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# Mapping Mental Representations With Free Associations and the associatoR R Package

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## Abstract

What do people think about climate change or artificial intelligence? How do people understand communication on risk and uncertainty? Answers to such questions are important for psychological research and policymakers. One powerful but under-explored way to answer such questions exists in using free associations. We present a guide on collecting, processing, mapping, and comparing people's free association responses using the 'associatoR' R package. We showcase this approach using a free association data set generated by GPT-4-Turbo that reveals its understanding of the concept of 'intelligence'. We discuss design choices and concrete analysis decisions, including steps to uncover the structure and topics of mental representations using different natural language processing approaches, such as the network analysis of the co-occurrences of responses or text embeddings from large language models. We believe that free associations present a powerful approach to revealing how people and artificial intelligence represent key social and technological issues.