

# Good Friends, Bad News - Affect and Virality in Twitter

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**Abstract.** The link between affect, defined as the capacity for sentimental arousal on the part of a message, and virality, defined as the probability that it be sent along, is of significant theoretical and practical importance, e.g. for viral marketing. The basic measure of virality in Twitter is the probability of retweet and we are interested in which dimensions of the content of a tweet leads to retweeting. We hypothesize that negative news content is more likely to be retweeted, while for non-news tweets positive sentiments support virality. To test the hypothesis we analyze three corpora: A complete sample of tweets about the COP15 climate summit, a random sample of tweets, and a general text corpus including news. The latter allows us to train a classifier that can distinguish tweets that carry news and non-news information. We present evidence that negative sentiment enhances virality in the news segment, but not in the non-news segment. Our findings may be summarized 'If you want to be cited: Sweet talk your friends or serve bad news to the public'.

## 1 Introduction

Viral communication is already of significant practical importance and the scientific interest is increasing. The scientific interest derives in part from the light shed by viral communication on meme diffusion and opinion formation. In the growing viral communication literature there has been an interest in affect and emotion as crucial factors behind successful viral diffusion. The idea has been that people are more likely to send on material that like 'pets, sex and the absurd' is able to actualize a common experience of affective arousal, be this laughter, compassion, anger or surprise. This idea that affectively charged viral messages are more likely to spread than affectively neutral ones has been present within the more anecdotic marketing literature [1, 9], as well as in the more systematic aggregations of qualitative studies that have arisen in recent years. For example, in their study of word of mouth (WOM) marketing, Kozinets et al. [14] argue that such messages are more likely to be taken seriously and further diffused by consumers once they are inserted within a network of affectively significant relations that is able to transform messages from 'persuasion oriented 'hype' to relevant, useful, communally desirable social information that

builds individual reputations and group relationships'. It is in this 'transformation of a market narrative into a social one' that 'the WOM communicator performs [the] services [that] are valuable to the marketers'[14]. Similarly, based on a qualitative analysis of nine viral marketing campaigns, Dodele et al. [5] conclude that the key to success is the ability to stir up an emotional arousal among the people who pass along the message. Indeed, as Vincent Miller [20] argues, communication on social media can be primarily understood as 'phatic', that is, geared towards the creation and consolidation of affectively significant relations, rather than towards the transfer of information. Only recently however has the hypothesis of the effect of affective charge on viral diffusion been tested in a large-scale quantitative study. In their recent work, Berger and Milkman [2] use a sample of 6; 956 articles from the New York Times articles published between August 30th and Nov 30th 2008. The authors conclude that there is a strong link between affect, as measured by a sentiment analysis of article content, and whether content is highly shared; as defined as whether the particular article made the New York Times' list of 'most emailed' articles. They also conclude that positive content is more viral than negative content, but that articles with some negative content, like anger or anxiety are both more likely to make the paper's most emailed list. These results hold controlling for how surprising, interesting, or practically useful content is, as well as external drivers of attention, like how prominently articles were featured. Berger and Milkman's suggestion that affective charge has a discernable impact on viral diffusion is corroborated by a host of quantitative studies. It is also supported by common sense. In a social media environment where social relations have effectively become a medium of communication, content that is more likely to activate such relations is also more likely to spread. Interestingly a similar relationship has been suggested, if implicitly, by a long range of sociological research on the diffusion of ideas and innovations, from the work of Tarde [32] via that of Lazarsfeldt [16] and Rogers [25] without the terms 'virality' or 'affect ever being used. However, Berger and Milkman also claim that their conclusions about the link between positive affect and viral diffusion has a general validity, and they found this link on psychological theories, like the claim that 'consumers often share things to self-enhance [...] or communicate identity, and consequently positive things may be shared more because they reflect positively on the self '[2]. In other words, they suggest that it is part of human nature to share positive content more often than negative content. However, their conclusion appears to be in contrast with classic theory of selection and diffusion in news media [8], which emphasizes negative affect as promoting propagation. This applies in particular to the theory of news factors. News factors are 'relevance indicators that not only serve as selection criteria in journalism but also guide information processing by audience' [6]. News factors research can be traced back to 1922, when Lippman [18] introduced the first model of news values. In part inspired by cognitive psychology it has developed into several different models, see e.g., [8, 29, 26] that aim to explain why certain events obtain more media attention or readers' awareness than others. The notion of news factor negativity has been introduced by Galtung and Ruge in 1965 [8] and since then has been taken into account by other models [6, 26, 29] partly splitting up negativity in subcategories as for example conflict, damage, aggression or failure. Several studies show that the news factor negativity has a significant impact on readers' awareness as well as on journalists' selection [10, 22,