From Empirical Networks to Cultural Concept Formation: The Case of Kinship Systems

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Introduction

• Networks at Three Ontological Levels
  – Individual Level: Interaction of agents in accord with behavior patterns for individual agents, possibly giving rise to emergent properties at the group level
  – Institutional Level: Interaction of agents through political institutions and role systems, possibly giving rise to collective action
  – Cultural Level: Interaction of agents in accord with cultural idea systems that provide the conceptual basis for social organization
Introduction (cont’d)

- Structural properties of networks as a consequence of genetic behaviors expressed through the individuals in the network
- Structural properties of networks as a consequence of cultural kinship behavior expressed through the individuals in the network
- Logic of kinship terminologies structuring cultural kinship behavior
“To date, there has been relatively little attention to the role of individual heterogeneity in the formation of social networks. The evidence we present here suggests that egocentric properties are significantly heritable in human social networks.” (Fowler et al 2009: PNAS 2009;106 p. 1721)
Network models that do not include intrinsic node characteristics cannot generate heritability in network attributes…. The “mirror network” method rejects all extant models of social network formation because they do not generate heritability that falls within the confidence intervals of the empirical estimates …” (Fowler et al 2009: 1721)
Groote Eylandt
Groote Elyandt: Named, Exogamous Moieties
Tiwi

Melville & Bathurst Islands
Tiwi "One-granny" Sibling Sets

"one-granny" sibling set -- "siblings" with a common grandmother (classificatory terminology)

Fig. 4 Basic elements of a domestic unit
Tiwi Matrilineal Moieties

“My Snake Bay informants did not indicate to me by word or behavior that they recognized this kind of matrilineal organization. However marriage exchange [data]…suggested that moieties do exist at least as analytically significant social units” (Goodale 1971: 80)
Diagram of Matrilineal Units and Marriage Exchanges

- “Moiety 1”
- “Moiety 2”
- Exogamous marriages -- 148
- Endogamous marriages -- 5

Endogamous marriages

Goodale 1971
Pul Eliya (Sri Lanka)

Families were organized by Leach according to compound
(or village if outside Pul Eliya)

White and Houseman 2002
“What is remarkable at the end of all this is (1) that sidedness emerges behaviorally in a cognatic society even in the absence of a descent or hereditary moiety rule…” (White and Houseman 2002:20-21)
Kin Term Reckoning

“... [kin] terms permit comparative strangers to fix kinship rapidly without the necessity of elaborate genealogical reckoning —reckoning that typically would be impossible. With mutual relationship terms all that is required is the discovery of one common relative. Thus, if A is related to B as child to mother, veitanani, whereas C is related to B as veitacini, sibling of the same sex, then it follows that A is related to C as child to mother, although they never before met or knew it. Kin terms are predictable. If two people are each related to a third, then they are related to each other” (Sahlins 1966, p. 155, emphasis added).

“Let us suppose, as an example, that two men, A and B, meet each other for the first time. The man A has a relative C who is his mama. At the same time C is the kaga of B. It immediately follows that A and B are kumbali to each other” (Radcliff-Brown 1913: 150-151).
Kin Term Product (example)

Person X

Mother

Ego

Grandfather

???

Father

Person Y
Construction of a Kin Term Map: American Kinship Terminology

And so on.....
Nephew of Grandmother = ?

Nephew
Shipibo: Horticultural group in Peru
Kariera Terminology
Left: Kin term map for the Kariera terminology from the perspective of a male speaker. The columns are to be read as if they go around a cylinder so that Column 3 circles around, putting Column 0 to the right of Column 3. The dashed arrows show the arrows from Column 3 circling around to Column 0. Bold: neutral-marked terms; black: male-marked terms; grey: female-marked terms. X and Y in the column headings refer to a kin term in that column.

Right: Kin term map for the Kariera terminology from the perspective of a female speaker.
Logic of *nuba* ("cross-cousin") Marriage Rule

*mainga* ("son") of *nuba* ("cross-cousin") = *mainga* = *mainga* of male self; equation only valid of "spouse" of male self = *nuba*. Therefore the marriage rule: ego marries a person in the *nuba* relation to ego.
From Kin Terms to Ego-centered 4 or 2 section systems

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<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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<tbody>
<tr>
<td>Maeli</td>
<td>Tami</td>
<td>Kaga</td>
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<td>Kandari</td>
<td>Kabali</td>
<td>Nganga</td>
<td>Toa</td>
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<td>Kaja</td>
<td>Kumbali (ms)</td>
<td>Kuling (ms)</td>
<td>Yuro (fs)</td>
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<td>Turdu</td>
<td>Bungali (fs)</td>
<td>Ngaraia (ms)</td>
<td>Maiñga (ms)</td>
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<td>Margara</td>
<td>Ñuba</td>
<td>Kundal (fs)</td>
<td>Maiñga (ms)</td>
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<td>Mari</td>
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<td>Maiñga (fs)</td>
<td>Ngaraia (fs)</td>
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Ego oriented 2 section system: A+B versus C+D
Absolute Four Section System

Theorem: If the kinship terminology is closed under kin term products (true for Dravidian terminologies), then the ego-oriented partition of the set of ego’s kin into four sections via kin terms is an absolute partition of all societal members into four sections.

Implication: Marriages consistent with the kin term marriage rule (marry a kin who is one’s nuba) will be structured as if the marriages follow an exogamous moiety marriage rule.
Logic of Terminology Structures

- Set of generating terms for the structure
- Ascendant structure
- Isomorphic descendant structure
- Structural definition of reciprocal kin terms
- Affinal (marriage) relations
- Structural rules for local properties of a terminology (e.g., the rules for the cousin term nomenclature in the American/English kinship terminology)
Analytical Framework

Terminology (AKT)
{Father, Mother, Uncle, Aunt, Son, Daughter, Wife, Husband, etc.}

Generative Structure
Isomorphism Between AKT and Generated Structure
Kinship Structure Typology
Conclusion

A kinship terminology may be formally represented as an algebraic structure formed in accordance with a universal theory of terminology structures. Terminologies vary culturally and formally according to choice of generating terms for the terminology structure and alternative ways of forming terminology structures. Kinship systems bring together in a single enterprise emergent properties arising through bottom-up processes and imposed structural form arising through top-down instantiation of structured systems of abstract concepts, thereby making kinship systems fundamental to our understanding of human social systems.
Kin Term Map: Kariera (Dravidian) Terminology

Left: Kinship map from the perspective of Male Self. Right: Kinship map from the perspective of Female Self. Modified from Table 1 in Radcliffe-Brown (1913).