

RESEARCH ARTICLE

Mapping the structure of perceptions in helping networks of Alaska Natives

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Abstract

This paper introduces a new method for acquiring and interpreting data on cognitive (or perceptual) networks. The proposed method involves the collection of multiple reports on randomly chosen pairs of individuals, and statistical means for aggregating these reports into data of conventional sociometric form. We refer to the method as “perceptual tomography” to emphasize that it aggregates multiple 3rd-party data on the *perceived* presence or absence of individual properties and pairwise relationships. Key features of the method include its low respondent burden, flexible interpretation, as well as its ability to find “robust intransitive” ties in the form of perceived *non-edges*. This latter feature, in turn, allows for the application of conventional balance clustering routines to perceptual tomography data. In what follows, we will describe both the method and an example of the implementation of the method from a recent community study among Alaska Natives. Interview data from 170 community residents is used to ascribe 4446 perceived relationships (2146 perceived edges, 2300 perceived non-edges) among 393 community members, and to assert the perceived presence (or absence) of 16 community-oriented helping behaviors to each individual in the community. Using balance theory-based partitioning of the perceptual network, we show that people in the community perceive distinct helping roles as structural associations among community members. The fact that role classes can be detected in network renderings of “tomographic” perceptual information lends support to the suggestion that this method is capable of producing meaningful new kinds of data about perceptual networks.

OPEN ACCESS

Citation: Lee H-W, Melson M, Ivanich J, Habecker P, Gauthier GR, Wexler L, et al. (2018) Mapping the structure of perceptions in helping networks of Alaska Natives. PLoS ONE 13(11): e0204343. <https://doi.org/10.1371/journal.pone.0204343>

Editor: Ginestra Bianconi, Queen Mary University of London, UNITED KINGDOM

Received: April 13, 2018

Accepted: September 5, 2018

Published: November 12, 2018

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Data Availability Statement: Data collection for this project was undertaken via a cooperative understanding with the Alaska Native communities that participated in the project. Data are fully available in the Supporting Information - Compressed/ZIP File Archive.

Funding: This work was supported by National Institute of Mental Health of the National Institutes for Health under Award Number R34 MH096884 (<https://www.nimh.nih.gov/index.shtml>), National Institute of General Medicine of the National Institutes of Health under Award Number R01

Introduction

The way that people are classified into relational groups by knowledgeable outsiders has its own reality, a reality that says as much about where these outsiders perceive social fault lines to lie as it does the presence or absence of particular relationships [1]. In this article we present a strategy to recover some of the “heuristics” [2] people implicitly use to classify the relationships of others in their community via perceptual tomography—multiple reports on the presence or absence of social ties between randomly selected pairs of actors in a community. Following Krackhardt, such approaches are commonly referred to as cognitive social structures [3].

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