Message Visualizer: a Visualization Tool for Chat Messages

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ABSTRACT
We present a work-in-progress visualization tool for facilitation of multi-user online collaboration over text-, voice-, and video-chats. The idea is based on graphical representation of the key concepts of the conversation, e.g. objectives, rationale, important facts, etc. Such visualization promotes goal-oriented and productive teamwork, and improves interactive user experience. The proposed idea is developed in Java, as a modification of Jitsi, an open source IM client.

Categories and Subject Descriptors
H.5.2 [**User Interfaces**]: Language Contructs and Features – *abstract data types, polymorphism, control structures.* This is just an example, please use the correct category and subject descriptors for your submission. The ACM Computing Classification Scheme: http://www.acm.org/class/1998/

General Terms
Design, Human Factors.

Keywords
Computer-mediated communication, Instant Messaging, Message visualization

1. INTRODUCTION
Prior studies have shown that text-based IM tool can be sufficient for achieving common ground [1] and for problem solving [3]. Many research studies have been conducted to examine various kinds of graphical user interface design for enriching communication experience with IM tools. Yeo [6] reported the design of a Kinetic Typography IM client (KIM) that allows the conveyance of more expressive content than common text-based communication. KIM also demonstrates a unique approach to applying animation to text by using keyword matching against a list of emotional words. The StudioBRIDGE is an IM based awareness system that helps MIT students initiate online and offline interactions by raising their awareness of the nearby community activities [5]. Chuah [2] presented a Reality IM that provides information about the social context in which the IM conversation is embedded to enrich conversation partners' experience of online chat. Prior et al. [4] explored the use of an alternative metaphor in the user interface of an instant messaging tool as a more usable and acceptable solution for older adults.

In a conventional chat window, because the last exchanged message is always shown in the bottom, the messages sent earlier may be out of the visible area during a lengthy conversation. This does not facilitate awareness of the main concepts and communication history in general. This becomes especially critical in the modern work-environment, when most of the users choose to do several tasks at once. Additionally, it is not efficient to retrieve key ideas of the discussion from chat messages that are based on temporal order. Addressing these concerns, we have been investigating mechanisms to visualize messages during an online teamwork. In this poster paper, we present a message visualizer that graphically represents user specified portions of a message in a panel in parallel to the chat message window.

2. MESSAGE VISUALIZER
The message visualizer is implemented based on Jitsi, an open source instant messaging client, evolved from the SIP communicator project (http://www.jitsi.org/). We chose this open source software for several reasons:

- Jitsi is developed in Java and can run on different platforms, including Windows and Unix-like systems such as Linux, Mac OS X and BSD
- Jitsi supports a wide list of protocols, including Bonjour (Apple's implementation of Zeroconf), .NET Messenger Service (MSN Messenger), OSCAR (AIM/ICQ/MobileMe), XMPP (Google Talk, Facebook Chat, LJ Talk), and Yahoo!. This enables Jitsi users to connect and communicate with contacts of literally all the popular IM clients
- Jitsi contains a wide list of features that make it attractive for users and developers, e.g., VoIP, videoconferencing, desktop streaming, file transfer, call recording, and instant messaging encryption.

Built on Jitsi, the message visualizer tool creates a panel in parallel with the chat window. During a chat session, a special listener scans all messages sent by participants to extract a portion for visualization. The portion of a message is enclosed in a special character, say "*". With such predefined syntax, the portion can be easily detected with a regular expression and then visualized on the panel.

With current version of the tool, the visualized portions of messages are organized by the authors. This design supports awareness of who said what in the conversation. In a scenario of a

friend group planning for the social gathering event, as user Alice types *I'll bring a *camera* and *water**.

The words "camera" and "water" are visualized as ellipses around the circle "Alice" forming a flower (Figure 1). As shown in the figure, such visualization helps to make each user's responsibility for the trip more explicit.

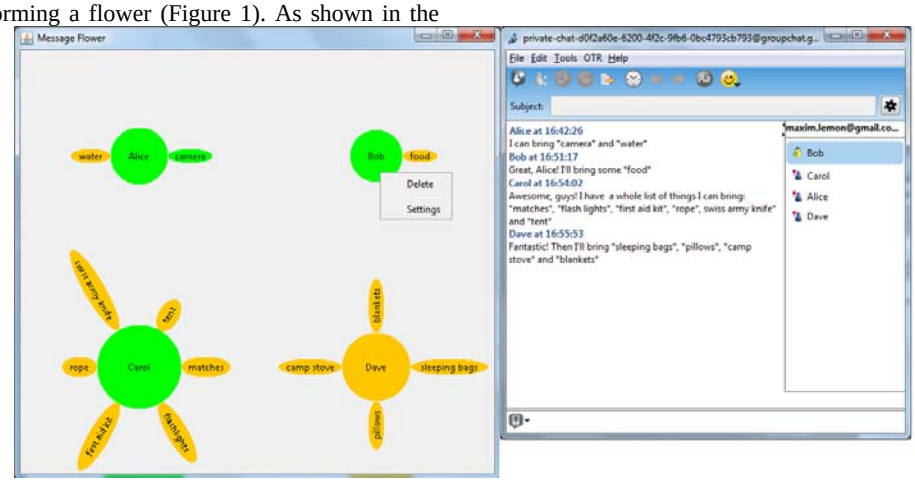

Figure 1 A screenshot of message visualizer for supporting awareness of chatters' responsibility in the group tasks

In the situation when users choose to visualize the key arguments or the rationales of their conveyed key points in a message, the tool supports group awareness of each other's perspective with respect to the discussion topic. To illustrate this point, Figure 2 presents a screenshot of an investigation about a crime and how users could use the tool to emphasize and visualize their points.

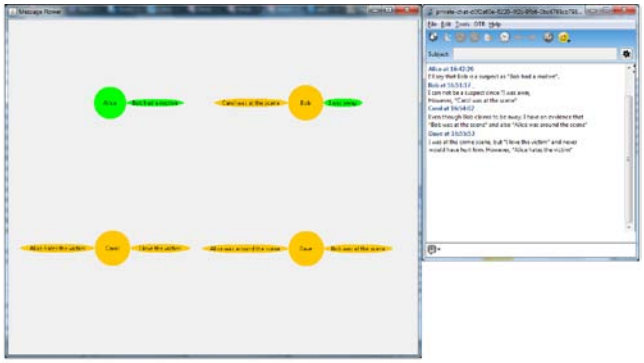

Figure 2 A screenshot of the message visualizer for supporting awareness of chatters' perspectives on the group topic

When a new portion of chat messages is entered for visualization, the ellipse's color is orange. When an ellipse or a user's circle is clicked on, the color changes to green. A user can choose the color setting by right click on the user circle.

Another feature the visualizer has is the ability to change a circle size depending on the number of its ellipses. The more ellipses around the circle are, the larger the radius of the circle is.

3. CONCLUSION

We presented a software tool, Message Visualizer, that can be used as a plug-in for the Jitsi open source IM client. The tool helps to emphasize the central concepts of a conversation by graphical representation of those concepts in the form of a flower in parallel with the chat flow. Such visualization promotes the user awareness of the major ideas of the chat and facilitates productive collaboration. Our next step is to conduct a lab controlled study examining the usability and effectiveness of the tool for synchronous group communication with Jitsi.

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