable.

Analysis

3.1. Methodology

This research is based on the analysis of the answers provided by a chatbot. The questions were expected to be followed by argumentation.

As regards the questions, the analysis included ten questions divided into five sets. Each set contained a pair of questions on the same topic, one structured with negative politeness strategies, and the other with positive politeness strategies. Five question sets were interested in 1) whether using AI is beneficial; 2) whether AI is useful in scientific research; 3) whether it is important to train AI in argumentation; 4) whether politeness is important in communication with AI; and 5) whether politeness is important in the argumentation process.

The chatbot that served as a tool in this research is *TalkAI*², a free chatbot service, utilizing ChatGPT 3.5 technology. As regards the appearance of this program, it most closely resembles a text-messaging application. More precisely, a space for inputting questions and requests can be seen at the bottom of the screen. The remaining part of the screen is where the results produced by the chatbot are seen. In this research, those were argumentative answers.

The aim is to determine whether the questions that have the same meaning but different forms according to either positive or negative politeness strategies lead to different answers produced by the chatbot. In relation to this, the research focuses on 1) the similarities and differences between the answers given to the questions with the two types of politeness strategies; 2) the types of argumentation structures and schemes; and 3) the acceptability of answers in the sense that coherent arguments for a standpoint were given.

3.2. Chatbot answer analysis

The first pair of questions was interested in looking into the chatbot's standpoint and the following argumentation as regards the issue whether using artificial intelligence is beneficial. The question designed in line with negative politeness was based on utilizing an indirect speech act and hedging to lower the expectations we had from the chatbot. The question had the following form:

*Q1n*³: Do you mind telling me whether there are benefits to using artificial intelligence?

The answer was in the form of a list, rather than a concise answer.

² Talk AI: <https://talkai.info/>, accessed on 10 May 2024.

³ *Q1n* and *A1n* refer to the question structured according to the negative politeness strategies and the answer to that question respectively. *Q1p* and *A1p*, on the other hand, stand for the question based on the positive politeness strategies and its answer. The numbers would change based on the number of the general question/topic being referred to.

A1n: Sure! There are several benefits to using artificial intelligence technology, including:

1. Improved efficiency and productivity: AI can perform repetitive tasks much faster and more accurately than humans, saving time and increasing productivity.
2. Cost savings: By automating tasks, AI can lead to cost savings by reducing the need for human labor and increasing efficiency in processes.
3. Enhanced decision-making: AI can analyze and process large amounts of data quickly to provide insights and recommendations for making more informed decisions.
4. Personalization and customization: AI can help businesses personalize their products and services to better meet the needs and preferences of individual customers.
5. Enhanced customer service: AI-powered chatbots and virtual assistants can provide instant support to customers, improving the overall customer experience.
6. Predictive analytics: AI can use predictive analytics to forecast trends and patterns, helping businesses make more accurate predictions and better plan for the future.

Overall, the use of artificial intelligence can help businesses and individuals streamline operations, make better decisions, and improve overall efficiency and effectiveness.

The characteristic of this answer is that, first of all, it can be seen that the chatbot noted our usage of negative strategies and gave a positive reaction by means of the expression *sure*. Then, it goes straight to the argumentation of why AI is beneficial. As for the argumentation structure, even though it might be assumed that this argumentation consists of multiple arguments, with each accounting for the benefits of AI, this structure is rather made of coordinative arguments, as all of which are needed for persuasion, having in mind the beliefs commonly held towards AI. As far as the argumentation scheme is concerned, the chatbot relies on the causal scheme as each of the arguments offers the cause or the reason why using AI can be beneficial.

The chatbot was asked the same question again, but this time structured using positive politeness strategies, in this case, an in-group identity marker, the inclusive *we*. The question had the following form:

Q1p: Can we collectively benefit from using artificial intelligence?

This question yielded an answer that differed in form as compared to the answer given to the negative politeness question.

A1p: Yes, we can collectively benefit from using artificial intelligence in a variety of ways. AI has the potential to improve efficiency in various industries, streamline processes, provide more personalized services, and even contribute to solving complex problems such as disease diagnosis, climate change, and resource management. By harnessing the power of AI, we can create new opportunities for economic growth, innovation, and overall societal advancement. However, it is important to also consider the ethical implications and potential risks associated with the widespread adoption of AI to ensure that its benefits are realized in a responsible and sustainable manner.

The first difference that can be noticed is that this answer is not merely a list, as is the case with negative politeness, but an answer characterized more by everyday conversational style. In this answer, the standpoint that using AI can be beneficial is stated in a single *yes*. Another significance is that arguments represent more generalized benefits, unlike the list with specified areas where AI can be helpful. The argumentation structure is here based on coordinative arguments, with each argument having a causal scheme. Additionally, the positive politeness led to the chatbot offering a warning of possible AI misuse.

The second topic the chatbot was questioned about was related to the possible assistance of AI in scientific research. The question posed in line with negative politeness strategies again relied on the combination of hedging and indirect speech.

Q2n: Perhaps you could tell me whether artificial intelligence can be helpful in scientific research?

The answer provided by the chatbot was not presented as a list but as a paragraph resembling an everyday communicative style.

A2n: Yes, artificial intelligence can be very helpful in scientific research. AI can assist researchers in analyzing large amounts of data, identifying patterns, making predictions, and even suggesting new hypotheses to pursue. This can help accelerate the pace of scientific discovery and lead to new breakthroughs in various fields. AI tools can also help automate repetitive tasks, freeing up researchers to focus on more complex and creative aspects of their work. Overall, AI has the potential to revolutionize the way scientific research is conducted and to drive innovation in many disciplines.

Within this argumentative answer, a standpoint, that AI is helpful in scientific research, is given directly. As far as the structure is concerned, two of the arguments, analyzing large amounts of data and automating the research process, are in coordination. The first of the two arguments is further followed by a subordinative argument supporting it. As regards the scheme, the arguments are causal. Finally, a generalized conclusion is proposed.

The question on the same topic, in line with positive politeness strategies, included noticing the chatbot's effort to answer our questions, and a slight exaggeration to show appreciation for the previous answer.

Q2p: That was an excellent answer. How about telling me whether artificial intelligence is helpful in scientific research?

This question was followed by an answer that was not strikingly different from that to a negative politeness question.

A2p: Artificial intelligence can be extremely helpful in scientific research. It has the ability to process huge amounts of data much faster than humans can, making it a powerful tool for tasks such as analyzing complex datasets, identifying patterns and trends, and even formulating hypotheses. AI can also assist in drug discovery, genomics, and other areas of research where large amounts of data need to be analyzed and interpreted. Overall, artificial intelligence has the potential to revolutionize scientific research by accelerating the pace of discovery and enabling breakthroughs that may not have been possible otherwise.

As previously mentioned, this answer does not differ much from the negative politeness answer. The standpoint is presented directly but mirrors the exaggeration from the question with the adverb *extremely*. The arguments are characterized by the coordinative structure, with the final argument being an overall conclusion of the whole argumentation process. As for the scheme, the first and the concluding arguments are causal. The second argument, however, does not point to the causes for AI benefits in scientific research but suggests the areas where it might be helpful. Since AI is characterized by the ability to analyze large amounts of data, this might be seen as a symptomatic argument, rather than a causal one, or one based on comparison.

In the third set of questions, our interest was based on the importance of training artificial intelligence in quality argumentation. Quality argumentation is based on the premises relevant to support a

standpoint, which are individually acceptable, and which are together sufficient enough to defend a standpoint (Blair 87). In the question rooted in negative politeness, hedging strategies were used. This included being pessimistic, a question tag and the form *I suppose*.

Q3n: I don't suppose you could tell me whether training artificial intelligence in quality argumentation is important, could you?

This question yielded a three-paragraph answer, unlike the majority of the previous answers containing a single paragraph.

A3n: Training artificial intelligence in quality argumentation is important for several reasons. Firstly, it helps AI systems to better understand and engage in complex reasoning and decision-making processes. By teaching AI how to craft and evaluate arguments effectively, we can improve its ability to analyze information, consider different perspectives, and make more informed choices.

Additionally, quality argumentation training can help AI systems to communicate their reasoning more clearly and persuasively to human users. This is crucial for building trust and collaboration between humans and AI, as it allows for better communication and understanding between the two parties.

Overall, by investing in training AI in quality argumentation, we can improve the capabilities and reliability of AI systems, leading to more efficient and ethical use of AI technology in various industries and applications.

In this answer, the standpoint is given indirectly as important reasons for its defense are stated. This means that the standpoint is identified in the argumentation process where the reasons for the importance of training AI in quality argumentation are given. There are two coordinative arguments, each followed by a subordinative argument, further reassuring the audience about this standpoint. It can be assumed that the arguments have a causal relation with the standpoint that training AI in argumentation leads to different benefits. Similarly to the three previous answers, a general conclusion can be drawn from this answer. However, what is peculiar in this particular answer is that the chatbot uses the inclusive *we* to refer to humankind, while the AI, including this chatbot, is referred to by *it*. This example shows that the chatbot is trained to resemble a human being, thus, referring to AI by *it*.

The positive politeness question is made by employing an in-group identity marker and the strategy of being optimistic.

Q3p: Hey buddy, I hope you can tell me whether it is important to train artificial intelligence in quality argumentation?

The answer, however, was not as extensive as that given to the question rooted in the negative politeness strategies.

A3p: Yes, it is important to train artificial intelligence in quality argumentation as it can help improve the overall accuracy and effectiveness of AI systems. By teaching AI to reason and formulate coherent arguments, it can better understand and respond to complex information and provide more insightful and nuanced solutions to problems. Additionally, teaching AI to engage in quality argumentation can help prevent biased or erroneous decision-making, leading to more reliable and ethical AI systems.

Again, the standpoint that the training of AI in quality argumentation is important is expressed by a single *yes*. The structure of the arguments is coordinative, with the first argument proposing more general benefits. The scheme, as in all of the previous answers, is causal since the arguments state what AI training in argumentation can lead to.

The fourth topic regarded the importance of politeness in communication with AI. The negative politeness question was based on an indirect speech act and pessimism.

Q4n: Wouldn't it be a bother to tell me whether politeness is important in communication with artificial intelligence?

The answer is not so elaborate, and the argumentation seems contradictory.

A4n: Politeness is not essential in communication with artificial intelligence as they do not have feelings or emotions. However, maintaining a respectful and courteous tone can help create a more positive and productive interaction. Ultimately, the level of politeness required may vary depending on the context and the specific goals of the conversation.

Here, it appears that the standpoint is not in favor of implementing politeness in communication with AI. This is supported by a single symptomatic argument that AI has no feelings or emotions. What follows is the conjunction *however*, and a casual argument supporting the opposite standpoint. Finally, the answer shows that the chatbot is in favor of both using and not using politeness, depending on the context and the situation of the context.

The positive politeness question was developed by means of ellipsis. It was followed by a more coherent answer.

Q4p: Mind if you tell me whether politeness is important in communication with artificial intelligence?

The answer the chatbot gave to this question seems more elaborate and better structured compared to the question using negative politeness strategies.

A4p: While politeness is not necessary in the same way it is when interacting with other humans, it is still important to treat artificial intelligence with respect and courtesy. Being polite can help foster a positive interaction and build trust between you and the AI. Additionally, being courteous in your communication can improve the overall experience and make it easier for the AI to understand and respond to your requests. Ultimately, while not required, using polite language when interacting with artificial intelligence can help create a more pleasant and effective exchange.

Even though it is stated that treating AI with politeness is not a prerequisite, the standpoint given here is that it is indeed important to do so. The standpoint is supported by causal coordinative arguments, without giving arguments for the opposing standpoint. In this case, the chatbot appears to be able to “understand” the communicative roles as it refers to the audience, that is the reader of the question, with the pronoun *you*.

The final topic was based on the importance of utilizing politeness in the argumentation process. The strategies employed in the negative politeness question were based on apologizing, hedging and an indirect speech act.

Q5n: I’m sorry for asking many questions, but would you mind telling me whether politeness is important in the argumentation process?

The question is followed by the answer in which a reaction to one of the negative strategies can be noticed.

A5n: It's okay to ask questions! Yes, politeness is important in the argumentation process. Maintaining a respectful and courteous tone can help establish a constructive dialogue, foster understanding, and avoid unnecessary conflict. Politeness can also help to create a more open and receptive atmosphere, making it easier for both parties to listen to each other's perspectives and reach a mutual understanding or agreement. In argumentation, it's essential to be assertive and confident in presenting your thoughts and ideas, but it's also crucial to do so in a respectful and considerate manner.

Firstly, the chatbot reacts well to the apology for many questions, pointing out that it is not bothered. The standpoint in favor of politeness being important in the argumentation process is clearly stated. It is followed by two coordinative arguments with a causal scheme. What seems like the final argument is rather only the repetition of the standpoint defended, with the argumentation process described in more detail.

Through seeking agreement and presupposing common ground, the positive politeness question interested in the importance of politeness in argumentation was created.

Q5p: How about politeness in argumentation? Is it important to be polite in the argumentation process?

A question utilizing positive politeness strategies seemed to have produced a more elaborate answer on this topic.

A5p: Yes, it is important to be polite in the argumentation process. Politeness helps to maintain a respectful and productive dialogue, allowing for a more constructive exchange of ideas. Being polite shows that you value the other person's opinion, even if you disagree with it, and helps to build mutual trust and understanding. Additionally, a polite approach can help to de-escalate tension and prevent conflicts from becoming personal or hostile. Ultimately, being polite in argumentation can lead to more effective communication and better outcomes for all parties involved.

In this case, the chatbot produced the answer with a clearly stated standpoint that politeness is important in the argumentation process. This standpoint is very well supported with four coordinative

arguments, each referring to what using politeness in argumentation can cause (maintaining a respectful and productive dialogue, showing that you value the other person's opinion, de-escalating tension and preventing conflicts). Compared to the answer given to the negative politeness question, this one is more elaborate and offers more detail, thus, providing a more persuasive response.

Discussion

The analysis shows that there are no significant differences in the responses to the two types of questions. Firstly, the chatbot products do not seem to vary much in argument structure. All of them contain a standpoint, either direct or indirect, with a set of arguments, usually coordinative, supporting the standpoint. On some occasions, we received even a generalized conclusion of the argumentation process. Secondly, neither positive nor negative politeness appeared in every answer. However, more coherent and elaborate answers depended on the topic of the question. Just to illustrate, the first three questions, interested in 1) whether using AI is beneficial, 2) whether it is useful in scientific research, and 3) whether it is important to train AI in argumentation, seem to have received more quality and elaborate answers to the negative politeness questions. The fourth question concerning politeness in AI and the fifth question concerning politeness in argumentation had more coherent answers where positive politeness strategies were utilized. This was also confirmed by the chatbot itself in the answer to the fourth question based on negative politeness strategies (see *A4n*). Namely, the chatbot answered that politeness directed towards AI depends on the context and the expected goals of a conversation.

As regards the argumentation type, most of the argumentation structures seem to be based on coordinative arguments rather than multiple independent arguments. The reason for this is that the topics covered in this research are important and highly applicable to the area of AI. More specifically, since the chatbot wrote that the public does not fully appreciate the benefits of AI, as seen in *A3n* and *A4p*, it seems that the chatbot "understands" the need for listing all of these arguments as necessary to support its standpoints. Two instances of subordinative arguments appeared in the answers to the questions containing negative politeness strategies. The majority of arguments had a causal scheme as they explained what each standpoint would lead to. Only two arguments were symptomatic. Finally, nine out of ten answers were completely acceptable in the sense that they gave coherent arguments

for a standpoint. Only once, in answer *A4n*, did the chatbot shift from its standpoint toward the opposing standpoint.

5. Conclusion

This research showed that the chatbot is capable of producing quality argumentation when it gives answers to the questions based both on positive and negative politeness strategies. Furthermore, the *TalkAI* chatbot did not select answers in accordance with negative or positive politeness strategies. Rather, it can be concluded that the answers depended on the topic of interest. To illustrate, when asked about the benefits and the usage of AI, the chatbot produced better answers to the questions utilizing negative politeness strategies. Moreover, once the topic shifted toward the importance of politeness, the questions with positive politeness strategies led to more elaborate answers. Coordinative argumentation was the most common type of argumentation, and as regards the argumentation scheme, causal type was the most frequent type of argumentation. Except for one case where the chatbot provided contradictory standpoints toward the same question, all of the remaining answers were coherent.

There are, of course, some limitations to this research. First, it was based on short instances of communication with a chatbot. Future research can give further insight into long strings of conversations with AI to determine possible reoccurrences in argumentation and politeness patterns. Second, the research was interested in a single version of a chatbot, *TalkAI*, based on Chat GPT version 3.5. Further studies can also compare either different chatbots or multiple versions of a single chatbot to see whether there are certain advances in the usage of politeness within an argumentative conversation with AI. Finally, the interest of this research was directed towards the analysis of language produced by AI. Extensive interdisciplinary and transdisciplinary studies, which would combine both linguistics and IT sciences, should be conducted to first enhance the AI's ability of politeness and argumentation, as important features of human communication, to come as close as possible to the human ability and then analyze the language produced, not only from the pragmatic point of view but also from any of the other linguistic disciplines.

Although this is a small-scale study, it can serve as a starting point for those interested in how politeness strategies function in argumentative communication with AI. Additionally, it might present inspiration for further research in the process of training AI to produce argumentation as close as possible to that of humans and in the

importance of politeness not only in AI argumentation but in AI communication in general.

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MNOGA LICA ČETBOTA: UPOTREBA POZITIVNIH I NEGATIVNIH STRATEGIJA UČTIVOSTI U ARGUMENTACIJSKOJ KOMUNIKACIJI SA ČETBOTOM

Sa konstantnim razvojem veštačke inteligencije, procesi komunikacije i argumentacije više nisu ograničeni na komunikaciju između ljudskih bića, uživo, ili uz pomoć računara. Oni sada uključuju i komunikaciju sa mašinama. Ova činjenica dovela je do razvoja četbotova, računarskih programa obučeni da komuniciraju na način sličan ljudima kroz upotrebu visoko specifikovanih algoritama. Cilj ovog istraživanja bio je utvrditi da li je četbot obučen u skladu sa pozitivnim i negativnim strategijama učtivosti, koje, kao deo teorije učtivosti, prvi put spominju Braun i Levinson. Preciznije, cilj je bio utvrditi da li ove strategije utiču na kvalitet odgovora koje četbot daje. Četbotu je postavljeno 10 pitanja ukupno, podeljenih u 5 grupa pitanja koja su zahtevala odgovore praćene argumentacijom. Svaka grupa brojala je po dva pitanja na istu temu, jedno sastavljeno uz pomoć pozitivnih strategija učtivosti, a drugo uz pomoć negativnih strategija. Rezultati pokazuju da 1) nema značajnih razlika u odgovorima na dve vrste pitanja, 2) četbot se nije opredelio za jednu vrstu strategija učtivosti, 3) opširniji odgovori na jedno pitanje iz grupe dati su na osnovu teme kojom se pitanje bavi, a ne na osnovu strategija učtivosti. Najdominantnija struktura argumentacije zasniva se na koordiniranim argumentima, dok je kauzalna shema najčešća. Svi odgovori četbota su prihvatljivi u smislu da daju koherentne argumente za određeno stanovište, sem jednog odgovora u kome su data suprotstavljena stanovišta.

Ključne reči: argumentacija, teorija učtivosti, pozitivne i negativne strategije učtivosti, četbot, veštačka inteligencija