Chapter 11

Cultural Network Analysis: A Cognitive Approach to Cultural Modeling

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ABSTRACT

The purpose of this chapter is to describe a rigorous, end-to-end methodology for modeling culture as networks of ideas that are distributed among members of a population. The method, Cultural Network Analysis (CNA), represents an interdisciplinary synthesis of techniques drawn from the fields of cognitive anthropology, cultural and cognitive psychology, naturalistic decision making, and decision analysis. CNA is used to develop cultural models for groups and populations, typically depicted as a network representation of the culturally shared concepts, causal beliefs, and values that influence key decisions. CNA can be usefully employed for a variety of applications, including the design of tools to support multinational collaborative planning and decision making, the development of situated cultural training programs, and characterizing the cognition of target audiences to support strategic communications campaigns.

CULTURAL NETWORK ANALYSIS: A COGNITIVE APPROACH TO CULTURAL MODELING

An inherent challenge in understanding behavior in other cultures rests in gathering, analyzing, and representing the relevant cultural concepts, beliefs, and values that drive decisions in those populations. In this chapter, we present Cultural Network Analysis (CNA) as a broad approach that aids in providing the most relevant cognitive aspects of cultural groups for decision influence. CNA comprises a collection of methodologies for eliciting, analyzing, and representing the beliefs, values, and cognitive concepts that are shared by members of cultural groups. This paper provides a detailed description of CNA, including its applications to multinational collaboration, cultural training, and strategic communications.

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The fields of psychology and anthropology have been increasingly challenged by the separation of the study of culture and the study of the mind. The interdisciplinary field of culture and cognition has emerged as a response to this challenge (Hirschfeld & Gelman, 1994; Hutchins, 1995; Nisbett, 2003; Sperber, 1985). The cognitive revolution that began in the late 1950s influenced the fields of psychology and anthropology, leading to the development of cognitive psychology and cognitive anthropology (D’Andrade, 1981; Gardner, 1984). These fields have since progressed with little interaction. Cognitive psychologists have focused on the fundamental building blocks or “architecture” of cognition, largely ignoring the effects of content. Cognitive anthropologists have focused on the content of cognition, seeking to describe and explain knowledge that is shared among members of cultural groups.

The challenge facing these fields is rooted in a twin set of ideas that are pressuring researchers within each field to reconsider the significance of the other. In cognitive psychology, cultural variations in what were previously presumed to be universal aspects of the cognitive architecture have surfaced. These finds suggest that much of the work in cognitive psychology could potentially turn out to be ethnographical, rather than architectural in nature (Nisbett, Peng, Choi, & Norenzayan, 2001). For their part, cognitive anthropologists have been faced with a growing awareness that there are widespread commonalities in cognitive organization that point to the existence of some form of cognitive architecture, and that more recent cognitive models of knowledge acquisition, organization, and change could prove useful in developing explanations for those commonalities (Boyer, 1994).

There is also a third set of developments that offer the potential to further accelerate an interdisciplinary culture and cognition program. Work in naturalistic decision making and related areas have helped to promote a growing interest in field research within cognitive psychology. This progressive movement of cognitive psychology into the field has led to the adoption of perspectives and methods that overlap significantly with those of cognitive anthropologists, yet retain a distinctly psychological emphasis on core cognitive functions, such as decision making, planning, sensemaking, adaptation, and coordination (Klein, 1998; Klein et al., 2003). Cognitive field researchers thus have a key role to play in shaping the direction of investigations into culture and cognition, with particular emphasis on research that aims to support the cultural challenges faced by domain practitioners.

**CULTURE AS DISTRIBUTIONS OF KNOWLEDGE**

Within cognitive anthropology, culture is typically defined as involving shared knowledge. One specific theoretical approach to culture that characterizes culture in terms of knowledge is the epidemiological view. Here, “epidemiology” is used in the general sense of describing and explaining the statistical distributions of any property within a population. Cultural epidemiology regards culture in terms of the ideas that are widely distributed throughout a population (Sperber, 1996).

The starting point from this view is to recognize that individual minds contain vast amounts of mental content. People typically use the word idea to refer to any content of the mind, including conceptions of how things are and of how things should be. Networks of ideas are often referred to as folk theories or mental models. Such networks constitute peoples’ explanations for how things work, and result in judgments and decisions that influence their behaviour (Gentner & Stevens, 1983). Furthermore, the specific nature of a person’s mental models depends heavily on their cultural background (Hirschfeld & Gelman, 1994). The emphasis on “ideas” or content knowledge is consistent with work in cognitive field research.
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