How to Detect Polygyny

• According to Bateson (1948), if male reproductive variance is greater than female reproductive variance then polygyny exists.

• For humans polygyny-like marriage can exist even if it is formally prohibited in the form of male serial polygyny. Some argue that polygyny frequently exists in nominally monogamous societies.

• The next slide shows how to measure of Brown’s breeding system ratio: effective polygyny occurs when there is a significant difference between male and female reproductive variances.
Breeding System Ratio

Female and Male Reproductive Variance

Breeding System Ratio (BSR) = male SD/female SD

Values >1.0 mean polygyny
Can Effective Monogamy Exist in Human Societies?

• To test the proposition that polygyny may functionally exist in a society that is nominally monogamous Brown created a measure known as the breeding system ratio (BSR) shown in the previous slide. When the ratio exceeds 1.0 then polygyny exists because male reproductive variance is greater than female reproductive variance something found in all polygynous systems.

• Brown’s research on genealogies of survivors of the Bounty mutiny on Pitcairn Island demonstrated that true monogamy can exist.

• In addition unpublished research on male and female reproductive variance among the San also shows that true monogamy exists for these people also (from Draper and Hames, n.d., in the next slide).
Reproductive Variance among !Kung Males and Females

<table>
<thead>
<tr>
<th>Sex</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Females</td>
<td>80</td>
<td>4.57</td>
<td>2.83</td>
</tr>
<tr>
<td>Males</td>
<td>70</td>
<td>4.48</td>
<td>2.85</td>
</tr>
</tbody>
</table>

BSR 0.98
Marriage Forms

General polygyny means that more than 20% of all married men are married polygynously while slight polygyny is below that threshold.

Fig. 5. The human mating system in the Standard Cross-cultural Sample ($n = 186$).
Polygyny and Subsistence

![Bar chart showing mean degree of polygyny by subsistence mode]

- Foragers: 3.1
- Horticulturalists: 3.3
- Pastoralists: 3.2
- Agriculturalists: 2.9

Subsistence Mode
Polygyny and Social Complexity

The following slides show the distribution of polygyny in relation to social organization:

Fig. 6. Degree of polygyny by political organization (n = 184).
Stratification and polygyny among foragers and horticulturalists

Fig. 7. Social stratification by mating system for foragers and horticulturalists (n = 111).
Marriage and Father-Infant Interaction: polygyny is associated with lower rates of direct care by males. This fact suggests that males invest more in mating effort than parental effort as polygyny rates increase.
Male contribution and marriage: the more males contribute to subsistence the less likely they are to be polygynists.

Fig. 10. Male contribution to subsistence by mating system ($n = 92$).
Polygyny Theories: I

- **Socially imposed monogamy** That is, polygyny is illegal in state level societies. Note, however, that the rich and powerful can get around this problem (e.g., concubinage & serial monogamy)

- **Ecologically imposed monogamy** where males are unable to support more than one spouse and male economic production is crucial

- **Resource Defense Polygyny**
  - Associated with economic stratification among men (Dogon, Mende, & Datoga reading examples). Rich men are polygynous and poor men monogamous
  - Derives from the avian model presented previously
Polygyny Theories: II

- Male coercion or male achievement polygyny
  - In these situations it appears that males with high status (e.g., successful hunters, warriors, or shamans) are more likely to be polygynous or
  - Males are able to coerce females into marriage (similar to harem defense polygyny in other species exemplified by Chisholm and Burbank’s work on Aboriginals)
  - It may be the case that male coercion and achievement are different sides of the same coin in that males who have coercive power are those who have achieved high social status.
Bobbi Low, basing her ideas on Hamilton and Zuk, predicted that pathogen load and polygyny would be positively associated. She demonstrated the relationship using the standard cross-cultural sample. The idea here is that females select males who have evidence of resistance to parasite. Therefore, marrying such men will lead to healthy children.

Figure shows Marlowe’s forager sample
Polygyny IV
Mel Ember’s low sex ratio and polygyny

- Cross cultural research by Melvin Ember demonstrates an apparent correlation between polygyny and a shortage of males. He argues that there are fewer marriageable males per marriageable females. This is statistically associated with polygyny (much like the case of the Dogon).
- There are problems with this argument.
  - Shortage of males is measured by a proxy variable of male mortality in warfare (0-6 scale) and not adult sex ratio
  - It does not account for sororal or limited polygyny
  - Large numbers of marriageable men have no wives in some groups (see Dani slide, next)
## Dani Marriage Statistics

Percent males who have wives indicated numbers of wives

<table>
<thead>
<tr>
<th>Wives</th>
<th>Men</th>
<th>%</th>
<th>Women</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>56</td>
<td>38</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>49</td>
<td>33</td>
<td>49</td>
<td>30</td>
</tr>
<tr>
<td>2</td>
<td>23</td>
<td>16</td>
<td>46</td>
<td>28</td>
</tr>
<tr>
<td>3</td>
<td>14</td>
<td>9</td>
<td>42</td>
<td>25</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>3</td>
<td>20</td>
<td>12</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>1</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>148</td>
<td>166</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Explaining Cross-National Differences in Polygyny Intensity

Selected a sample of 32 African nations where at least 5% of married women were married polygynously. An attempt to control for confounding variables.

Benin, Burundi, Cameroon, Central African Republic, Chad, Comoros, Eritrea, Ethiopia, Gabon, Ghana, Guinea, Haiti, Ivory Coast, Kenya, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Morocco, Namibia, Niger, Rwanda, Senegal, South Africa, Sudan, Tanzania, Togo, Uganda, Yemen, Zambia
Predictors of Polygyny

**Functional**
1. Pathogen stress (frequency of infectious diseases)
2. Female biased sex ratio (sex ratio of adults 16-64)
3. Income inequality (Gini coefficient)
4. Amount of arable land
5. Tropical climate

**Cultural**
1. Exposure to mass media (% women exposed to no mass media)
2. Female education (years educated)
3. Female acceptance of wife beating
4. Adherence to religion open to polygyny
5. Patriarchy (acceptance of wife abuse)

= supported  = not supported
Do all men want to be polygynous?

- All but one of the polygynous husbands appeared to be rather disappointed with their lot and privately expressed the view that polygyny was a burdensome and hazardous form of marriage because of the threat of disruptive jealously among co-wives. The attitude of monogamous men was that polygyny was a good enough solution to the problem of lonely sisters and divorced or widowed mothers of young children. (p. 155-156)

- *Hunter and Habitat in the Central Kalahari.* George Silberbauer