

Keeping it cool: Emotional biases in the English lexicon

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There is support for a general positivity bias in the English language, demonstrating across multiple corpora that more positive words are in use than negative ones (Kloumann et al., 2012). Reasons given for this bias typically refer to the general positivity of life experiences or the prosocial benefits of positive communication. As yet, no one has examined the possibility of a parallel bias towards calm words arising from either unexciting daily life experiences or the survival value of risk-avoidance. We identify the existence of this calmness bias across a wide variety of corpora. We also revisit a recent debate (Kloumann et al., 2012 vs. Garcia et al., 2012) regarding whether positive words are used more frequently or not and show how these correlations differ with arousal.

Taking advantage of a recent, large set of valence and arousal norms (Warriner et al., in press), we have found both positivity and calmness biases across diverse genres and dialects of English –subtitles of movies, spoken British English, Google Books, Twitter, music lyrics, The New York Times, and others. Despite the wide range of both content and entertainment intent, we confirm a consistent positivity bias (65 to 75% of words rated above neutral) and attest for the first time the calmness bias, i.e. the tendency to use low-arousal words (75 to 85% of words rated below neutral).

Garcia et al. (2012) argued that the positivity bias was a result of the higher token frequency of positive words while Kloumann et al. (2012) argued for the consistent positivity at all frequency levels in English. Using the new set of norms, we find support for a positive genre-dependent correlation between emotional positivity and token frequency (more positive words in children's books than in movies), but not between calmness and frequency.

We also consider, for the first time, gender differences in the manifestation of these biases. Generally, men gave higher-arousal ratings, especially to words that were considered arousing by both genders. Women were generally happier, especially with words considered pleasant by both genders. Also, while both genders associated highly-arousing words with relative unpleasantness (*death, blood*), the correlation was much stronger for women ($r = -.187$) than for men ($r = -.06$, both $p < 0.05$), suggesting an arousal-seeking tendency in men.

These findings are interesting not only because of their link to evolutionary psychology and the advantages of positivity and risk-aversion (Axelrod, 1984; Samuelson and Zeckhauser, 1988), but because of the known influence of positivity and arousal on word processing (Kousta et al., 2009). Our data allow for validating proposals that these differences can be traced to the greater informational content or lower density of negative and high-arousing words (Garcia et al., 2012; Unkelbach, 2012).

We conclude with a discussion on whether emotion causes word processing differences or whether this effect is mediated by the distribution of emotion in the language, e.g. lexical biases towards positivity and calmness.