

Inheritance

Multiple Hypotheses:

Sample: 552 men and 448 women in Vancouver

- Proportional to genetic relatedness
 - 92.3% to Spouse or Kin
 - 46% to those with 50% homology
 - 8% to those with 25% homology
 - <1% to those with 12.5% homology
- Affected by Reproductive Value
 - 38.6% to offspring
 - 7.9% to siblings
 - (both have 50% homology)

Inheritance cont.

- Affected by future mating behavior

Men tend to leave estate to spouse whereas Women specify allocation among heirs

Men have a greater propensity to re-marry where as surviving wife may be post-menopausal

Men may re-direct resources

- 1) To Obtaining a Mate
- 2) To new offspring not genetically related to deceased wife

Grandparent Investment

Differential Paternity Risk among four Grandparents:

- Paternal Grandfather (double risk):
Son might not be his
If son is his, grandchild may not be the father's or his
- Maternal Grandmother (no risk):
No doubt of 25% homology
- Paternal Grandmother (single risk):
Grandchild may not be child of her son
- Maternal Grandfather (single risk):
Daughter (Mother) may not be his

Grandparent Investment

Differential Paternity Risk leads to Differential hypotheses:
“Discriminative Grandparental Investment”

Sample: 120 American Undergraduates

Manipulation:

Ratings of

- Emotional Closeness
- Time Spent Together
- Knowledge Received from Grandparent
- Resources Received (gifts)

Predictions?

Grandparent Investment cont.

Data:

1. Closeness, Time, Resources:

Mothers' Mother > Mother's Father > Father's mother >
Father's Father

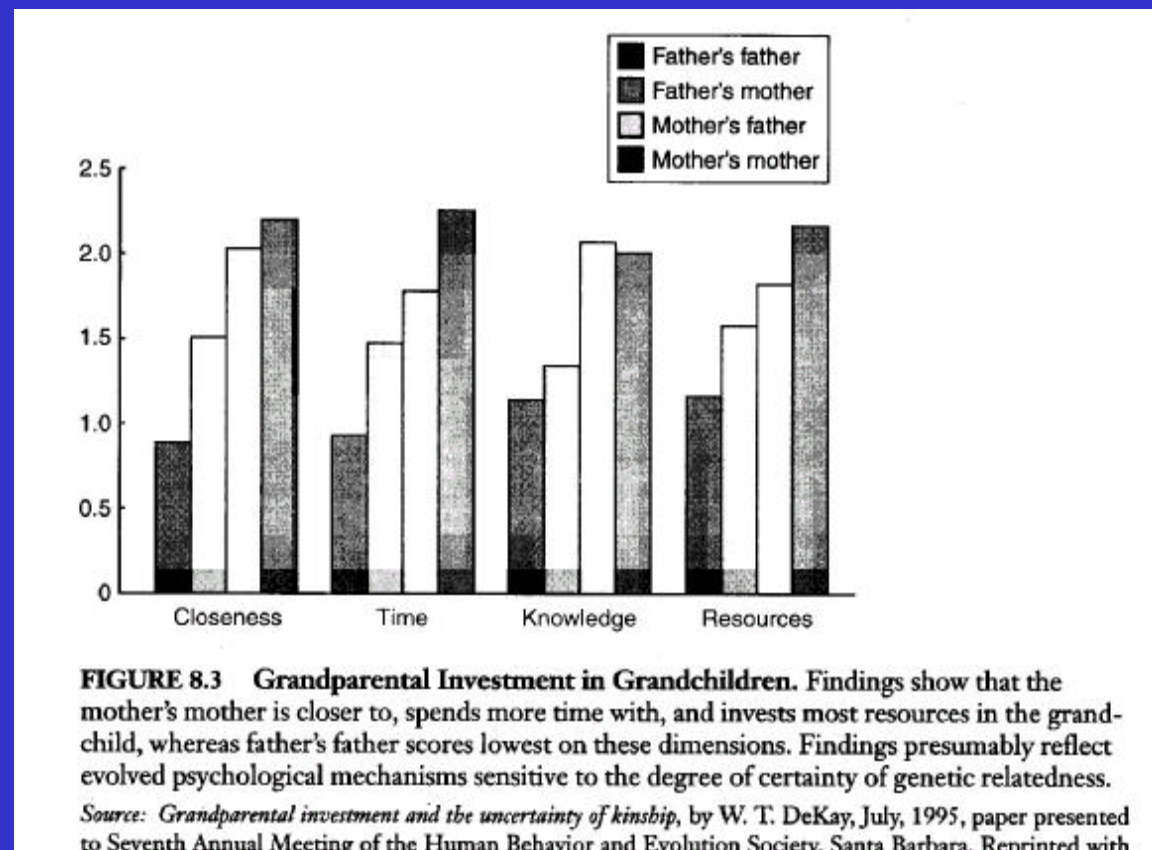
2. Knowledge:

Mother's Father > Mother's Mother > Father's Mother >
Father's Father

Mother's Father predicted to exceed Father's Mother:

Greater rate of infidelity in second generation **cohort**

Grandparent Investment cont.



Grandparent Investment cont.

Sample:

603 Germans with all grandparents surviving until Child was at least 7yrs

Manipulation:

Single rating of care-taking and concern

Data:

Same patten as American data

Interpretation:

Greater investment of Maternal Grandfather (vs. Paternal Grandmother) **rules out** alternative explanation that women are more likely to invest

Grandparent Investment cont.

TABLE 8.2 Grandparent Solicitude. Findings support the hypothesis that greater care is provided by maternal grandmother (most certain of genetic relatedness) than by the paternal grandfather (least certain of genetic relatedness), supporting the idea that paternity uncertainty compounded through the generations affects the psychology of investment.

| Grandparent | Parental Certainty | Solicitude | | Residential Distance | |
|----------------------|--------------------|------------|------|----------------------|------|
| | | Mean | SD | Mean | SD |
| Maternal grandmother | +/+ | 5.16 | 1.84 | 3.75 | 2.26 |
| Maternal grandfather | -/+ | 4.52 | 1.98 | 3.74 | 2.28 |
| Paternal grandmother | +/- | 4.09 | 2.00 | 3.83 | 2.27 |
| Paternal grandfather | -/- | 3.70 | 2.02 | 3.85 | 2.32 |

+ = more care; - = less care

Predictions from Reproductive Strategy and Parental Certainty and Results ($N = 603$); Residential Distance to Grandparent in Logarithmic Kilometers ($N = 207$).

Source: Adapted with permission from: H. A. Euler & B. Weitzel, Discriminative grandparental solicitude as reproductive strategy in *Human Nature* 7:1 (1996) (New York: Aldine de Gruyter) Copyright © 1996 Walter de Gruyter, Inc.

Aunt/Uncle Investment

Paternal ambiguity on paternal side only

Sample: 285 American College Students with both biological Parents living

Manipulation: How much concern demonstrated

| <u>Data:</u> | <u>Maternal</u> | <u>Paternal</u> |
|--------------|-----------------|-----------------|
| Aunt | 4.75 | 3.96 |
| Uncle | 3.65 | 3.28 |

Outcome: Consistent with prediction & Grandparent data

Sex Differences in Kin Relations

Sisters recall more relatives than brothers: (32 vs. 27.5)

22 Sisters vs. 2 Brothers

Sisters always recall more maiden names

Control: No difference in overall memory

Open-ended Questionnaire: Women more likely to mention role

And relationship

44% of Women mention “Daughter”

12.5% of Men mention “Son”

Interpretation: Women achieve reproductive success through Mutual kin investment (**Tend & Befriend**) vs. access to potential Mates for men

Family Evolution

Definition of Family:

Offspring remain past Reproductive Competency

Simple Family: One reproducing female

Extended Family: More than one related reproducing female

Costs of Family: Reproduction Delayed
Competition for Resources

Offsetting Factors:

- Ecological Constraint Hx: Scarcity of Reproductive Vacancies
Costs low, Benefits of leaving low
- Family Benefits Hx: Survival, competence, enhanced future competition

Predictions

1. Families form with shortage of reproductive vacancies
Only confirmed in avian species
2. Family stability increases with control of resources
Empirically supported in humans
3. Help with rearing more prevalent in families per **Inclusive Fitness**
Untested
4. Sexual Aggression lower in families per effect of inbreeding upon
Inclusive Fitness
 - Incest Rare, but more common with step-fathers
 - 18/19 avian species exogamous

Predictions cont.

Family dynamics predicted to change with disruption of a breeder

- 1. Death or departure results in conflict over who fills vacancy**
 - Follows from hypothesis that families evolved to solve problem of shortage of breeders
 - Avian species: 23/23 cases son evicted mother

Evolutionary Principle of **Commonality**
- 2. Replacement by unrelated breeder results in elevated conflict**
 - Mother-Daughter intra-sexual rivalry
 - Aggression between sons and step-fathers common in avian species

Additional Considerations

Extended Post-Menopausal period for human females:

May contribute to evolution of human families

- Helping to raise offspring and grandchildren enhances **Specific/Inclusive Fitness**
- Little incentive to encourage offspring to leave
- Little incentive (per **Specific Fitness**) to look for new mate