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Message Adaptation To Improve Communications

ABSTRACT

A message adaptation system is used for improving communications and human interactions. The message adaptation system adapts a message in such a way that the message generated by a first user is completely understood by the receiver of the message. The message can be an email message, a text message, a chat message etc. The system receives the message generated by the first user. The system processes the message to identify an objective description from the message and the associated subjective characteristics. The objective description of the message can be defined as the content of the message. On the other hand, the subjective characteristics associated with the message can be defined as the emotions, feelings, moods, etc. associated with the message. The system determines a normalized score for one or more subjective characteristics of the message and generates a revised message that includes the objective description and reflects the subjective characteristics specifically adapted in such a way that a second user is able to exactly get the information, tone, and feeling contained on the message. Subsequently, the message adaptation system transmits the revised message to the second user.

PROBLEM STATEMENT

Language can be written and interpreted to convey different meanings even when communicated in the same language. Differences in nationality, cultural backgrounds, and personal opinions and experiences can vary the interpreted meaning of written communications,

e.g., email messages, text messages, chat messages, etc., between two people. For example, the phrase “ok job” might not convey the same meaning for an individual from a European background as it would for an individual from an American background. The phrase “ok job” could convey positive feedback to the European individual while convey negative feedback to the American individual. Currently, there exists different solutions that translate text from one language to another language but they lack any message interpretation capabilities. Therefore, there exists a need for a solution that rephrases messages in the same language to ensure that the intended meaning of messages is properly conveyed to the reader.

MESSAGE ADAPTATION SYSTEM

The systems and techniques described in this disclosure relate to a message adaptation system. The system can be implemented for use in an Internet, an intranet, or another client and server environment. The system can be implemented as program instructions locally on a client device or implemented across a client device and server environment. The client device can be any electronic device such as a mobile device, a smartphone, a tablet, a handheld electronic device, a wearable device, a laptop, etc.

Fig. 1 illustrates an example method 100 for adapting a message generated by a first user, i.e., the writer of the message, for a second user, i.e., the recipient of the message. Method 100 can be performed by the message adaptation system.

The system receives a message generated by the first user (block 110). The message can be any text, e.g., email message, text message, chat message, drafted by the first user and to be read by the second user. Such messages can be exchanged between two users to communicate

ideas, concepts, or feelings. Since these messages are in written form they may not explicitly show or state the feelings, emotions or tone of the message. For example, a first person may write “Great job! Don’t do it again.” The recipient of the message may not be able to determine whether the first person was upset or congratulatory with regards to the recipient’s actions. Therefore, messages can include a lot of associated subjectivity, which makes it difficult for the second user receiving the message to comprehend the intended meaning of the message transmitted by the first user.

After the message is received, the system processes the message to identify an objective description from the message and associated subjective characteristics (block 120). The objective description of the message can be defined as the content of the message, i.e., the text or words included in the message. The system identifies the objective description from the message based on known means of detecting text or words in a message, such as, optical character recognition algorithms. The identified objective description can include the entire message or a subset of the message. The subset of the message can exclude any message text that contains subjective characteristics, as described below.

On the other hand, the subjective characteristics associated with the message can be defined as the emotions, feelings, moods, connotations, etc., associated with the text in the message. The system is capable of identifying the subjective characteristics associated with the message based on the behavior of the users involved in the communication. This behavior could include past behavior trends and characteristics of a combination of communications sent by the first user, communications received by the first user, communications sent by the second user, communications received by the second user, and communications between the first and second

user. Additionally, the behavior can also include the most common behavior portrayed by both the users. For example, if the two users involved in the communication are a mother and son, the system could be aware of the past messages exchanged between the two and understand that the message “are you mad! You are not doing that” has a positive connotation when communicated by the mother to her son. This knowledge helps the system to identify the subjective characteristics associated with the message.

The system then determines a normalized score for the one or more subjective characteristics associated with the message (block 130). The system uses normalized score to reflect the intended meaning of the message. The normalization is based on how a person normally expresses himself/herself in different scenarios. The system can employ a number of scoring system for different subjective characteristics such as moods, emotions, feelings, connotations, importance, praise, etc. For example, the number scoring system can be between 0 and 1. If the user always uses “good job” in his messages, the message could be normalized to a score of 0.1 for “praise.” On the other hand, for a user who never uses “good job”, the message could be normalized to a score of 0.9. These scores are used by the system to describe the weight of certain subjective characteristics that are found in the message which affect the perception and understanding of the message.

Further, the system generates a revised message that contains the objective characteristics of the message and reflects the subjective characteristics adapted for the second user (block 140). The subjective characteristics are based on their respective normalized scores to accurately convey the first user’s intent to the second user. Once the message is normalized and the attributes that go along with the message are modeled, the system generates the revised message.

For example, the word “good job” used by the first user, after being normalized can be revised to “great job” for the second user based on the normalization score used to describe weight of the subjective characteristics. In addition to the normalization described, the system can also normalize the respective scores for the subjective characteristics based on the behavior of the second user. This behavior could include the second user’s past behavior trends when communicating with the first user. Additionally, the second user’s behavior can also include his most common behavior traits when communicating with the first user.

Subsequently, the system transmits the revised message (block 150) to the second user. Additionally, or alternatively, the system can also enable the first user to validate the revised message before transmitting it to the second user. This can include the system displaying the normalized version of the message to the first user and the first user either accepting the revised version or rejecting the revised version. The system can transmit the revised message only if first accepted by the first user.

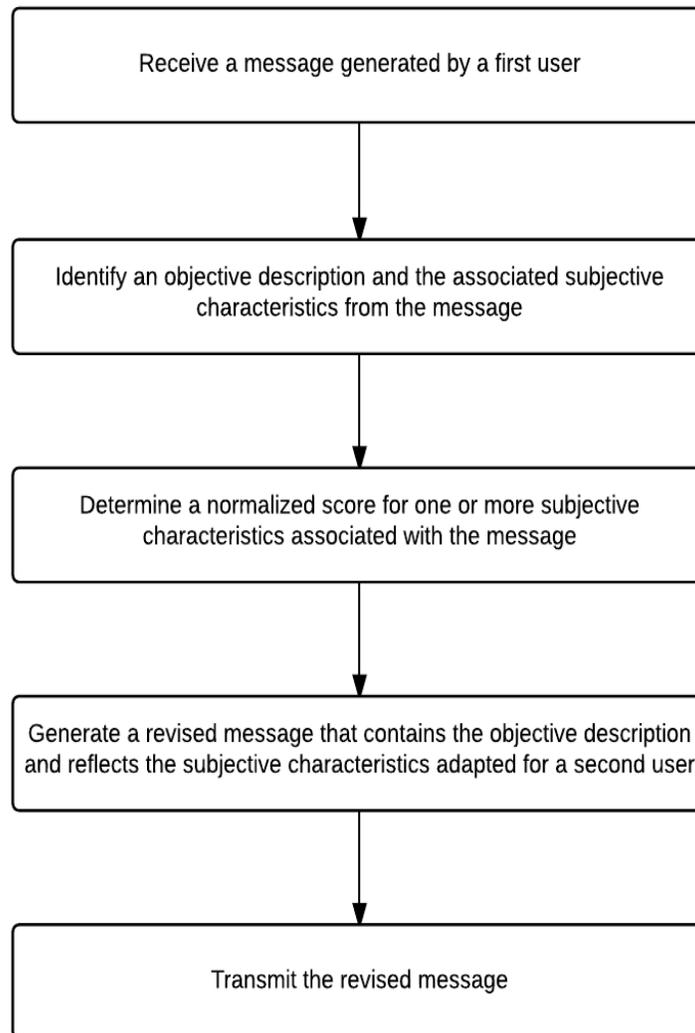
FIG. 2 is a block diagram of an exemplary environment that shows components of a system for implementing the techniques described in this disclosure. The environment includes client devices 210, servers 230, and network 240. Network 240 connects client devices 210 to servers 230. Client device 210 is an electronic device. Client device 210 may be capable of requesting and receiving data/communications over network 240. Example client devices 210 are personal computers (e.g., laptops), mobile communication devices, (e.g. smartphones, tablet computing devices), set-top boxes, game-consoles, embedded systems, and other devices 210’ that can send and receive data/communications over network 240. Client device 210 may execute an application, such as a web browser 212 or 214 or a native application 216. Web applications

213 and 215 may be displayed via a web browser 212 or 214. Server 230 may be a web server capable of sending, receiving and storing web pages 232. Web page(s) 232 may be stored on or accessible via server 230. Web page(s) 232 may be associated with web application 213 or 215 and accessed using a web browser, e.g., 212. When accessed, webpage(s) 232 may be transmitted and displayed on a client device, e.g., 210 or 210'. Resources 218 and 218' are resources available to the client device 210 and/or applications thereon, or server(s) 230 and/or web pages(s) accessible therefrom, respectively. Resources 218' may be, for example, memory or storage resources; a text, image, video, audio, JavaScript, CSS, or other file or object; or other relevant resources. Network 240 may be any network or combination of networks that can carry data communication.

The subject matter described in this disclosure can be implemented in software and/or hardware (for example, computers, circuits, or processors). The subject matter can be implemented on a single device or across multiple devices (for example, a client device and a server device). Devices implementing the subject matter can be connected through a wired and/or wireless network. Such devices can receive inputs from a user (for example, from a mouse, keyboard, or touchscreen) and produce an output to a user (for example, through a display). Specific examples disclosed are provided for illustrative purposes and do not limit the scope of the disclosure.

DRAWINGS

100



110

120

130

140

150

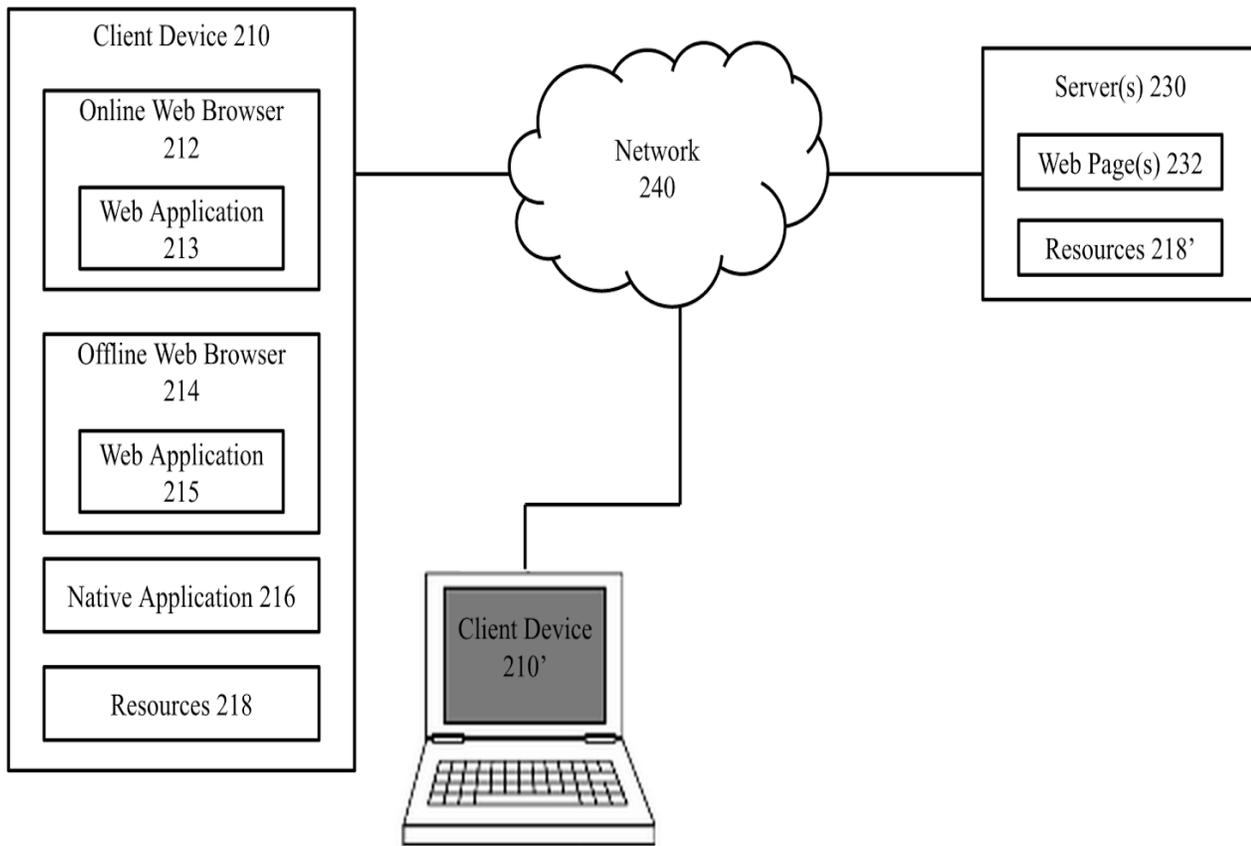


Fig. 2