

East vs West: Lexical Elaboration points to Emotion Universality

Agustine, H., Clark, G., Han, S. J., Tamura, Y. & Ryakhovskaya, Y.
The University of Melbourne

Background

- ❖ Are emotions universal, and are they experienced similarly across cultures? Some argue that this is the case, [3], [4], [8], but others suggest otherwise.
- ❖ For instance, Semin et al. (2002) found that emotion words more readily come to mind in individuals from individualistic cultures as compared to collectivist cultures. Likewise, Schimmack et al. (2002) found that cultures perceive emotional valences as either oppositional or compatible, based on differences between Eastern and Western philosophies.
- ❖ Furthermore, previous literature suggests that many intercultural differences in emotion lie between Western versus Eastern cultures in particular [12].
- ❖ Lexical elaboration provides a framework that reveals differences in cultural emphasis and local communicative need [7]. The aim of this study is to apply this framework to investigate how differences between Eastern and Western emotion lexicons might provide further evidence for similarities and differences between emotion representation within the two regions.
- ❖ Specifically, we want to examine how the proportion of emotion words in these languages might differ, as well as whether there is a difference in the distribution of emotion words once valence is taken into account.

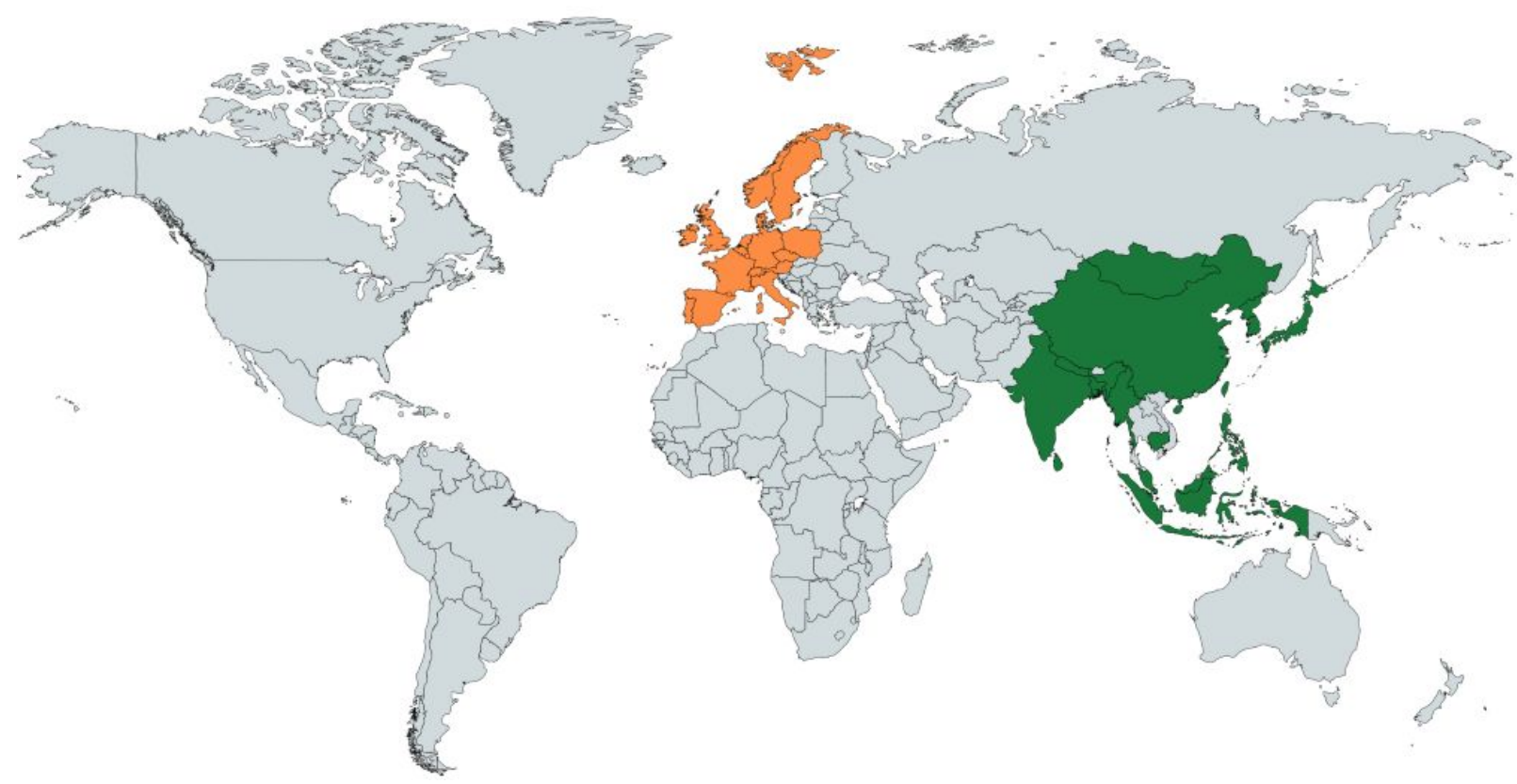


Figure 1. 29 languages were used for this study - 16 Eastern languages (originating from green) and 13 Western languages (originating from orange).

Method

Datasets

- ❖ 29 languages originating from the 'East' and 'West' were used
- ❖ 518 English bilingual dictionaries were collected from online sources
- ❖ Each dictionary provided frequency counts for 4534 English words to roughly represent the number of equivalent words in its second language.
- ❖ Languages for which there were multiple dictionaries used averaged frequency counts in order to improve accuracy.
- ❖ 63 emotion nouns from Scherer (2005) were selected as our set of emotion words.
- ❖ Each emotion word was assigned a valence score, sourced from the NRC VAD dataset [6].

Measurements

- ❖ Emotion word proportions for each language were calculated as the sum of frequencies for the emotion words divided by the sum of all frequencies for all words
- ❖ Emotion words distributions for each language were obtained by forming probability density distributions from the frequency counts of emotion words ordered by valence

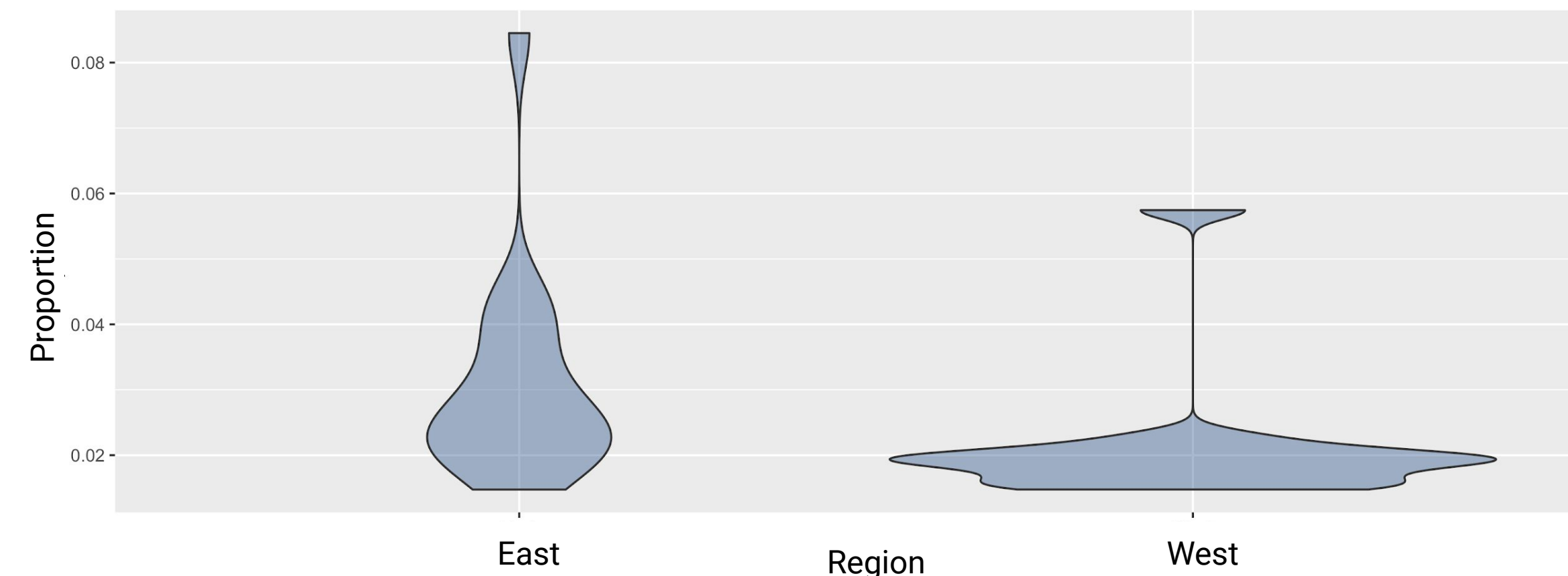


Figure 2. Violin plots depicting the distribution of emotion word proportions amongst Eastern and Western languages.

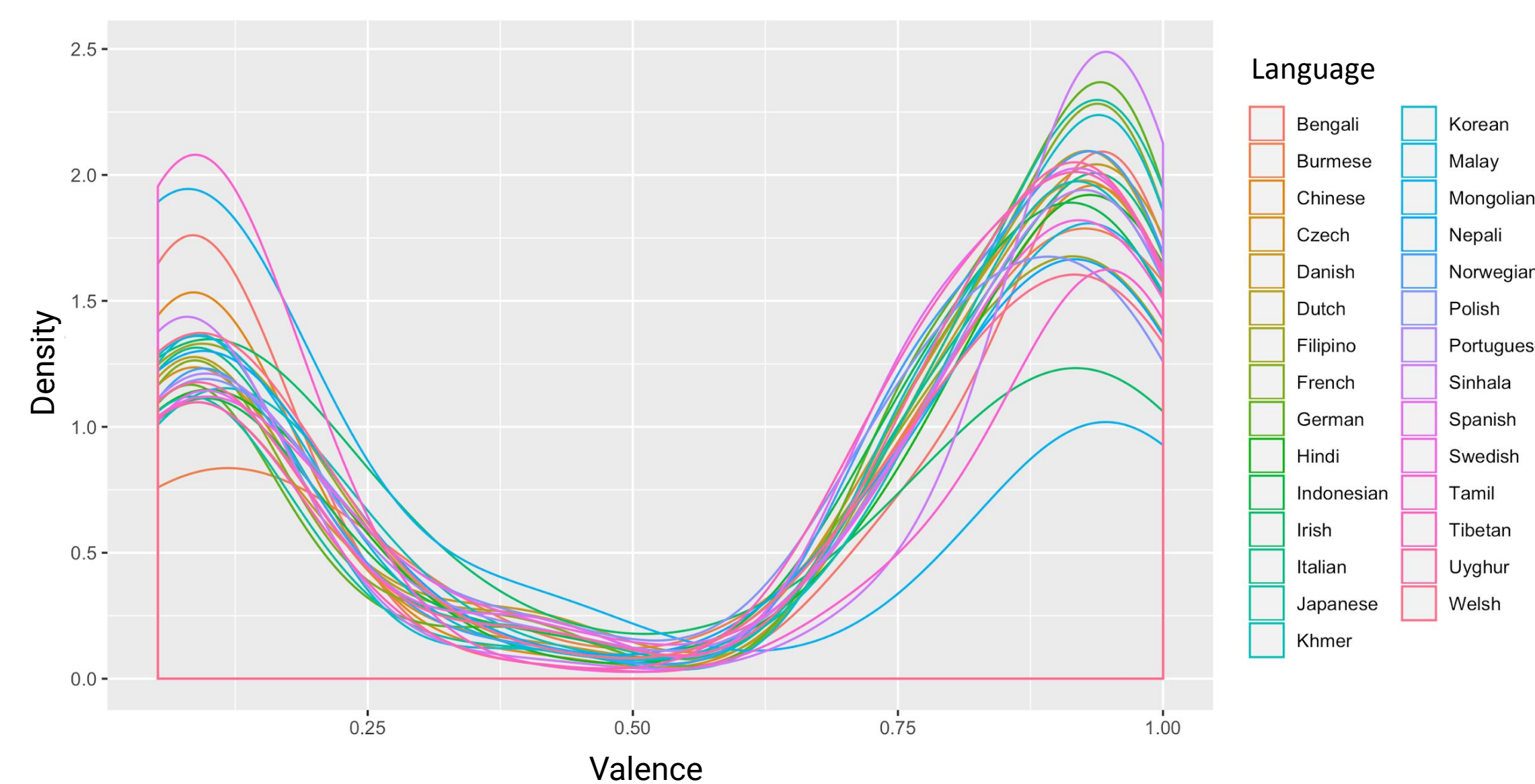


Figure 3. Density distributions of emotion word frequencies for each language according to valence

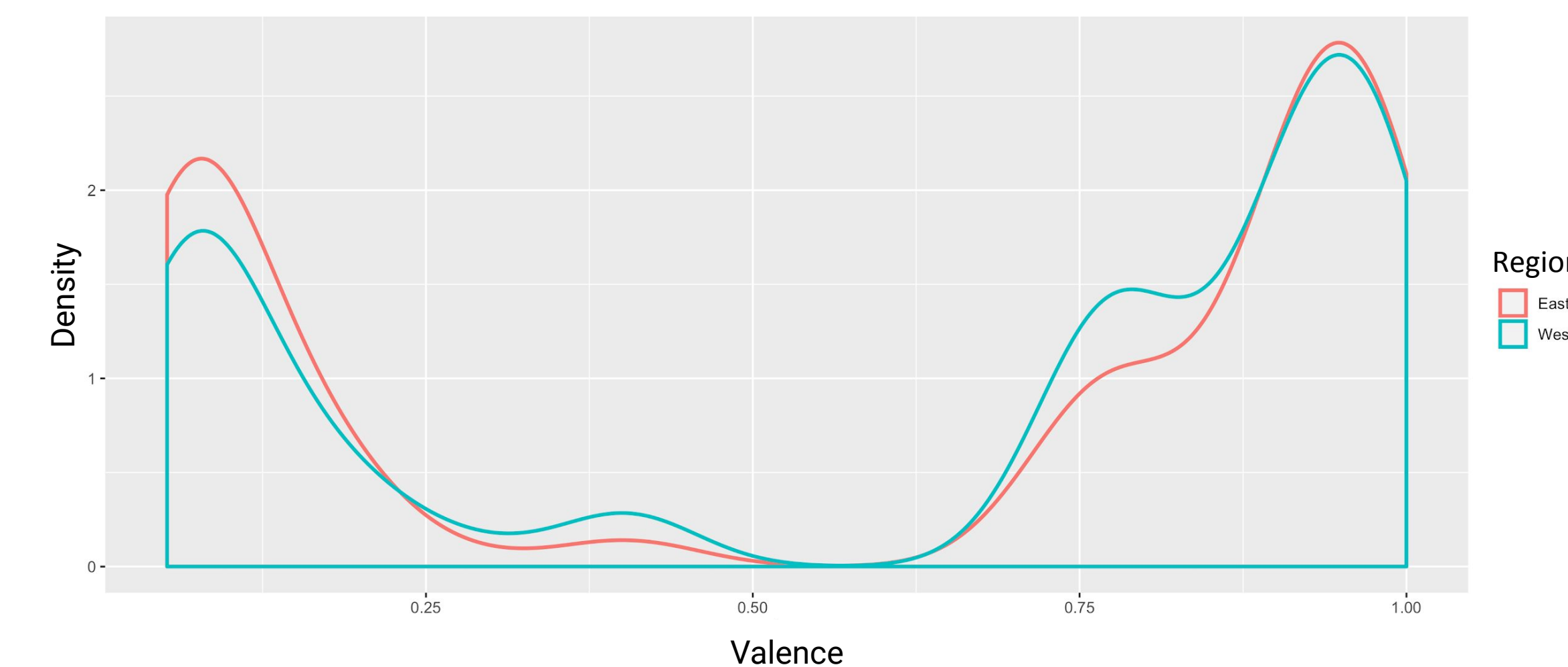


Figure 4. Density distributions of emotion word frequencies for each region according to valence

Analysis

- ❖ To investigate the difference in proportions, we ran a generalised mixed effects regression analysis:

$$\text{Proportion} \sim \text{Region} + (1|\text{LanguageFamily})$$

- ❖ To investigate the difference in emotion word distributions according to valence we took a Bayesian approach and ran a quantile regression analysis on the first, second and third quartiles:

$$\text{Valence}_{\text{quantile}} \sim \text{Region} + (1|\text{LanguageFamily})$$

Results

How do emotion word proportions differ between East and West?

- ❖ Results from the mixed effects regression analysis suggest that language region has a significant effect on the proportion of emotion words in a lexicon ($\chi^2(1)=1063.5$, $p<0.001$), with Western languages tending to have smaller proportions of emotion words.

How do emotion word frequency distributions differ between East and West?

- ❖ Results from the quantile regression analysis reveal little difference between Eastern and Western word frequency distributions on the basis of valence.
- ❖ The Western coefficient posterior is centered at 0.091 for the first quartile, -0.055 for the second quartile and 0 for the third quartile. At each quartile, this suggests very small differences between the density distributions of Western and Eastern languages.

Discussion

- ❖ The results from our study suggest that although Eastern cultures may have greater emotional communicative needs, the way in which emotion lexicons are structured according to valence remains similar across cultures.
- ❖ The former result is consistent with past findings that the prevalence of emotion words may vary between cultures, especially along the collectivist and individualist distinction [11], which has been shown to be analogous to the East/West distinction [5]. Notably, the direction of difference is opposite to that of Semin et al. A partial explanation for this may be the differences between lexicon based studies and participant recall based studies.
- ❖ The latter result is consistent with past studies that suggest that emotion representation is structured similarly across cultures [2], and is inconsistent with findings that indicate differences in the frequencies with which Eastern and Western individuals experience and interpret different types of emotion [10], [12].
- ❖ This inconsistency could be explained by the limitations of our data. While dictionary data may help reveal macro level trends regarding emotion structure, it is perhaps not precise enough to investigate the nuanced and highly variable dimensions of individual experience and social dynamics that also influence emotion representation [1].
- ❖ Furthermore, we used English as a meta-language which hindered our ability to factor in untranslatable words and account for cultural variation in how valence scores are assigned to different emotion words.
- ❖ Nevertheless, our study provides evidence that as far as lexicons go, emotion words across cultures are structured similarly according to valence and differently according to overall proportions.
- ❖ Future studies could investigate new data sources that can more aptly capture trends pertaining to the emotional experience of individuals within cultures.

1. Abu-Lughod, L., & Lutz, C. A. (1990). Introduction: Emotion, discourse, and the politics of everyday life. *Language and the politics of emotion*, 1, 1-23.
2. Altarriba, J., Basnight, D. M., & Canary, T. M. (2003). Emotion Representation and Perception Across Cultures. *Online Readings in Psychology and Culture*, 4(1).
3. Dodds, P. S., Clark, E. M., Desu, S., Frank, M. R., Reagan, A. J., Williams, J. R., ... Danforth, C. M. (2015). Human language reveals a universal positivity bias. *Cognitive Sciences*, 112(8), 2389-2394.
4. Effenbein, H.A. & Ambady, N. (2002). On the universality and cultural specificity of emotion recognition: a meta-analysis. *Psychological Bulletin*, 128, pp. 203-235
5. Lim, N. (2016). Cultural differences in emotion: differences in emotional arousal level between the East and the West. *Integrative medicine research*, 5(2), 105-109.
6. Mohammad, S. (2018). Obtaining reliable human ratings of valence, arousal, and dominance for 20,000 English words. In *Proceedings of the 56th Annual Meeting of the Association for Computational Linguistics (Volume 1: Long Papers)* (pp. 174-184).
7. Regier, T., Carstensen, A., & Kemp, C. (2016). Languages Support Efficient Communication about the Environment: Words for Snow Revisited. *PLoS ONE*, 11(4).
8. Russell, J. A. (1989). Measures of emotion. In *The measurement of emotions* (pp. 83-111). Academic Press.
9. Scherer, K. R. (2005). What are emotions? And how can they be measured? *Social science information*, 44(4), 695-729.
10. Schimmack, U., Oishi, S., & Diener, E. (2002). Cultural influences on the relation between pleasant emotions and unpleasant emotions: Asian dialectic philosophies or individualism-collectivism? *Cognition and Emotion*, 16(6), 705-719.
11. Semin, G.R., Gorts, C.A., Nandram, S., & Semin-Goossens, A., (2002). Cultural perspectives on the linguistic representations of emotion and emotion events. *Cognition and Emotion*, 16, 11-28.
12. Uchida, Y., & Kitayama, S. (2009). Happiness and Unhappiness in East and West: Themes and Variations. *Emotion*, 9(4), 441-456.