

Sentiment and Factual Transitions in Online Medical Forums

Victoria Bobicev¹, Marina Sokolova^{2,3}(✉), and Michael Oakes⁴

¹ Technical University of Moldova, Chisinau, Moldova
vika@rol.md

² Institute for Big Data Analytics, Halifax, Canada

³ Faculty of Medicine and Faculty of Engineering, University of Ottawa,
Ottawa, Canada
sokolova@uottawa.ca

⁴ Research Group in Computational Linguistics, University of Wolverhampton,
Wolverhampton, UK
Michael.Oakes@wlv.ac.uk

Abstract. This work studies sentiment and factual transitions on an online medical forum where users correspond in English. We work with discussions dedicated to reproductive technologies, an emotionally-charged issue. In several learning problems, we demonstrate that multi-class sentiment classification significantly improves when messages are represented by affective terms combined with sentiment and factual transition information (paired t-test, $P=0.0011$).

1 Introduction

Online public forums discuss personal experience and often convey the sentiments and emotions of the forum participants. Personal sentiments expressed in the posted messages¹ set interaction patterns among the members of online communities and have a strong influence on the public mood [5, 15]. Several studies found that shared online emotions can improve personal well-being and empower patients in their battle against an illness [6, 12].

Sentiment transition has become a popular topic in sentiment analysis following maturity of online communities and availability of relevant data. However, most of such studies work with only positive and negative polarity and analyze propagation of positive and negative sentiments [9, 12]. In this study, conducted on forums where users communicate in English, we work with the sentiment categories of *encouragement*, *gratitude*, *confusion* and factual categories of *facts*, *endorsement* and analyze how these categories change in consecutive messages; for example:

We thank anonymous reviewers for thorough and helpful comments. This work has been supported by NSERC Discovery grant.

¹ Terms “messages” and “posts” are equivalent in this work.