The goal of this analysis was to understand the representational architecture of social relationship knowledge. We hypothesized that our concepts of social relationships are organized along multi-dimensional components. We conducted a survey on Amazon Mechanical Turk in which participants were asked to rate 159 social relationships on 30 dimensions derived from theories from the literature on social relationships. Next, we conducted Principal Component Analysis (PCA) to find the overarching components that could account for the variance in social relationships. A varimax rotation, a type of orthogonal rotation, was applied to the PCA results in order for all of the components to be independent and not correlated. Three analyses were done to indicate the number of optimal components to include in the analysis; a parallel analysis, very simple structure, and a Velicer MAP analysis. The parallel analysis determined that four components were optimal. A very simple structure analysis indicated that one or two components would be optimal. Lastly, a Velicer MAP analysis indicated that four components were optimal. It was decided that the first four components will be used in further analyses.

The first four principal components accounted for 56.5% of the variance in how individuals rate social relationships. The first component can be thought of as emotional intensity and included high loadings on the dimensions of communal sharing, endurance, activity intensity, activeness, uniqueness, attachment, love expression, socioemotionality, mating, expected reciprocity, importance for individuals involved, and intimacy. The second component can be thought of as exchange opportunity and included high loadings on the dimensions of importance for society, occupational, information exchange, strategic, and formality and regulation. The third component can be thought of as valence and included high loadings on the dimensions of spatial distance, synchronicity, conflict, and coercion. Lastly, the fourth component can be thought of as monetary exchange and included high loadings on the dimensions of negotiation, goods exchange, concreteness, and money exchange. This solution seems reasonable based on previous literature. A subsequent analysis will be done to explore whether these components are represented in the brain.