

Maths proves human language has happiness bias

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New mathematics research has shown humans all around the world tend to be more positive than negative in their language.

Published in the *Proceedings of the National Academy of Sciences* today, the [research shows that positivity is ingrained](#) in the way in which humans communicate across many languages and cultures.

Led by the University of Vermont and including the University of Adelaide, the research uses "[big data](#)" to confirm the 'Pollyanna hypothesis' (from 1969) which says the human subconscious is biased towards remembering positive ideas.

The research also paves the way for the development of powerful language-based tools for measuring emotion.

"We're trying to build real-time measures of population-scale wellbeing, akin to Gross Domestic Product or economic indices," says co-author Dr Lewis Mitchell, from the University of Adelaide's School of Mathematical Sciences. "Happiness is obviously important, but tough to define and measure.

"We want to be able to do this in a data-driven, open-source way, so that both the public and policymakers can consult these metrics on a daily basis, as they might interest rates or stock tickers."

The researchers found the top 100,000 of the most frequently used

words across 10 languages from a wide range of sources, and then asked natural language speakers to rate whether those words were "happy" or "sad" on a 1-9 scale. The findings were based on five million individual human scores.

"We then collected all of these scores and looked at the distribution of scores, and in every single [language](#) that distribution was skewed towards positive emotions," says Dr Mitchell.

"It doesn't matter whether it's English, Spanish, Russian or Chinese—the words that make up our languages are universally biased towards [positive emotions](#)."

Even though all 10 languages were positively biased, there were some differences between them: Spanish and Portuguese were the "happiest" and Chinese, Korean and Russian were the "saddest."

The other languages were English, German, French, Indonesian and Arabic.

More information: "Human language reveals a universal positivity bias," by Peter Sheridan Dodds et al. *PNAS*, www.pnas.org/cgi/doi/10.1073/pnas.1411678112

Provided by University of Adelaide

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