

The evolution of egalitarian societies

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Evolution of egalitarianism



- Why this matters:
 - Prosociality, cooperation, altruism, are among the most pressing problems in biology
 - HG politics may reflect human evolutionary disposition towards democratic arrangements, or at least a concern with **fairness**.

Research background

- Field experience:
 - Ethiopia, Congo-Brazzaville
- Collaborators:
 - Hannah Lewis, R. Mace, A. Migliano
 - Jerome Lewis



Hunter-Gatherer Resilience Project



University College London

Food sharing and rank

- Food sharing
 - Primates: Sharing only with juveniles, and even then rare after weaning (Pereira & Fairbanks 1993)
 - Humans: Sharing universal with both juveniles & adults, but variation in with whom and how
- Rank
 - Primates: Clear dominance hierarchies, though dynamic over time (Ellis 1995)
 - Humans: Great variation, from highly stratified to acephalous

Food sharing

- Agrarian
 - HHs as units of production & consumption
 - Adults in HHs provision each other, extended family
- Hunter-gatherers
 - HHs units of reproduction & support but...
 - responsibility for production distributed more widely
e.g. Ache (Kaplan & Hill 1985), Hadza (Hawkes 2000)

Rank

- Agrarian / industrial
 - High SES gradients, with large effects on health (Sapolsky 2004)
 - Expertise and/or wealth (esp. land) transferable to social status
- Hunter-gatherers
 - Ethos of personal autonomy
 - Expertise (e.g. in hunt) not convertible into high social status
 - Individual ownership of key resources (esp. land) inadmissible
e.g. Mbendjele (J. Lewis 2005)

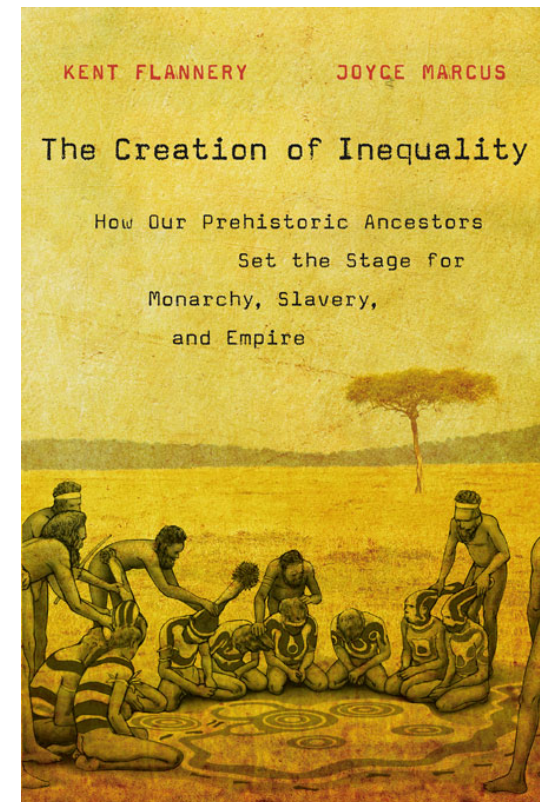
Questions

1. How many HG societies fit these criteria?
2. What hypotheses might explain the evolution of these traits?
3. What methods could we use to evaluate these hypotheses?

How many societies fit these criteria?

- Majority or minority of HGs?
 - Majority in prehistory?
 - Minority in ethnographic record?

(Woodburn 1982; Kelly 2013)

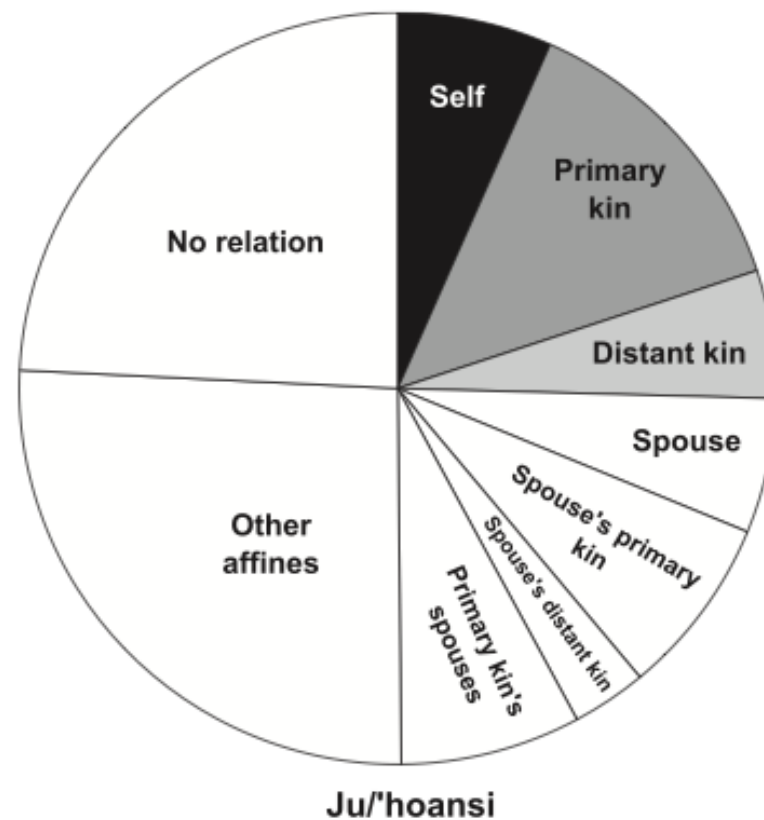
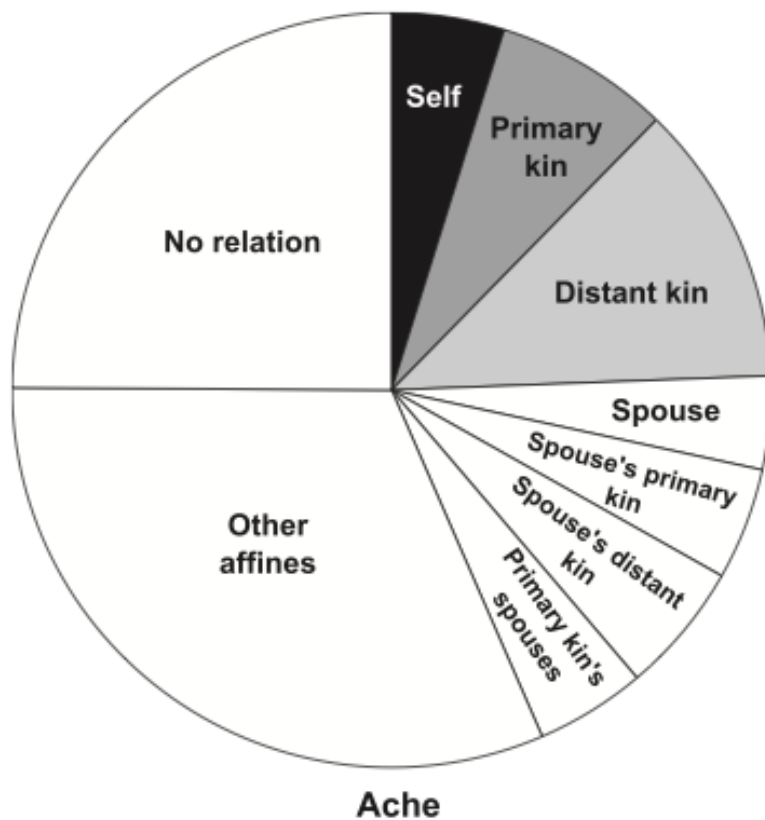


What hypotheses might explain the evolution of these traits?

- Distinction between proximate and ultimate explanations (Mayr 1961)
 - **Proximate** mechanisms (e.g. leveling, reverse dominance hierarchy [Woodburn 1982; Boehm 1999]) explain maintenance rather than origins of egalitarianism
 - **Ultimate** mechanisms concern selective pressures that might have initially favored egalitarianism: food sharing and absence of rank

What hypotheses might explain the evolution of these traits?

- Kin selection
- Reciprocity
- Assortment
- Group competition



Camp composition among Ache & Ju/'hoansi

(Hill et al. 2011)

What hypotheses might explain the evolution of these traits?

- ~~Kin selection~~
- ~~Reciprocity~~
- Assortment
- Group competition

What methods could we use to evaluate these hypotheses?

- Cross-cultural survey (Marlowe)
- Agent-based models
 - bespoke (Aktipis 2011; Gavrilets 2012)
 - off-the-shelf / adapted (e.g. NetLogo)



On the evolutionary origins of the egalitarian syndrome

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The evolutionary emergence of the egalitarian syndrome is one of the most intriguing unsolved puzzles related to the origins of modern humans. Standard explanations and models for cooperation and

directed toward the bully as toward the victim. The fourth mechanism does explicitly account for the social role (e.g., cooperator or not). However, in primates, policing and punishment are tuni-

NetLogo — Altruism

Interface Info Code

Edit Delete Add | normal speed view updates continuous Settings...

setup go

altruistic-probability	0.26
selfish-probability	0.26
cost-of-altruism	0.25
benefit-from-altruism	0.50
disease	0.15
harshness	0.15

ticks: 73 3D

Populations

frequency

time

altruists

selfish

#altruists	0
#selfish	1626

Detailed description: The image shows a NetLogo window titled "Altruism". At the top, there are tabs for "Interface", "Info", and "Code". Below the tabs is a toolbar with "Edit", "Delete", "Add", and a "Button" with "abc". A speed slider is set to "normal speed", and there are checkboxes for "view updates" (checked) and "continuous". A "Settings..." button is on the right. The main area contains a "setup" button and a "go" button. Below these are seven sliders for parameters: "altruistic-probability" (0.26), "selfish-probability" (0.26), "cost-of-altruism" (0.25), "benefit-from-altruism" (0.50), "disease" (0.15), and "harshness" (0.15). To the right is a 3D view of a grid. The grid is mostly green, representing altruists, with scattered black squares representing selfish individuals. The top of the 3D view shows "ticks: 73" and a "3D" button. Below the sliders is a "Populations" graph. The y-axis is labeled "frequency" and ranges from 0 to 1710. The x-axis is labeled "time" and ranges from 0 to 80. A pink line representing "altruists" starts at approximately 1710 and drops to 0 by time 80. A green line representing "selfish" starts at 0 and rises to approximately 1626 by time 80. At the bottom, there are two monitors: "#altruists" showing 0 and "#selfish" showing 1626.

NetLogo — Altruism

Interface Info Code

Edit Delete Add | normal speed view updates continuous | Settings...

altruistic-probability	0.26
selfish-probability	0.26
cost-of-altruism	0.11
benefit-from-altruism	0.75
disease	0.25
harshness	0.25

Populations

#altruists: 1617
#selfish: 0

ticks: 425 3D

Further questions

- Discrete traits or coevolved “syndrome”?
- Harmonizing models with empirical tests using ethnographic / archaeological data
(e.g. E3 project, Widlok & Bollig)
- Investigation of ontogeny of fairness & self-consciousness across cultures
(e.g. Rochat 2009, Others in mind)

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