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Authors

Plisiecki, Hubert

Sterna, Anna

Maciejewska, Emma

et al.

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Computational phenomenology of personality disorders

Hubert Plisiecki

IDEAS Research Institute

Anna Sterna

IDEAS Research Institute

Emma Maciejewska

Adam Mickiewicz University in Poznań

Marcin Moskalewicz

IDEAS Research Institute

Abstract

Measuring how groups differ in construing concepts from natural language is central to computational social science and clinical NLP, but existing methods often trade statistical validity for interpretability. We extend Supervised Semantic Differential (SSD), which builds participant-level personal concept vectors from pretrained embeddings around lexically anchored concept references, to cross-group comparison. Our extension replaces regression-derived gradients with interpretable centroid-contrast vectors and adds permutation-based inference over group-centroid cosine distances, enabling omnibus and pairwise tests without parametric assumptions. We demonstrate the method on Polish life-story clinical interviews from patients with Borderline Personality Disorder (BPD), Narcissistic Personality Disorder (NPD), and controls (N=62), targeting concepts of self and time. Self-concept representations show robust omnibus and pairwise group separations; time-concept differences are driven mainly by BPD contrasts. Cluster interpretations align with phenomenological accounts, linking BPD to relational affective episodes and crisis-linked temporality, and NPD to comparatively decontextualized self-construal.