

# Displaying Speeches Method for Non-Crosstalk Online Agent

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## Abstract

In the field of self-help groups for recovering from developmental disorders or alcohol dependence or the other problem, a meeting of non-crosstalk style has been used. On the meeting style, participants speak about one topic without conversation with the other participants, and advising and asking to others are not recommended besides. We are proposing an online meeting system that is specialized to support non-crosstalk style meeting. Now, we would like to develop an online agent who can perform like a human participant or more useful for participants. Since the developments of above online meeting system and autonomous agents contribute to supporting many people in the self-help field, this study has an impact in the designing methods for making better well-being space environment. In order to inspire human behaviors to the agent, this paper shows analysis the results of online humans meetings using our proposed system. As the experimental results which were compared with a classical style system, it has revealed about proposed system as follows: (1) frustrating with rules of non-crosstalk is small, (2) conversational speech didn't reduce, (3) conversational speeches were increasing along with the time but they are leading to prevent from decreasing the number of speeches, and (4) more sensitive to the speed of displaying speeches.

## Introduction

In the field of self-help groups for recovering from developmental disorders or alcohol dependence or the other problem, a meeting of non-crosstalk style has been used. On the meeting style, participants speak about one topic without conversation with the other participants, and advising and asking are not suggested. The persons who are participate in self-help group aim to recover from their problem by activities that are sharing speeches which are experiences and feelings themselves and making a connection with each other. On the other hands, since the scale of the participant is limited in a local community, the amount of the speech by them isn't increasing, and a probability that they receive a good influence isn't also growing. There are many merits if this style meeting can take online. It is expected to increase the number of participants and participation chance are increasing. Then it can be discover the way to recover from

a problem. Additionally, the computer agent can be participating is the one of merits. The agents to communicate with humans have studied however the non-crosstalk agent is not. We think that the agent can be performed not only like a human participant but also more useful for the persons.

The agent called chatterbots, such as A.L.I.C.E. (Wallace 2009) and ELIZA (Weizenbaum 1966), have supported to psychological care for the persons by non-task-oriented speech with a pattern matching mechanism. As a system to provide the answer for deeply questions from the parsons, the expert type system is researched (Colby, Watt, and Gilbert 1966). However, they are unsuitable because they not have a premise for applying the rule of non-crosstalk. In order to generate a speech against many kind of topics, the agent who use open-domain sources, such as texts on Twitter is researched (Inaba, Yoshino, and Takahashi 2016). However, it is unsuitable because all sources are not belong to the parsons. As the agent speech, using raw date which were spoken by the persons in the past, (1) it does not violate from the rules of non-crosstalk meeting, (2) it will be able to connect participants asynchronously. Of course, it will also be expect that the agent select and show the raw speech which is matching to any purpose of meeting if it use the techniques of natural language processing and recommendation.

## Non-crosstalk Style Meeting System

The system which is simple as shown in the top one of Figure 1 has proposed by us. In this system, each participant can show only one page on web browser. The page contains the form field to send a short sentence and the view field to see sentences posted by all participants. The basic functions are similar to classical text-based chat systems. In addition, our system has three characters in the method of displaying sentences as follows: (1) the displaying under anonymity, (2) the displaying in randomly position, and (3) the displaying is delayed random second from posted by others. This combination of characters leads to make unclear the relations between each sentences. It will contribute to reduce the deviation from non-crosstalk meeting rule that participants speak about one topic without conversation with the others. Participants know the rule but their contents of sentences cannot be forced by online system.

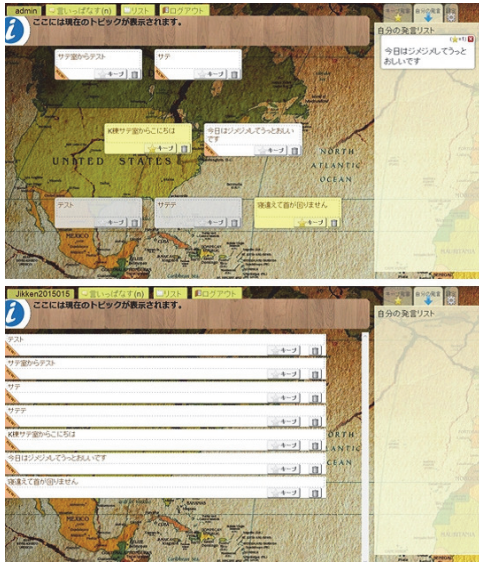


Figure 1: The top one shows that is our proposed system; the bottom one shows that is a comparison system which is imitating a classical displaying style called timeline.

## Experiment

This experiment aims to analyze the participants impressions when using a system and the contents of their speeches. The participants are eighteen persons who were gathered by employment offers for our university students, male and female. Three meetings held with three groups. Each meeting group consists of the six persons who answered so that have a serious problem about the same matter, and then they discussed about two topics of that matters. It means that the group is regarded as hypothetical self-help group. To compare the proposed displaying style and classical one, although six participants presented at the same meeting, three of them used proposed interface and remaining three persons used classical style one as shown in the bottom one of Figure 1.

## Results and Discussion

As the questionnaire answer, the opinion which would like to do more conversational communication was given by the participants who was using conventional interface. Since this can regard that they are felt frustration with the rules of non-crosstalk, the proposed system contribute to provide the environment that participants tend to speak without conversation with the others. When all speeches of the meetings are categorized, on average at about 50% is belong to non-crosstalk speech. The difference of two systems results is few. Note that remaining 50% containing conventional speeches, monologue, and etc. However, the infection of proposed system users from others speech was small. This result give us an expectation that proposed system leads to reduce a feeling of strangeness for agent. As shown in Figure 2, the number of conversational speeches were increasing along with the time. In other words, it is thought that the

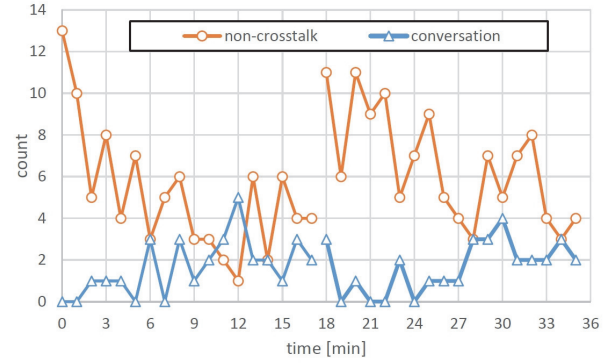


Figure 2: The total counts of non-crosstalk speeches and conversational speeches along the time axis in all meetings. Meetings were anytime starting at zero minutes and changing a topic at eighteen minutes.

agent who increases conversational sentence along with the time will be seemed to be a human. The opinions which is felt that the speed of displaying speeches is fast and feeling busy was given by proposed system users. So, it is preferred that the agent is able to pay attention so that the own speech doesn't become a fast.

## Conclusion

To develop the non-crosstalk online agent, this paper showed the analysis of meeting that was held on our proposed system which is specialized to support non-crosstalk style meeting. As the experimental result, it has revealed about agent requirements as follows: (1) the agent who increases conversational sentence along with the time will be seemed to be a human, (2) the agent is preferred that it is able to pay attention so that the own speech doesn't become a fast.

As our future works, we implement the agent to our system and apply to the field of actual self-help groups.

## Acknowledgments

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