work seeks to encourage further research in resolving classification disparities. As an initial attempt to standardize emotion classification from a psychological perspective, our dataset diversity, despite slight differences, offering a standardized approach. Its effectiveness may vary with classification theories. Our method aligns emotions with the same names across classifications, acceptable evaluation scores, indicating a bias towards negative interpretation due to existing datasets biases and psychological factors. Despite categorization challenges for emotions like surprise and trust, our method achieved evaluation scores.

Human Evaluations: When faced with tied choices, we conduct human evaluations on each theory to determine the best mapping choice in the situation of a tie.

The Classification for Surprise as Example

Surprise characterizes the feeling of shock due to perceiving things or experience out of expectation. To map surprise, we employed a bipolar model integrating valence and arousal dimensions. Russell introduced this model in 1977, with motivation as an initial component. Surprise may be considered a negative emotion, since previous studies associate surprise with a negative valence and high arousal levels. Based on Liu et al’s research, high-arousal, low-valence emotions are akin to anger. However, the potential for positive valence-associated surprise introduces ambiguity in conversion, possibly favoring mapping to neutral.

We leverage biological distinctions between emotions as a reference. A recent study utilizing biomarkers to analyze EEG profiles across brain regions offers valuable findings. Among surprise-combined emotions, the spectral biomarker’s mean differences (0.058) are lowest for the neutral-surprise pairing. Hence, both anger and neutral are considered possible mappings for surprise. To test this hypothesis, we implemented a program to convert surprise into anger and neutral. These converted emotions were mixed with randomly selected samples of other emotions. Annotators, at least two per data point, participated in the evaluation. Evaluation results favored the surprise-to-anger conversion, as it achieved higher accuracy. Hence, we map surprise to anger based on annotation outcomes.

Map analysis

Our analysis shows negative emotions are more finely categorized than positive or neutral ones, with 8 “negative”, 3 “positive”, and 3 “neutral” distribution among 14 categories. This may be due to dataset biases and psychological factors. The imbalance in emotion mapping, especially for ambiguous emotions like surprise and trust, may reflect TV shows and media biases and categorization theories, yet still achieve acceptable evaluation scores.

Despite categorization challenges for emotions like surprise and trust, our method achieved acceptable evaluation scores, indicating a bias towards negative interpretation due to existing classification theories. Our method aligns emotions with the same names across classifications, despite slight differences, offering a standardized approach. Its effectiveness may vary with dataset diversity.

As an initial attempt to standardize emotion classification from a psychological perspective, our work seeks to encourage further research in resolving classification disparities.