

TextTone: Expressing Emotion Through Text

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Abstract. An increasingly large part of online communication is inherently social in nature. This social interaction is limited by the modalities of online communication, which do not convey tone or emotion well. Although some solutions have evolved or have been proposed, they are inherently ambiguous. We present a system, TextTone, for the explicit expression of emotion in online textual communication. TextTone incorporates reader-specific preferences for the visualization of tone and emotion. We describe social interaction and visualization scenarios that TextTone can be meaningfully used for and discuss an initial implementation. Finally, we present the results of a preliminary evaluation of this implementation of TextTone.

1 Introduction

An increasingly large part of online communication is inherently social [11]. Blogs, instant messaging, IRC chat rooms and the like are new forms of social communication, and even predominantly non-social interactions online have a significant social component [6, 8].

However, the modalities of online social interaction are much more limited than those of face-to-face social interaction, and provide no good way to convey non-verbal cues [3], which make up 93% of face-to-face interaction [7]. Online communities have appropriated the use of emoticons and other textual representations to help address this issue, but the lack of a standard set of expressive and versatile representations introduces ambiguity, which limits their usefulness [10].

TextTone aims to provide a means for unambiguously expressing emotion through text. It does this by dynamically switching representations based off of the preferences of the reader. Instead of forcing all the users to ‘speak a common language’, TextTone picks the most meaningful representation based on the audience, the environment, and the platform, so that two users reading the same text would each see the representations that made the most sense to them in their own environment.

2 Current Representations

The inability to convey emotion through text greatly limits the effectiveness of textual communication from a social perspective. Not surprisingly, therefore, numerous attempts have been made to address the issue, both by interaction researchers and the online community [1, 4, 5, 9, 13]. However, expressive representations, such as

kinetic or *animated text*, have met with limited success in practice, largely due to difficulties in interaction and archival [1, 4, 5]. Our system overcomes these kinds of issues through an easy-to-use authoring environment (Figure 1) and representations that can be naturally archived.

Currently, the most successful representation by far is the use of *emoticons* [9, 13]. However, studies have shown that only four emoticons account for almost all of the common emoticon usage online, with the prototypical smiley face – :) or :-), accounting for more than half [9]. This suggests that the set of emoticons that can be widely used is very limited. Additionally, different cultures sometimes adopt different representations for the same emotion – the textual representation of ‘angry’ in Japan is >.< , and is very different from the :@ commonly used in the United States¹. Consequently, there is an inherent ambiguity in the usage of all but a very few emoticons, and expressing any kind of non-trivial emotion textually is unfeasible with these representations.

3 TextTone

TextTone attempts to address these issues by dynamically picking a representation that the reader has chosen to be meaningful and appropriate for that emotion, in that environment and on that platform. The author of a body of text semantically indicates tones in the text – much as emoticons are used today, and TextTone represents this text in an intermediate plain-text format that can be distributed to readers. When viewed, TextTone transforms the text in this format into the appropriate representation chosen locally by each reader. For example, a blogger could indicate that a certain line was written in anger, and everyone who read that line would see it represented to them in a way that indicated anger to them personally – be it with bold text, or red text, or large text, or whatever representation meant ‘anger’ to them.

This allows the author to select the tones that need to be conveyed, but delays the encoding of those tones until the text is viewed by the reader, thereby allowing the system to use each reader’s preferred representation.

As an initial exploration into the space, TextTone was implemented as an IM client based on the open-source DAIM library [12] for the AOL Instant Messaging (AIM) architecture. We felt that an IM client would allow us to study a wide enough variety of textual social interactions to be able to meaningfully evaluate the system.

Our implementation allows the user to connect to the AIM network and to communicate with people on their buddy list. In their instant messages, users can indicate tone by demarcating blocks of text with the corresponding emoticon. Alternatively, users can select text and choose the tone from a drop-down menu. The preset tones are: *happy*, *very happy*, *upset*, *disappointed*, *angry*, *very angry*, *shocked*, *confused*, *winky*, *tongue-in-cheek*, *embarrassed* and ‘*none*’ (the default no-tone option). The corresponding emoticons are also displayed. These tones were chosen as they represent the emoticons most commonly included with commercial IM clients. In

¹ In reality, :@ is not always used to represent angry. We found other emoticons for angry (and other meanings for :@) on different systems. This only serves to further illustrate our point.

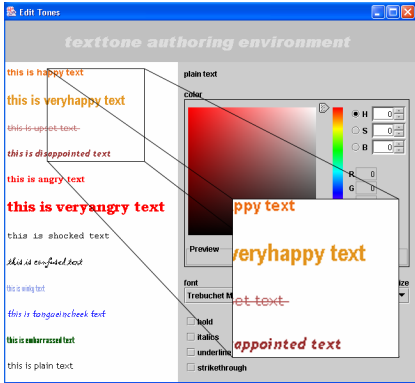


Fig. 1. The interface used to assign representations to tones in TextTone, showing the 'very happy' tone

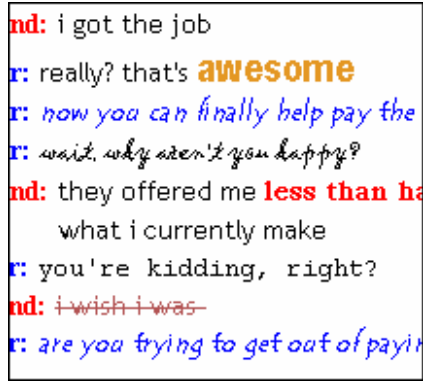


Fig. 2. An archive of one side of a conversation on TextTone. The word 'awesome' uses the 'very happy' tone

choosing a representation for emotion, users can control the text's *font-size*, *font-color*, and *font-face*, and whether the text is *bold*, *italicised*, *underlined* or has a *strike-through* (Figure 1).

4 Usage Scenarios

We identified several key usage scenarios where we expect TextTone to be particularly useful. These scenarios can be broadly divided into two categories – *social interaction scenarios* and *visualization scenarios*.

From a social interaction standpoint, we expect TextTone to be used in situations similar to the ones that emoticons are currently used in – *emphasis* and the *resolution of ambiguity*. For emphasis, the analogous use of emoticons would be 'Lunch is finally here! :)' or 'I had an exam today :('. Resolution of ambiguity, on the other hand, frequently occurs in situations of sarcasm or humor, such as 'I hate you ;)' or 'You're crazy :)'. Although not strictly ambiguity resolution, we will consider this to include the case when an explicit tone is used to indicate tone where none is implied, such as 'I hope I get into INTERACT 2005! :)'.

By using mappings that the users have specified to be meaningful to them, TextTone facilitates the development of a visual vocabulary of tones, which can be leveraged from a visualization perspective. Through TextTone, users can rapidly infer the tone of parts of a conversation by the style of the text used to archive it, without having to actually read the content (Figure 2). We also feel that TextTone makes it easier for users to retrieve earlier conversations based on the tones of the conversation, and not on the exact words used. For example, it is easier to find out what it was that your best friend said to make you feel better when you were upset last week, or the conversation from last month that quickly went from happy to sour.

5 Evaluation and Future Work

We conducted a preliminary qualitative evaluation of TextTone with 20 participants (8 female), with ages ranging from 18 to 32. Users were brought in pairs, were introduced to the existing AIM system and to TextTone, and were asked to interact with each other for 10-15 minutes on each system.

Results from the evaluation were decidedly positive about the use of TextTone for the expression of emotion. An analysis of the qualitative feedback revealed that most of our users (17/20) found it advantageous to use TextTone over the existing system to express emotion; and questionnaires revealed that a significant number (16/20) found it more satisfying to use. The most common disadvantage that users identified, apart from minor technical issues, was the need for extended use of the system to be able to build mappings between tones and the corresponding visual representation. We intend to conduct an extended diary study to account for this and to study more of the complex usage scenarios we have identified, such as archival and visualization.

Users commented on the similarity of the representations to actual speech, where the tone affects the delivery of the content. Users also commented that the representations were “more expressive and less annoying than emoticons”, and that they “didn’t have to worry about how the message may sound”.

We are currently exploring automatic means of inferring tone in bodies of text. Despite the need to explicitly indicate tone in this iteration, all our users expressed a significant interest (mean=5.3/7.0, min=4.0) in using TextTone again.

References

1. Gromala, D. BioMorphic Typography. Available: <http://lcc.gatech.edu/~gromala/excretia/>
2. Donath, J. Karahalios, K. and Viegas, F. Visualizing Conversations. In Proceedings of the 32nd Hawaii International Conference on Systems, 1998.
3. Kiesler, S., Siegel, J., & McGuire, T.W. (1984). Social psychological aspects of computer-mediated communication. *American Psychologist*, 39, 1123-1134.
4. Lee, G. (2002). Typorganism: Communication Experiments focused on Interactive Kinetic Typography and Communal Interactivity in the Web Environment. MFA thesis.
5. Lee, J., Forlizzi, J., Hudson, S. E. The kinetic typography engine: An extensible system for animating expressive text. *UIST02 Conference Proceedings (Paris, France)*, 81 - 90.
6. McCormick, N. B., & McCormick, J. W. (1992). Computer friends and foes: Contents of undergraduates' electronic mail. *Computers in Human Behavior*, 7, 137-147.
7. Mehrabian, A. *Nonverbal Communication*. Chicago: Aldine-Atherton, 1972
8. Reid, Elizabeth. (1991). *Electropolis: Communication and Community on Internet Relay Chat*. Thesis, Dept. of History, University of Melbourne.
9. Rezabek, L. L., & Cochenour, J. J. (1998) Visual cues in computer-mediated communication: Supplementing text with emoticons. *Journal of Visual Literacy*, 201-215.
10. Sarbaugh-Thompson, J.S. and Feldman, M.S. (1998) Electronic mail and organizational communication: Does saying "hi" really matter? *Organization Science*, 9(6), 685-698.
11. Sproull, L. & Kiesler, S. (1991). *Connections*. Cambridge, MA: MIT Press.
12. Walluck, D. DAIM Available: <https://daim.dev.java.net/>
13. Walther, J. B., & D'Addario, K. P. (2001). The Impacts of Emoticons on Message Interpretation in Computer-Mediated Communication. *SSCR*, 19(3), 323-345.