

# Determining the public mood state by analysis of microblogging posts

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## Extended Abstract

Microblogging is a form of online communication by which users broadcast brief text updates, also known as tweets, to the public or a selected circle of contacts. A variegated mosaic of microblogging uses has emerged since the launch of Twitter in 2006: daily chatter, conversation, information sharing, and news commentary, among others (Java et al, 2007). Regardless of their content and intended use, tweets often convey pertinent information about their authors mood status. As such, tweets can be regarded as temporally-authentic microscopic instantiations of public mood state (O'Connor et al, 2010). Here we perform a sentiment analysis of all public tweets broadcasted by Twitter users between August 1 and December 20, 2008. For every day in the timeline, we extract six dimensions of mood (tension, depression, anger, vigor, fatigue, confusion) using an extended version (Pepe and Bollen, 2008) of the Profile of Mood States (POMS), a well-established psychometric instrument (Norcross et al, 2006; McNair et al, 2003). We compare our results to fluctuations recorded by stock market and crude oil price indices and major events in media and popular culture, such as the U.S. Presidential Election of November 4, 2008 and Thanksgiving Day (see Fig. 1). We find that events in the social, political, cultural and economic sphere do have a significant, immediate and highly specific effect on the various dimensions of public mood. In addition, we found long-term changes in public mood that may reflect the cumulative effect of various underlying socio-economic indicators. With the present investigation (Bollen et al, 2010), we bring about the following methodological contributions: we argue that sentiment analysis of minute text corpora (such as tweets) is efficiently obtained via a syntactic, term-based approach that requires no training or machine learning. Moreover, we stress the importance of measuring mood and emotion using well-established instruments rooted in decades of empirical psychometric research. Finally, we speculate that collective emotive trends can be modeled and predicted using large-scale analyses of user-generated content but results should be discussed in terms of the social, economic, and cultural spheres in which the users are embedded.

## References

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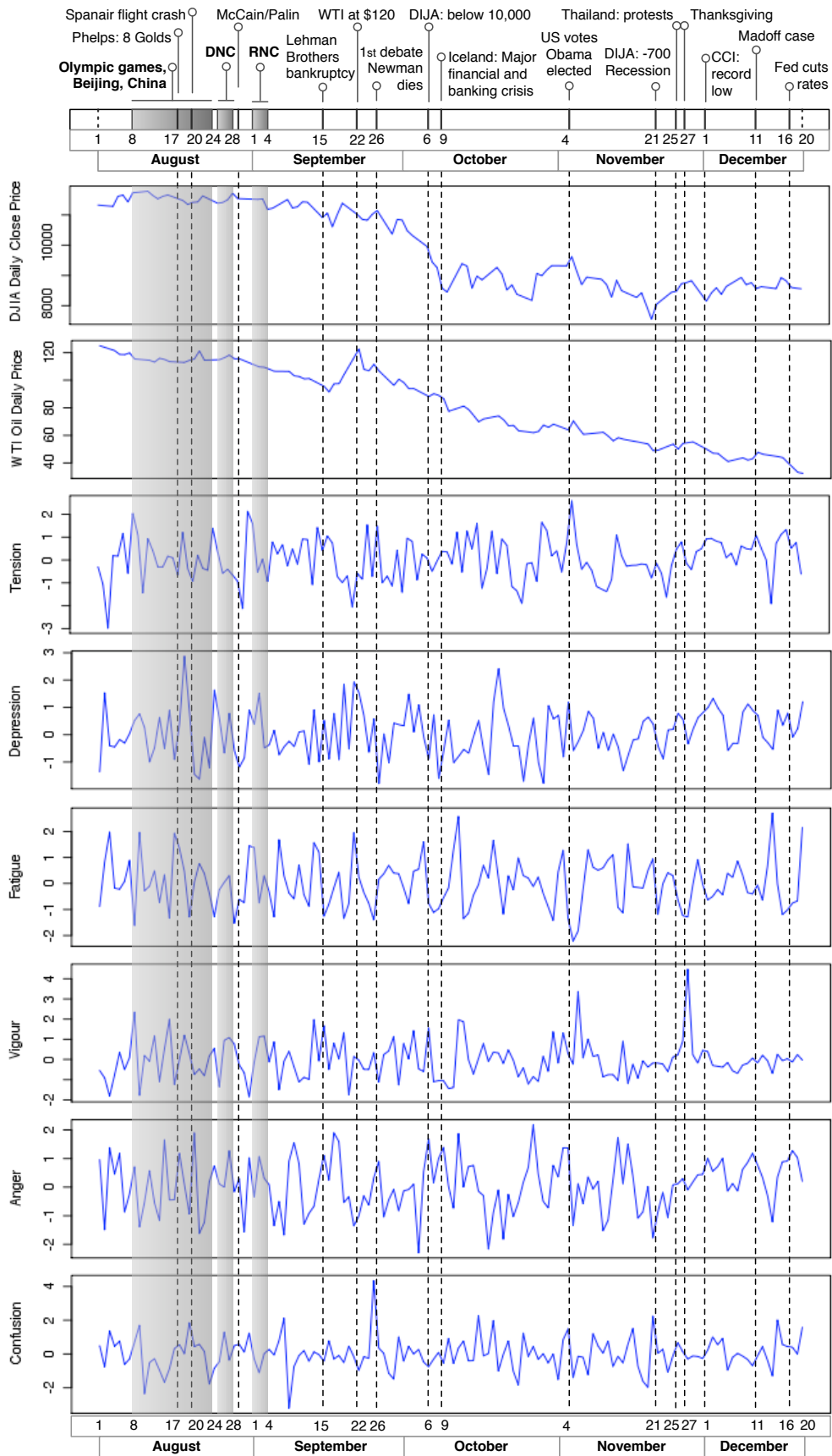


Figure 1: Twitter mood timeseries for 6 mood dimensions measured by extended Profile of Mood States test from August 1 to December 20, 2009. Major events marked in timeline above.