

Linguistic positivity in historical texts reflects dynamic environmental and psychological factors

Research about LPB has been unable to establish which of these (universal cognitive biases, affective states, objective circumstances, and social norms) mechanisms drives LPB and whether the effect might be driven by interaction between a subset of these or other facts.

Background

Hypothesis 1.1 : LPB has a nil linear trend.

Hypothesis 1.2 : LPB is increasing over time.

Hypothesis 1.3 : LPB is decreasing over time.

Hypothesis 2.1 : Changes in LPB will be predicted by changes in the objective circumstances, and a deteriorating environment will be associated with a decrease in LPB.

Hypothesis 2.2 : Changes in LPB will be predicted by changes in the collective affect, so that decreasing happiness on the national level will be associated with a decline in LPB.

Study 1 : The first study tests if there is a general linear trend, comparing the empirical support for hypotheses 1.1, 1.2, and 1.3.

measured LPB in two time-stamped historical corpora of American English—Google books and the New York Times

Study 2 : In the second study we measured whether the LPB is associated with military casualties in war, testing hypothesis 2.1.

computed the same LPB index as in study 1 and regressed this index on time and number of casualties per year (1800–2010).

Study 3 : In a third study, we further tested hypothesis 2.1, comparing the trends in LPB and economic prosperity.

we represented objective circumstance as economic wellbeing. This fact was operationalized using Okun's Misery Index.

Study 4 : In the fourth study, we examined the association of LPB with a direct measure of subjective happiness, testing hypothesis 2.2.

We followed the analysis strategy used in the previous study and predicted changes in LPB from changes in subjective happiness (1946–2014) while controlling for linear trends.

Data Sources

Affect Dictionary

We used the positive and negative emotion word categories from the linguistic inquiry and word count (LIWC) dictionary (56), which contained 907 words and stems. There were 408 entries in the positive category and 499 entries in the negative category.

Casualties of War Time Series

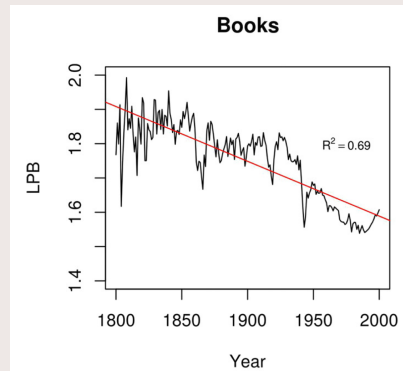
In study 2, we used data from a fact sheet from the US Department of Veteran Affairs (1957) and computed the average number of United States military casualties for the wars in which the United States was engaged during the last two centuries.

Misery Index Time Series

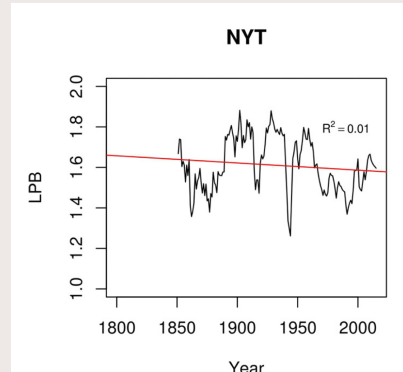
In study 3, we used data from www.miseryindex.us, which contained Misery Index measures for the United States in the period 1948–2015.

Happiness Time Series

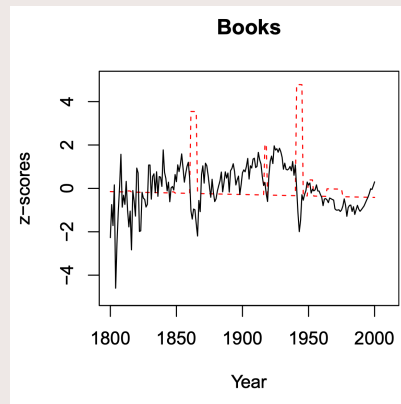
In study 4, we used survey data on happiness in the United States available from the World Database of Happiness .



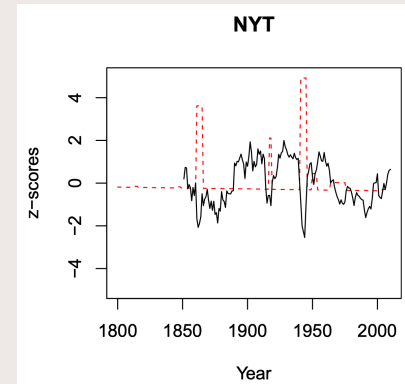
1. First, we observed that affective word use in American English has decreased over time.



2. Second, we found compelling evidence for a decreasing longitudinal trend in LPB. This trend was quite strong in the Google Ngrams corpus and was marginally significant in the New York Times corpus.

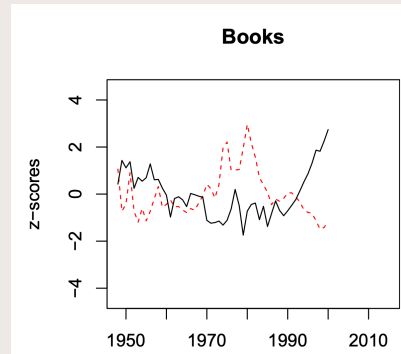


we found that LPB also decreases as a function of wars' casualty counts.

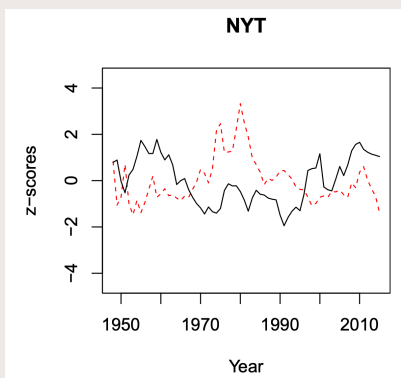


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This study provided further support for hypothesis 2.1, demonstrating that LPB can be predicted by a less extreme measure of objective circumstances. After controlling for time, we found that years with a higher Misery Index tended to have lower levels of LPB in both corpora.



we found that short-term fluctuations in LPB varied with nation-wide measures of happiness



In addition to supporting the subjective mood framework, these results further corroborate our view that LPB cannot be explained simply as a function of universal cognitive mechanisms.

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