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# Sentiment Analysis of Player Chat Messaging in the Video Game StarCraft 2: Extending a Lexicon-based Model

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## Abstract

There is a growing need for automated tools which make predictions about the positivity or negativity of sentiment conveyed by text. Such tools have a number of important applications in game user research. They are useful for understanding users generally, as they may give Big Data researchers access to a new source of information about player learning environments. Sentiment analysis methods are also applicable to the detection of toxicity, and the identification of players or player messages that are a potential threat to the player experience. A major challenge in sentiment analysis, however, is developing portable models that can be applied to new domains with relatively little effort. In the present study we extend a lexicon-based sentiment extractor, SO-CAL, to the analysis of instant messages across 1,000 games of StarCraft 2. We show that, with updates to dictionary entries that are tailored to the classification task at hand, SO-CAL constitutes a respectable classifier of sentiment and toxicity that is robust across differences in player region and league. We verify the performance of our toxicity detector against a sample of 2,025 additional games. Our results support the proposal that lexicon-based sentiment extraction is a useful and portable method of sentiment analysis, and that it can be deployed to identify toxicity.

Keywords: Sentiment Analysis; Video Game Chat; Instant Messaging; Toxicity;

## 1 Introduction

### 1.1 Sentiment analysis and game commentary

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