

How Many Friends is too Many?

Social Networks and Anthropology

Food, Talks and Students Seminar
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Introduction

- Anthropology:
 - The study and understanding of human behaviour
- Some research areas:
 - Small world experiments
 - The structure of social networks
 - The size of social networks
- What relevance to my research?
 - Somewhat digressive, but...
 - Understanding of human social networks may aid in the development of more effective content dissemination approaches
 - (...mostly just general interest!)

Overview

1. Sizes of Social Networks in Humans

- Neocortex Size in Primates

2. Interesting Social Network Size Studies

- ...in the Real World
- ...in Massively Multiplayer Online Games

Dunbar's Number

A Cognitive Limit

The Social Brain Hypothesis

- The evolution of **primate brains** was driven by the demands of **complex social systems**
- Primate social systems are more complex than those found in other species
- Managing larger social groups requires greater **information processing** capacity

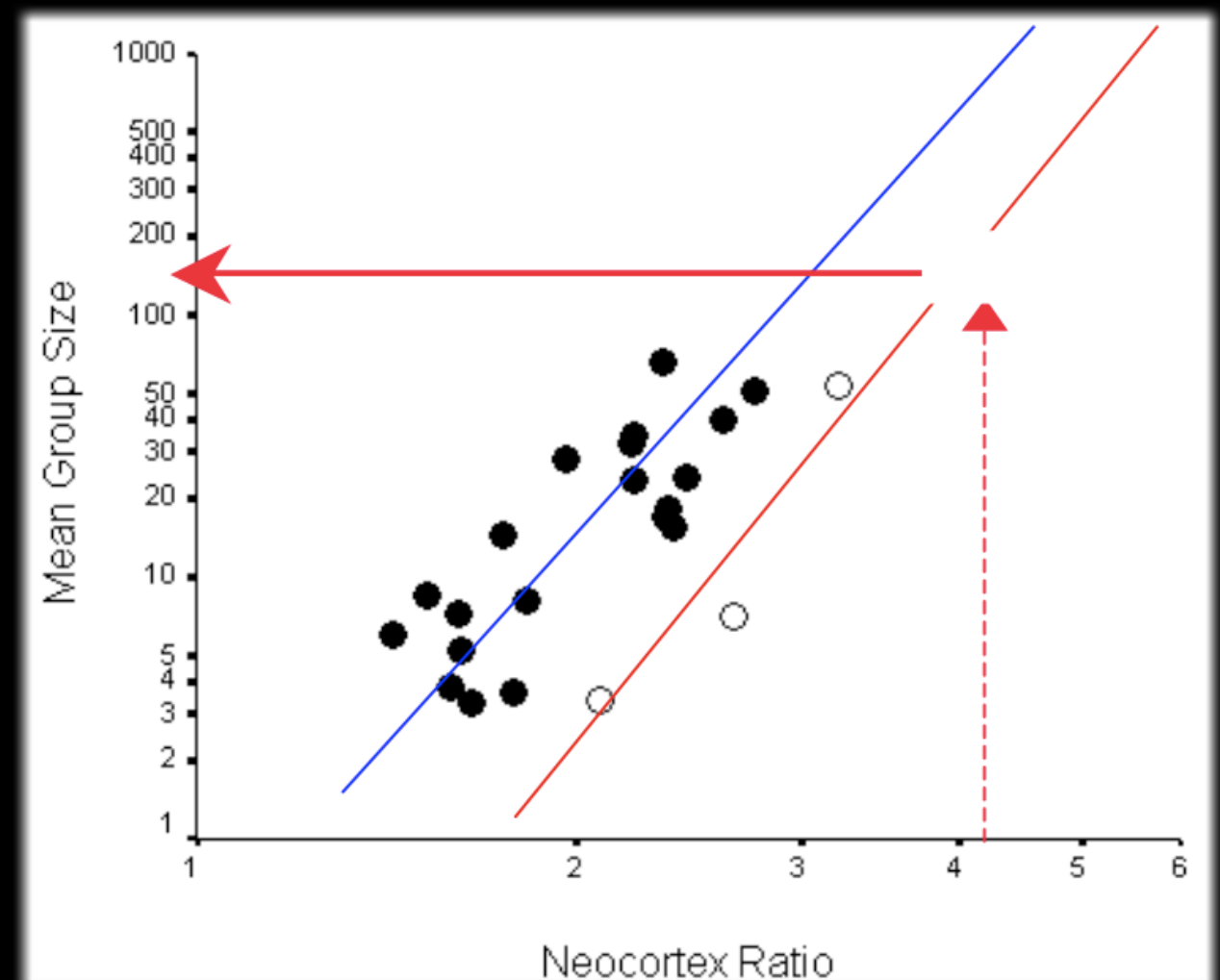
Social Networks in Non-Human Primates

- Primates use **social grooming** to establish **friendships** and **coalitions**
- Spending **time** for grooming is important for group cohesion
- Primate social networks are identified by their social grooming patterns

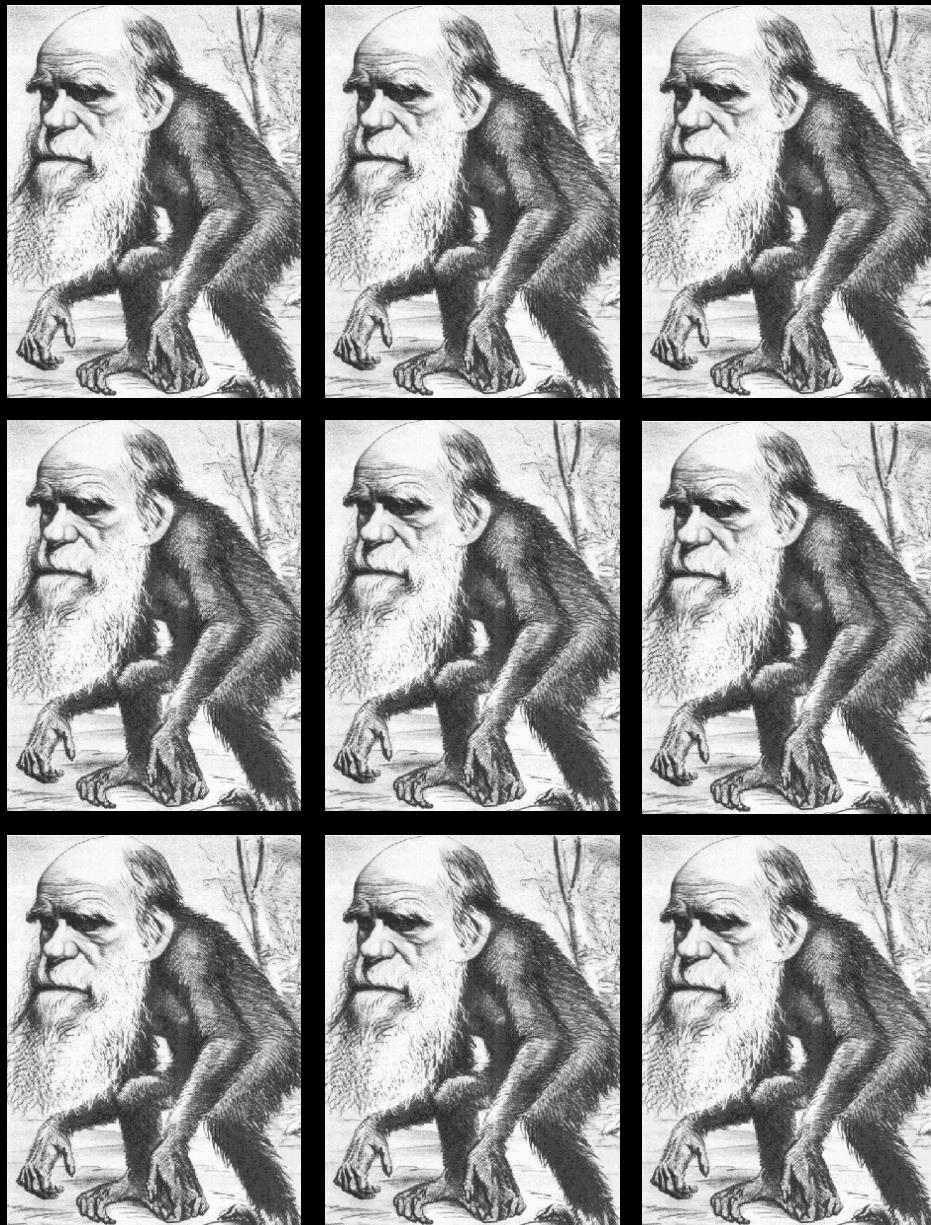


From Apes and Monkeys to Humans

- The Neocortex Ratio
 - Indicator of a species' information processing capacity
 - Ratio of neocortical volume to the rest of the brain
 - Neocortex ratio for humans: 4.1
- Group size as a function of neocortex ratio allows us to extrapolate a **group size for humans**
 - Humans have a mean group size of 150!



Human Social Grooming?!



- If other primates use social grooming to build social relationships, what do humans use?
- **Language** is our form of social grooming!
- Language is 'cheaper' than conventional social grooming
- Allows relationships to be formed more **rapidly** than social grooming would

150: Dunbar's Number

- “A **cognitive limit** on the number of individuals with whom any one person can **maintain stable relationships**”
- Above this limit, group cohesion deteriorates substantially
 - Formal **policies** and **laws** are required to maintain very large groups
- For groups to reach 150 a high degree of **incentive** is required
 - Such groups can be found where survival pressure is intense (e.g. Neolithic Tribes and Military Units)

Observations of Dunbar's Number

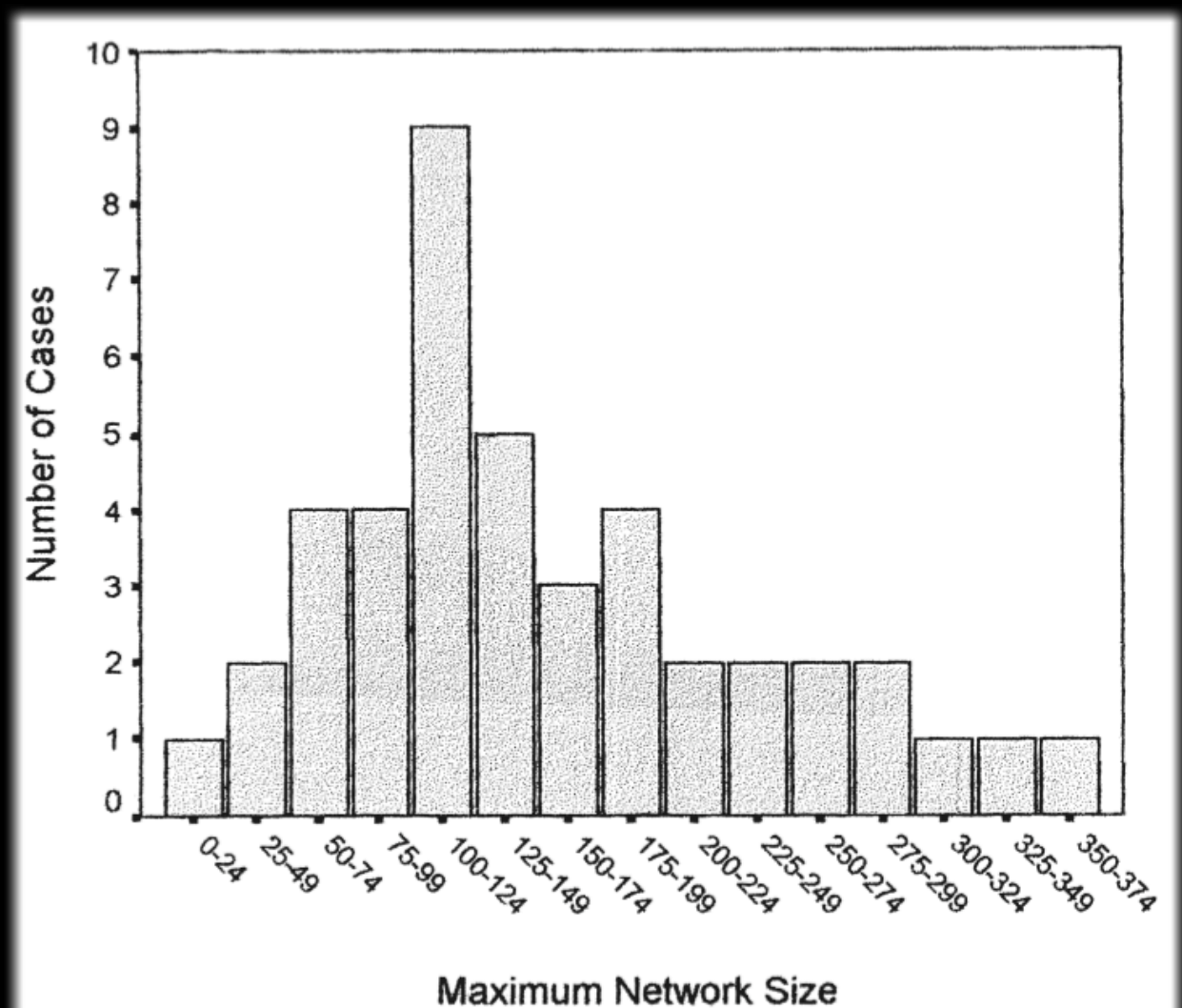
Neolithic Farming Villages	150-200	Neolithic Era
Maniples in the Roman Legion	120-130	350-100 BC
Christmas Card Networks	154	Post-Industrial
Independent Units in Modern Armies	200	Post-Industrial

Studies of Social Network Sizes

Real World and Virtual

Christmas Card Networks

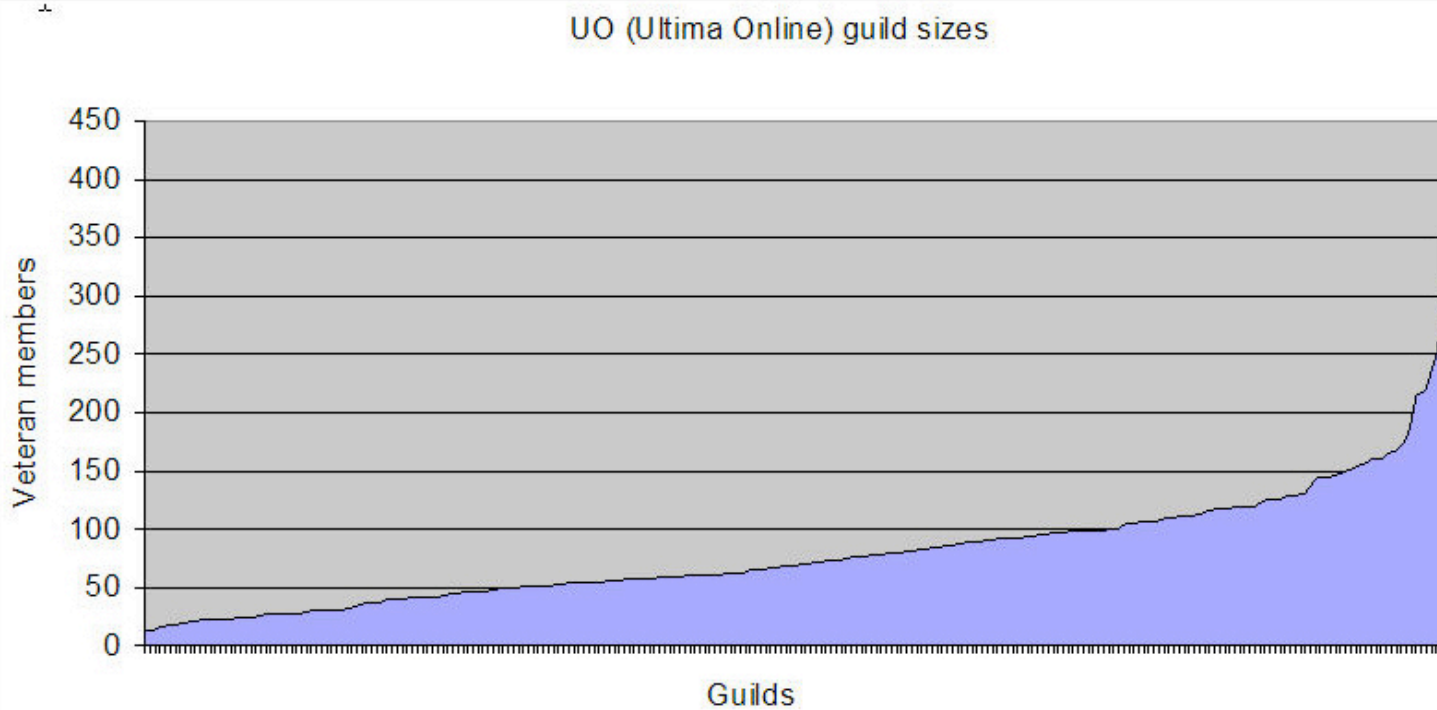
- The one time the year where one attempts to contact all of their social network
- Study carried out in 2003:
 - UK only
 - 43 subjects
 - Subjects provided detailed information about each recipient they contacted
- Mean group size:
 - 153.5
when counting whole households
 - 124.9
when excluding people in a household the sender does not know



Massively Multiplayer Online Games

- Massively multiplayer online games:
 - Online computer games involving many players interacting in the same, simultaneous world
- Guilds:
 - Associations of players who know each other
 - A set of many individuals formally affiliated with one particular group
- Some brief studies have considered the following games:
 - Ultima Online (Released 1999)
 - World of Warcraft (Released 2004)

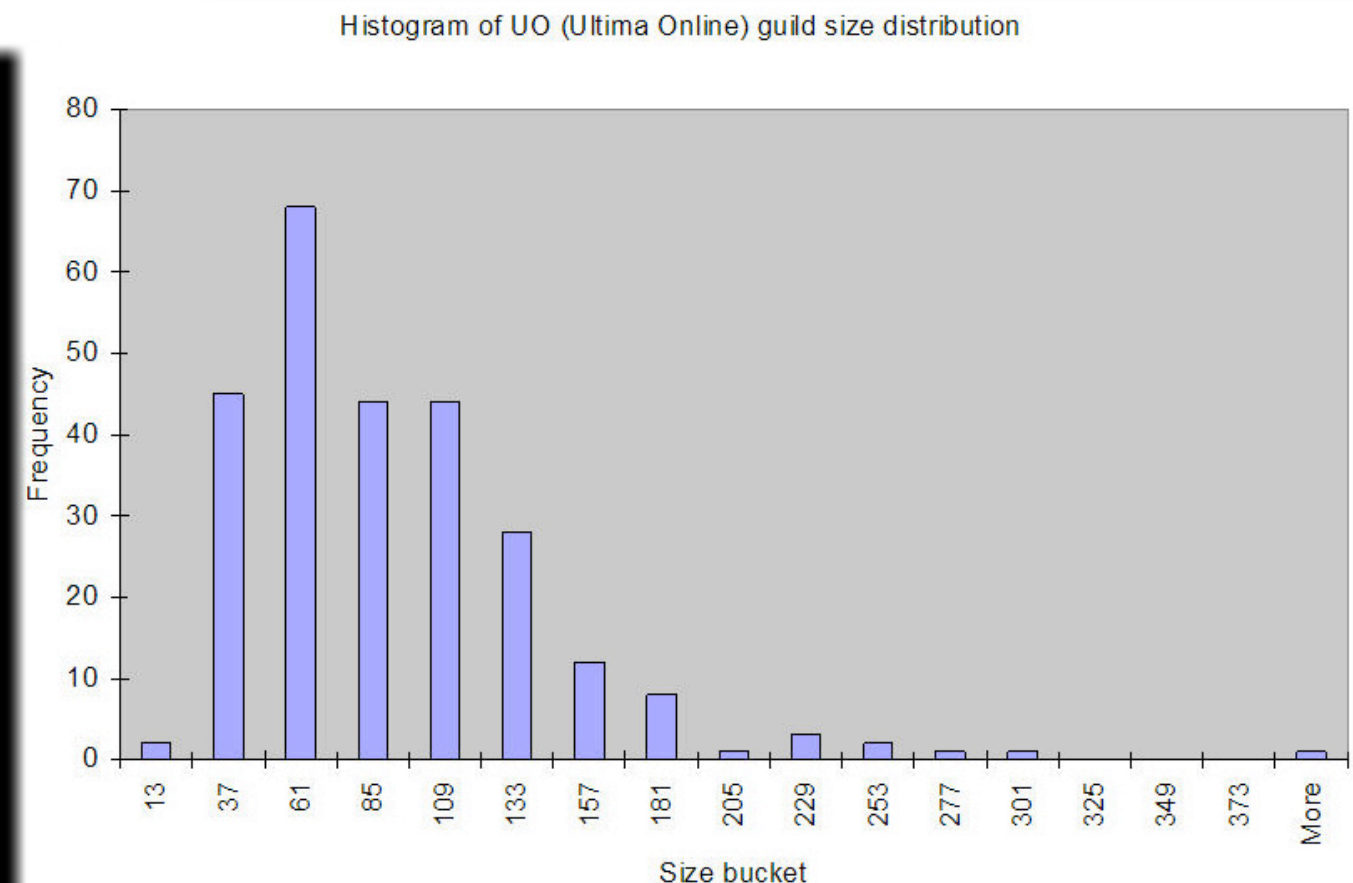
Ultima Online



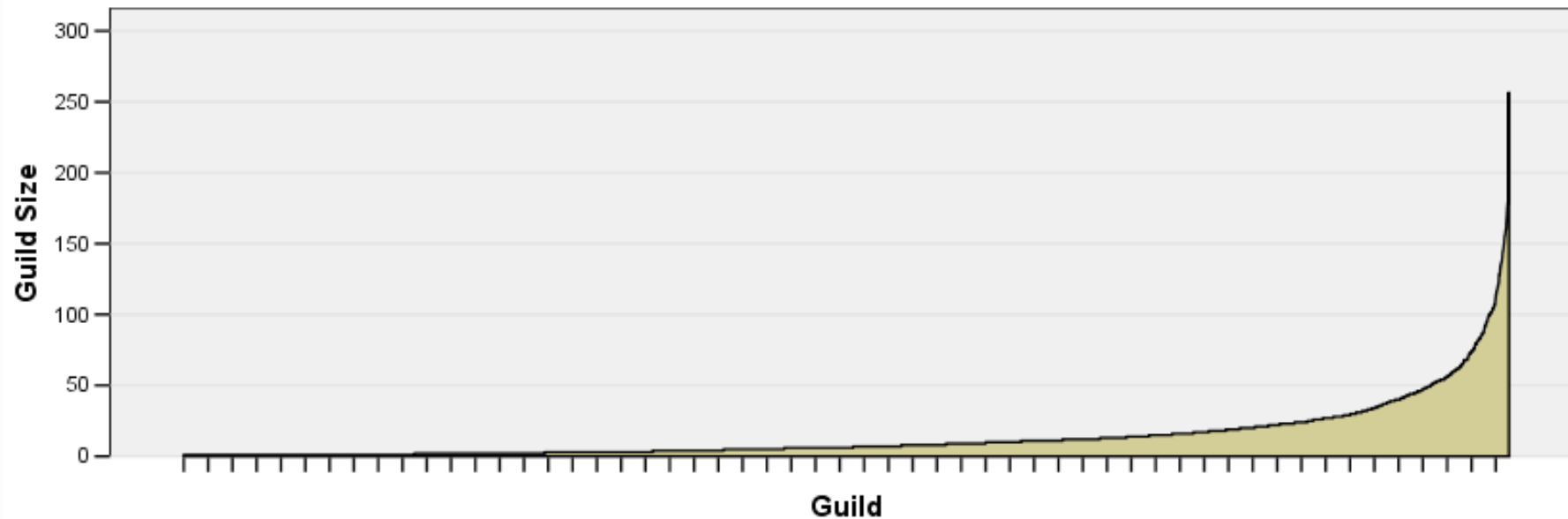
- Newer members to a group are not counted

[Koster03]

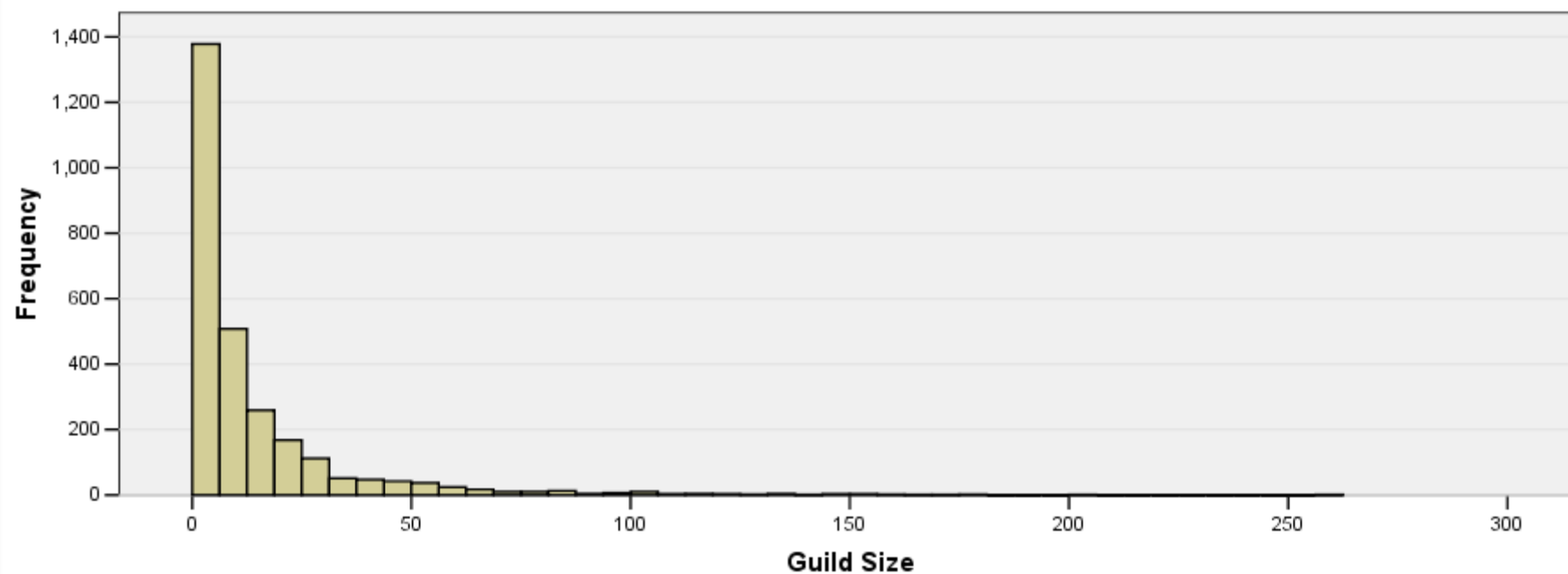
- Sample size of 34 guilds
- Most groups around size 60
- Cut-off at 150



World of Warcraft



- Members inactive for more than one week are not counted



- Sample size of 2,728 guilds
- Most groups around size 30
- Cut-off at 65

Observations

- Smaller groups sizes in World of Warcraft
 - More incentive for larger groups in Ultima Online?
 - Less 'survival pressure' in World of Warcraft due to the game mechanics?
- In both cases, average group sizes are far below the 150 found in christmas card networks
 - Guilds account for only a subset of an individual's social acquaintances?
 - Christmas card networks go further to enumerate *all* of an individual's social network?
- A caveat:
 - The UO and WoW studies are very limited
 - More rigorous experiments in this area have yet to appear

So, How Many Friends is too Many?

Tom's Friend Space

Tom has 256326345 friends.

Joe2525's contacts ([209](#))

Friends

62 friends

[See All](#)

Friends

350 friends

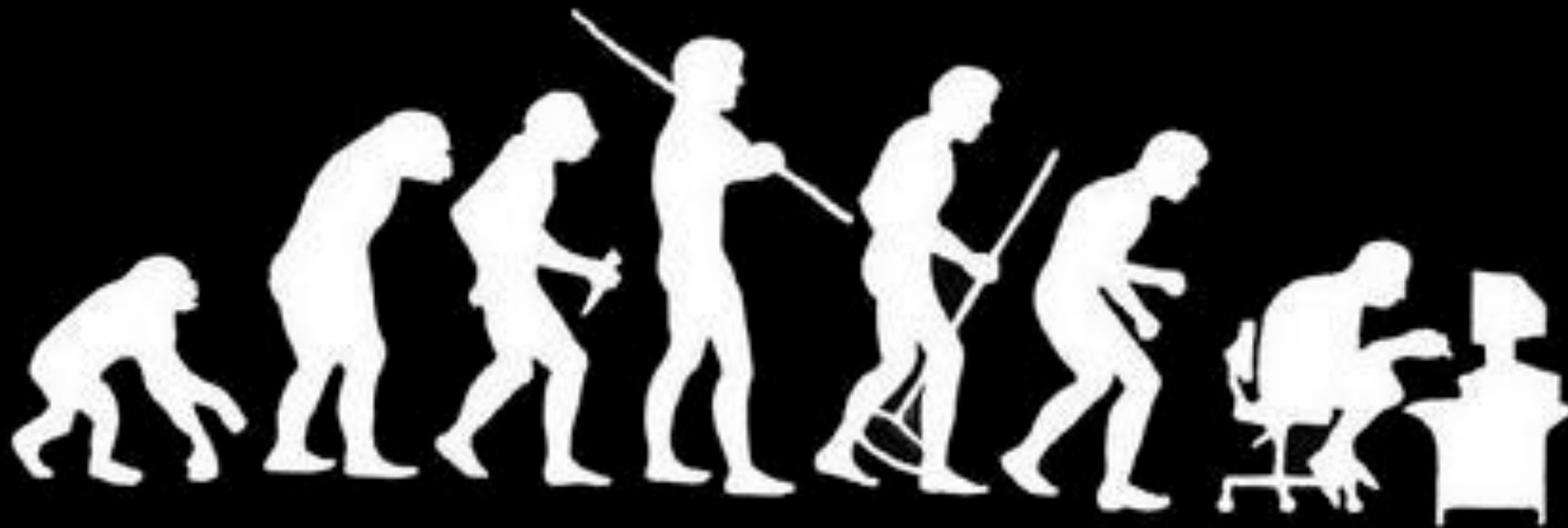
[See All](#)

jan has 145 friends.

Barack Obama has ~~115~~1568 friends.

Lewosky's contacts ([172](#))

Thanks!



Any Questions?

Sources

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Attribution

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- Image: Evolution: From Chimps to Computer Screens. *truebluetitan*.
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