Beyond Adjectives: A New Approach on Personality Psychology using SBERT

Saeteros D.[1], Ortiz-Martínez D.[2], & Gallardo-Pujol, D.[1,3,4]

Can Large Language Models (e.g., ChatGPT) obtain better representations of personality than psycho-lexical studies?

INTRODUCTION

- Lexical studies of personality rely **mostly** on adjectives.
- **Large Language Models** (LLM) have revolutionized the way we process texts.
- We should move **beyond adjectives** and include more semantic categories in the study of personality (McCrae, 1990).

METHODS

1. **Stream of consciousness essays data** (Pennebaker & King, 1999): n = 2,460 labelled with personality traits.
2. **RoBERTa & SBERT:** tokenization and embeddings.
3. **K-means:** clustering.
4. **T-SNE:** reduction of dimensionality and visualization.

RESULTS

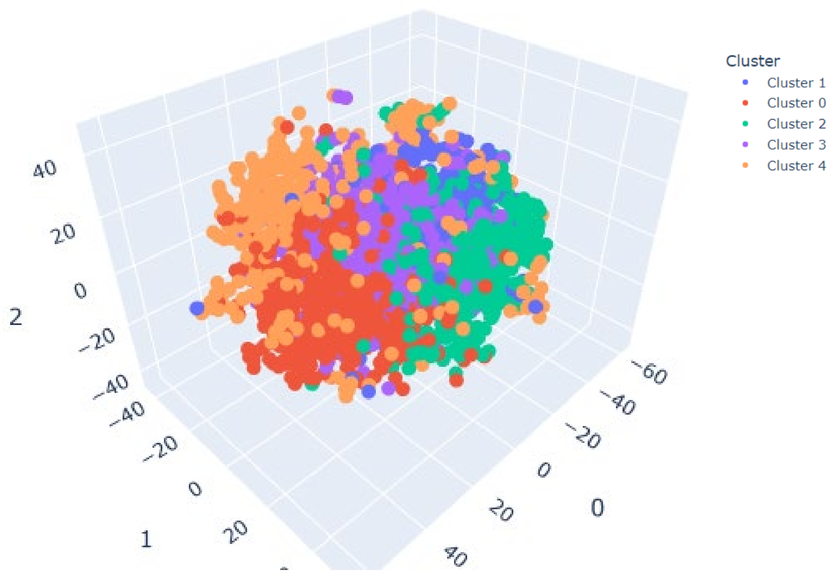
- **Classification**: SBERT has shown a classification accuracy of 99.5% for the Big Five (Safari & Chalechale, 2022).
- **Next steps?** Exploration of the data to detect ***new traits*** or a potentially ***different personality configuration***.

DISCUSSION

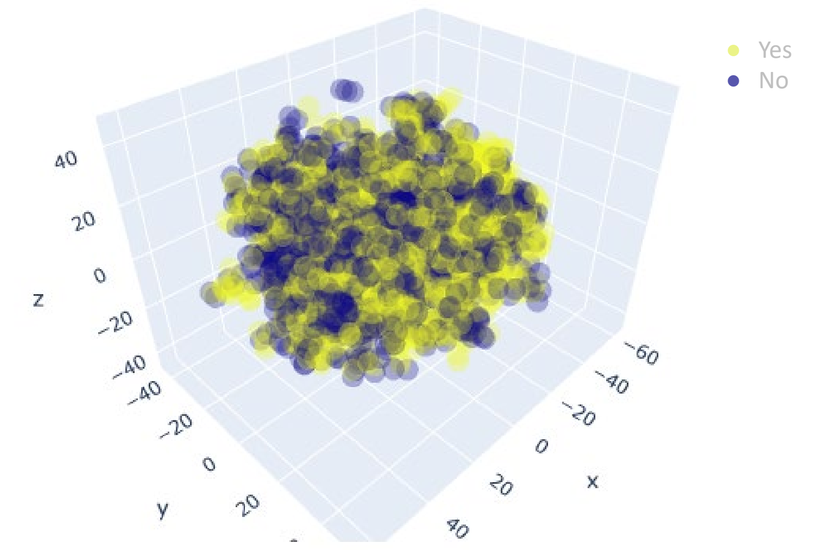
- It's time to revisit the lexical hypothesis and its application to personality research.
- Stream of consciousness text prompts are efficient to elicit personality traits.
- LLM will augment personality psychology by:
  - Gathering information beyond self-reports;
  - Quickly and economically processing huge amounts of data;
  - Reducing the subjectivity involved in the selection of traits; &
  - Generalizing with ease to dozens of languages benefiting cross-cultural research.

Plots

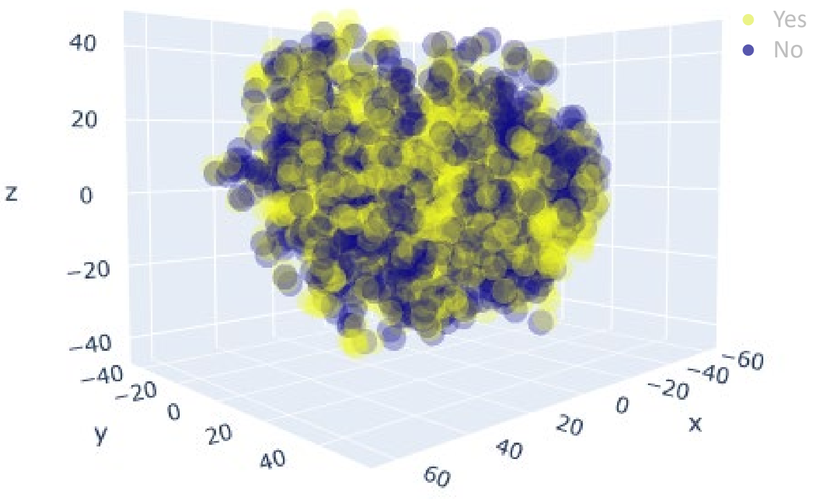
K-mean Clusters



Extraversion



Neuroticism



1 Departamento de Psicología Clínica y Psicobiología, Facultat de Psicologia, Universitat de Barcelona
2 Departamento de Matemáticas e Informática, Facultat de Matemàtiques i Informàtica, Universitat de Barcelona
3 Institut de Neurociències (UBNEURO), Universitat de Barcelona
4 Institute of Complex Systems (UBICS), Universitat de Barcelona

STAY TUNED!

References

- McCrae, R. R. (1990). Traits and trait names: How well is Openness represented in natural languages? European Journal of Personality, 4(2), 119–129. https://doi.org/10.1002/per.2410040205
- Pennebaker, J. W., & King, L. A. (1999). Linguistic styles: Language use as an individual difference. Journal of Personality and Social Psychology, 77(6), 1296. https://doi.org/10.1037/0022-3514.77.6.1296
- Safari, F., & Chalechale, A. (2022). Classification of Personality Traits on Facebook Using Key Phrase Extraction, Language Models and Machine Learning. 2022 13th International Conference on Information and Knowledge Technology (IKT), 1–5. https://doi.org/10.1109/IKT57960.2022.10039020