

Biosocial interactions in modernization

5. Sexual variation and sexism

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➤ 5.1. **Evolutionary** background of sexual dimorphism

➤ 5.2. Sexism, feminism and masculism in modern society

Second half of the 20th century:

- Salient renaissance of the scientific and political interest in **women's emancipation**
 - **Cairo** 1994: International Conference on Population and Development;
 - **Beijing** 1995: International Conference on Women
- Renewed **evolutionary interest** in sexual dimorphism and behaviour
 - **Feminist fears** for renewed biologically founded sexism

Sociobiology: sexist or not?

- Alper, J., J. Beckwith, L.G. Miller (1978), Sociobiology is a political issue. In: A.L. Caplan (ed.), *The sociobiology debate*. New York: Harper and Row, 476-488:
 - **“Sociobiology cannot be divorced from its sexism. Not only are the postulated human universals sexist, but the asserted mode of their propagation in evolution is sexist as well.”**
- Cliquet, 1984: The Relevance of Sociobiological Theory for Emancipatory Feminism. *Journal of Human Evolution*, 13: 117-127:
 - **“acquisitions of the biological sciences, and more in particular of social biology/sociobiology, provide strong arguments in favour of emancipatory feminism, and are to be duly taken into consideration if the feminist movement wants to achieve its goals”.**

THE EVOLUTIONARY ORIGIN OF SEXUAL VARIATION

- Bernstein *et al.* (1985):
 - repairing or masking unfavourable **mutations**;
- Haldane, 1949; Hamilton, 1980;
 - protection against disease and **parasitism**;
- Bremermann, 1980:
 - establishment of an efficient **immune system**

Result of sex:

- Increase in heterozygosity and the promotion of genetic polymorphisms, i.e. of **genetic variation** between individuals within breeding populations,
- As a byproduct: opportunities for a **faster adaptation** to changing environmental conditions:
 - speeded up the evolutionary **pace**;
 - super-exponential increase of the **number** of life forms

Sexual dimorphism in the human:

- **Shares** the general differentiation of its primary and secondary sexual characteristics with the **mammals**, and more particularly with the **primates**;
- Human **specific** sexual features and behavioural patterns are the result of the changes the hominids experienced during the **hominization process**.

Sexual selection

- Darwin (1859; 1871):
- = evolutionary mechanism by which individuals acquire **reproductive advantages** over other individuals of the **same sex** and transmit those characteristics to their descendants of the same sex:
 - competition within one sex for members of the other sex = **male-male competition**;
 - differential choice of members of the latter one for members of the first one = **female choice**.

Explanation for secondary sexual features

- Trivers' (1972) thesis on the sexually differentiated relative **parental investment** in offspring:
 - strongly investing sex = qualitative or **K-strategy**
 - weakly investing sex = quantitative or **r-strategy**.
- Different **mating** strategies:
 - less investing (male) sex: → male-male **competition**
 - more investing (female) sex: → female choice
- larger and more **robust body build** and a higher potentiality of **competitive and aggressive behaviour**.

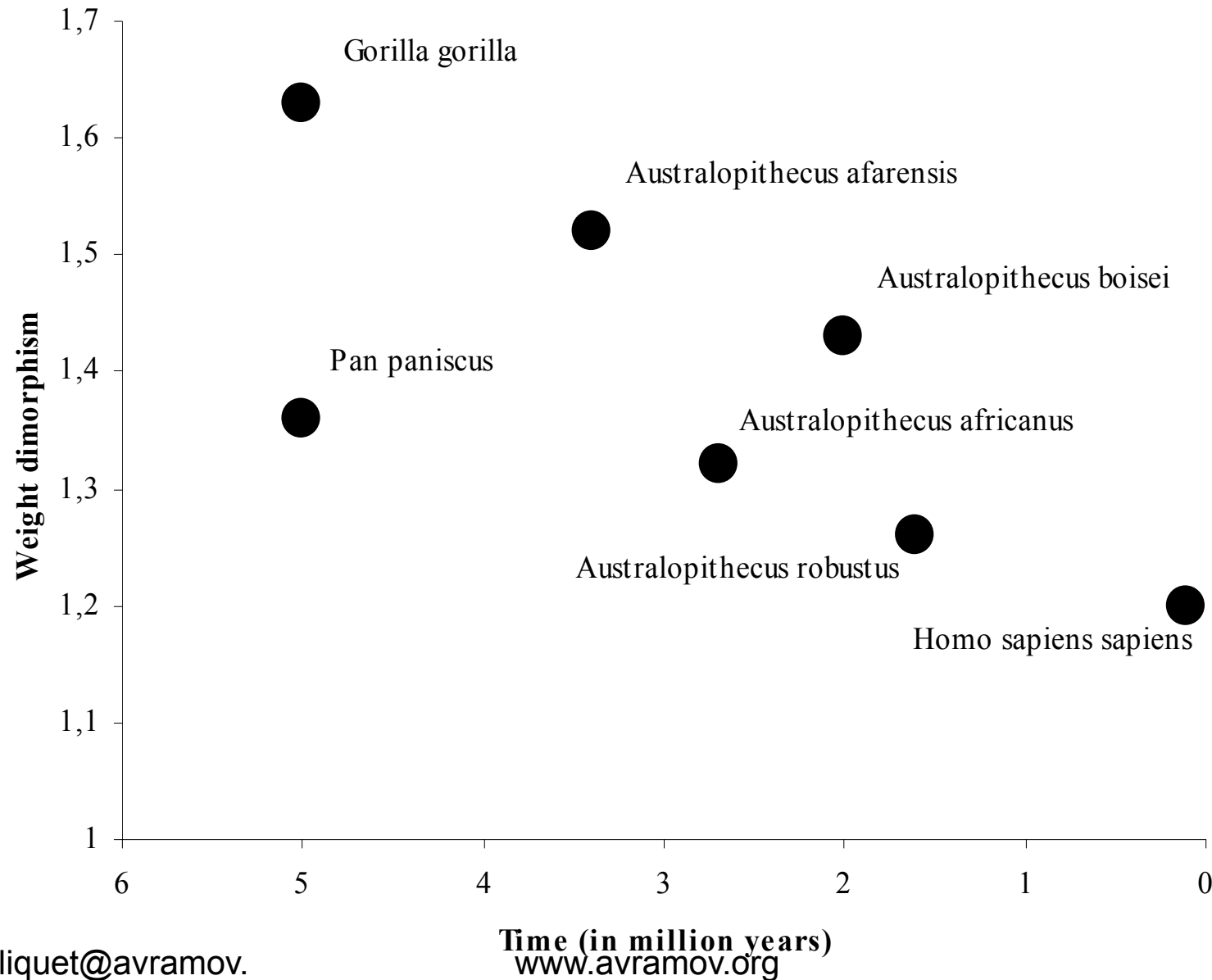
The feminisation of the human male

The **specificity** of human sexual dimorphism has to be seen in an evolutionary perspective:

Hominization:

- **Gracilization**: general regression of the robusticity of the body build (both sexes)
- **Feminization** of the male: reduction of sexual dimorphism
 - body robusticity
 - behaviour

The feminisation of the human male during the hominisation process



The sexual evolution of the human female

- Shift from a cyclical towards a **non-cyclical** sexual readiness →
 - establishment of **more enduring** relationships
- ↓
- **decrease** of male-male competition
- ↓
- increasing necessity for care of **long-lasting dependent infants**

Specific sexual features of human female

- concealed ovulation;
- visible breasts;
- orgasm;
- multiple erogenic zones;
- face to face interaction
accompanying bipedalism;
- menopause.

The evolution of the sexual steering mechanism in the human species

Shift in the control of sexual behaviour from

- hormones and the older parts of the brain (= rigid, **instinctive behaviour**, largely determined by the blood physiology),
- towards large brain hemispheres (= behavioural patterns that are more sensitive to learning and **conscious mental processes**).

Consequence:

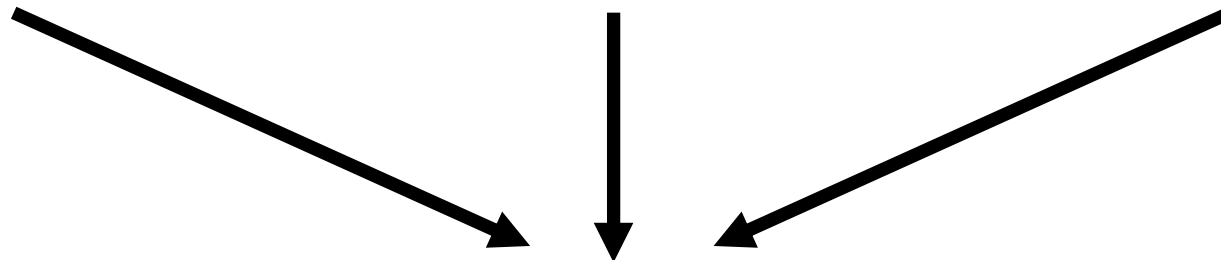
- larger autonomy and **variability** in sexual behaviour
- sexual stimulation and experience include an important **psychic dimension**,
- sexual satisfaction is **difficult** to realize.

The explanation of human sexual dimorphism

decreasing robusticity
and behavioural
competitiveness of the
human male

shifts in the sexual
morphology and
physiology of the
human female

changes in the
steering mechanism
of human sexual
behaviour



proximate explanation: establishment and preservation of **enduring relations**

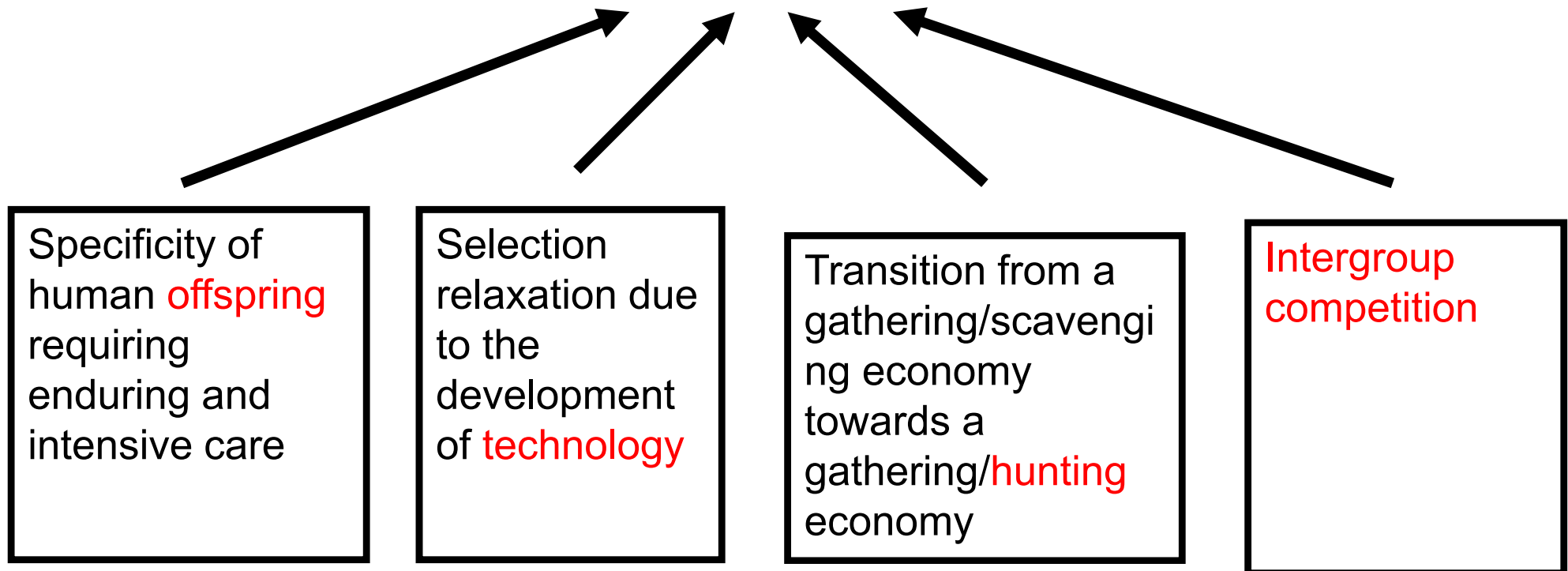


ultimate explanation: **human offspring** requires, due to its long-lasting neediness, enduring and intensive care

The explanation of human sexual dimorphism

Moderate human sexual dimorphism =

evolutionary compromise



Sex and gender

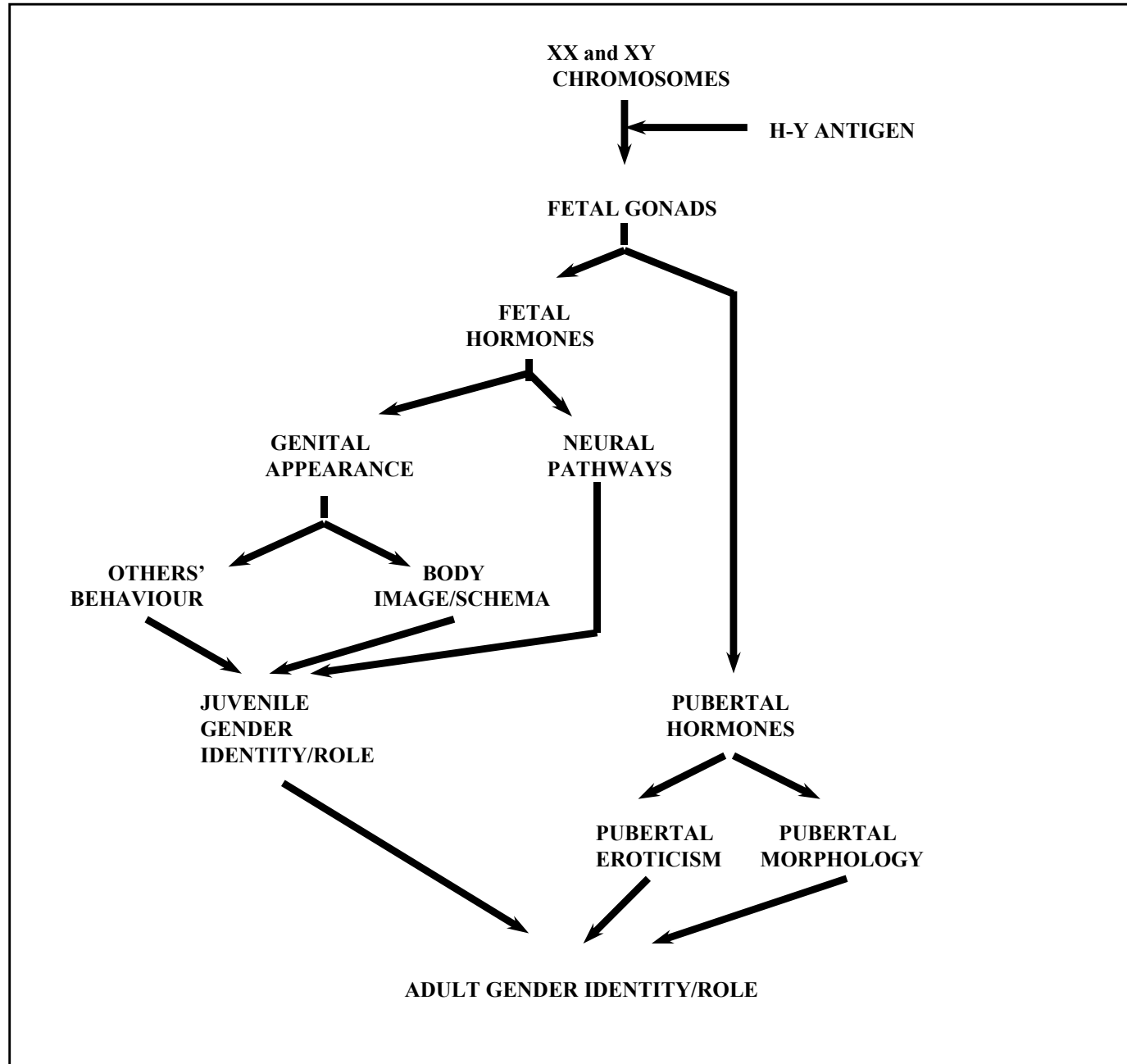
Sex = biological sex?



Gender = cultural sex?

= scientifically obsolete vision

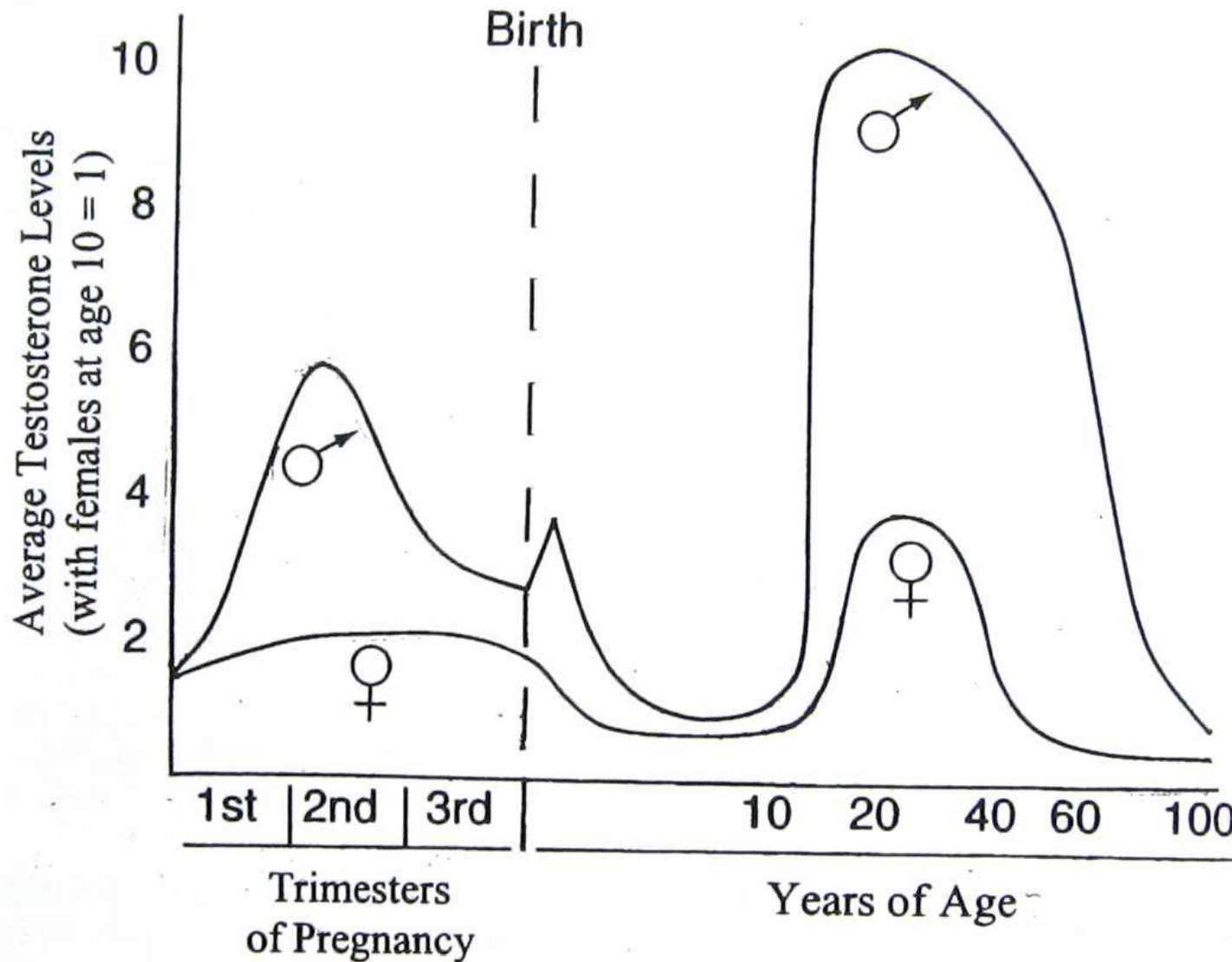
ONTOGENETIC DETERMINANTS OF SEXUAL VARIATION



Socially important aspects of sexual differentiation

- Human female: one of the X-chromosomes in each cell is **inactivated**
 - ➔ female individual: a mosaic of cells
- Human male: prenatal **masculinization** of the brain
 - ➔ post-natal behavioural differentiation
- Sex-specific **genital biology**
 - ➔ gender self-image
- **Socio-cultural** factors
 - ➔ strengthen or weaken the gender identification process.

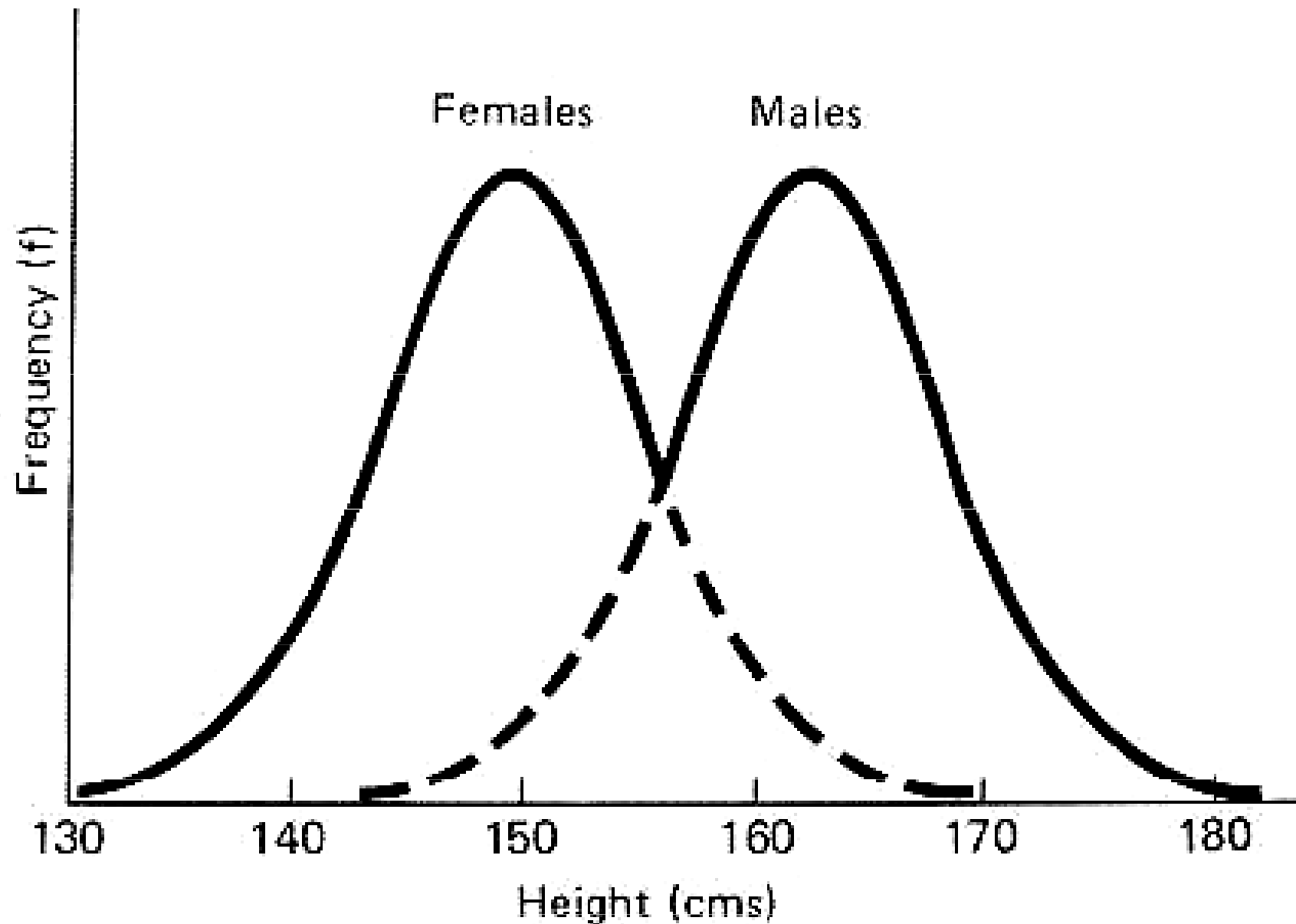
The androgenisation process during ontogeny



MAJOR CHARACTERISTICS OF HUMAN SEXUAL DIMORPHISM

- Substantial **overlapping** of the gender frequency distributions;
- **Socially** relevant biological differences between the sexes in the human:
 - Mind;
 - Body build;
 - Genitality;
 - Reproduction;
 - Health;
 - **Crime.**

Overlapping of the sex frequency distributions



Somatic androgynous variation, measured on the basis of eight biometrical variables, between and within the sexes

- Figure from Bailey and Bayer

Mind

“The brain is a sex organ.”



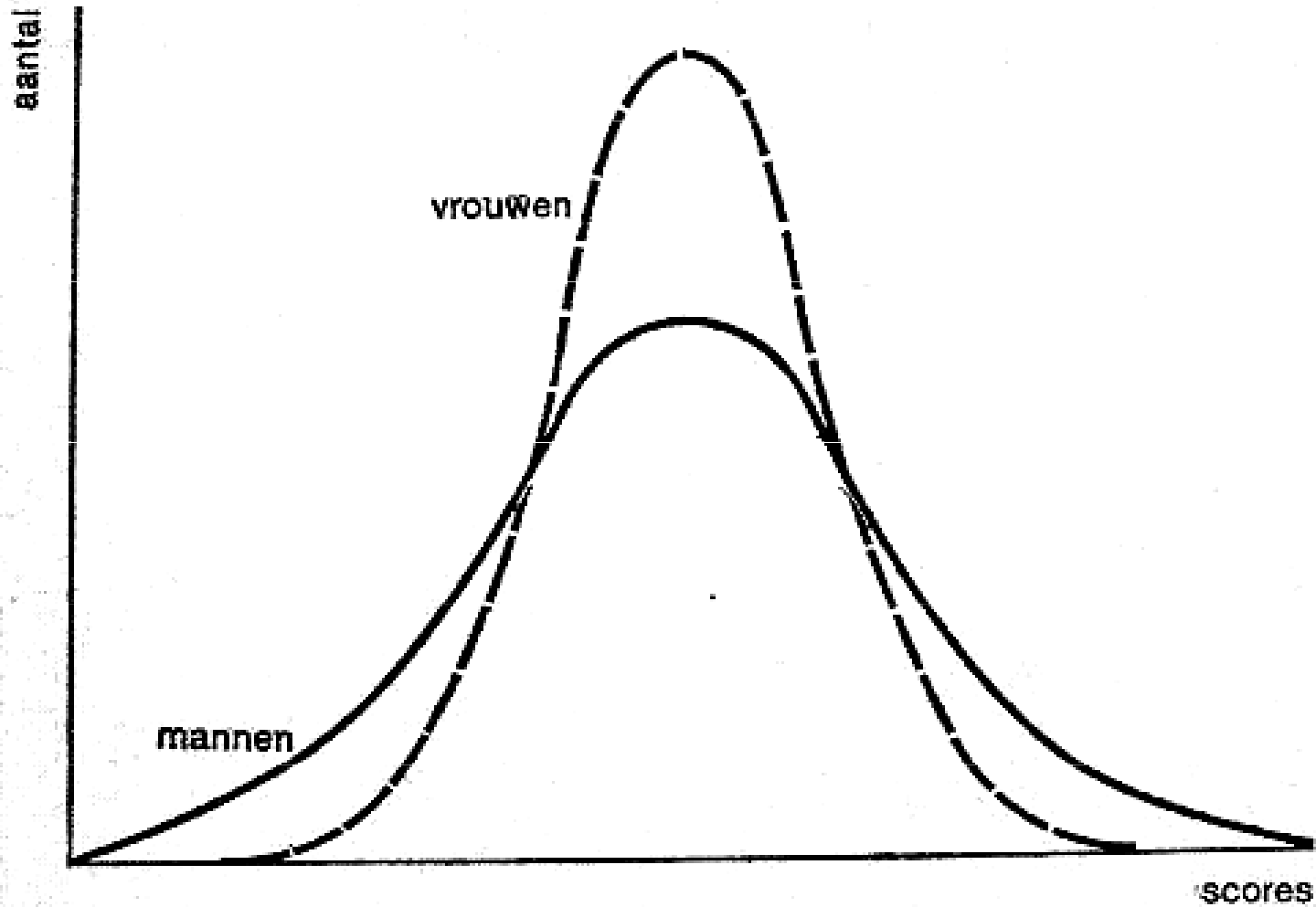
***Men:** more driven towards energetic activity and assertiveness, more violent and competitive, are more risk-taking, features which, in particular circumstances, easily turn into aggressive behaviour; men are more self-centered and single minded, are more indifferent or hostile towards strangers or newcomers, and are less able to express their emotions; men are obsessed with power and status, and are more interested in competitive (and violent) sports, economy and politics.*

***Women:** more sensitive to sensory stimuli and integrated perception, are more nurturing, are more interested in personal relationships and communication, and are more oriented towards social, religious and aesthetic values.*

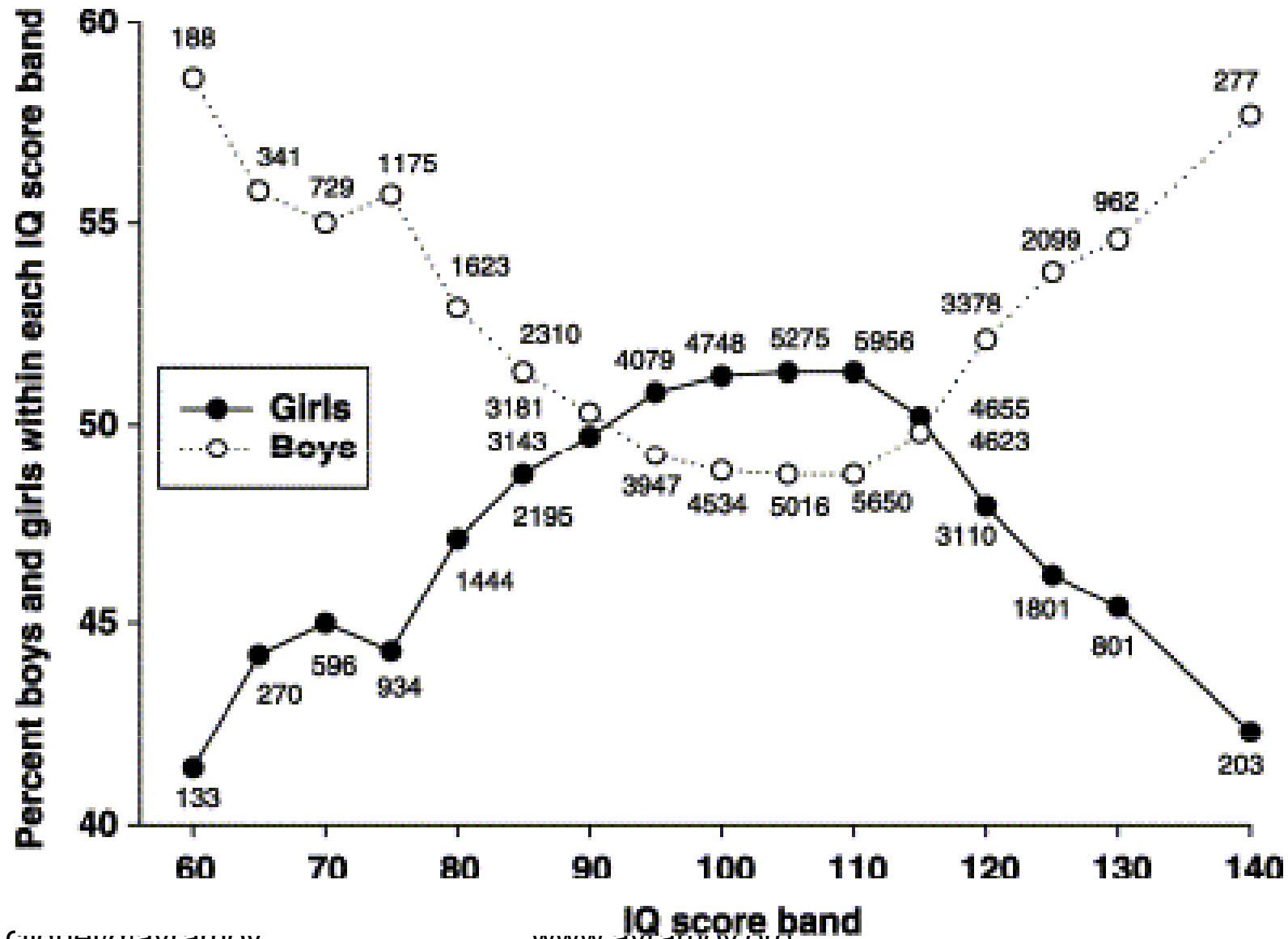
Sex differences in cognitive ability

- **No difference** in general intelligence;
- Small, but statistically significant inter-sex difference in cognitive **variance**;
 - Male > female variance
 - Larger male variance at both extremes
 - More mentally retarded
 - More highly intelligent
- **Specific aptitude tests** show statistically significant mean sex differences:
 - women do better on verbal tests and memory tests;
 - men perform better on spatial and mathematical tests.

Sex differences in variance



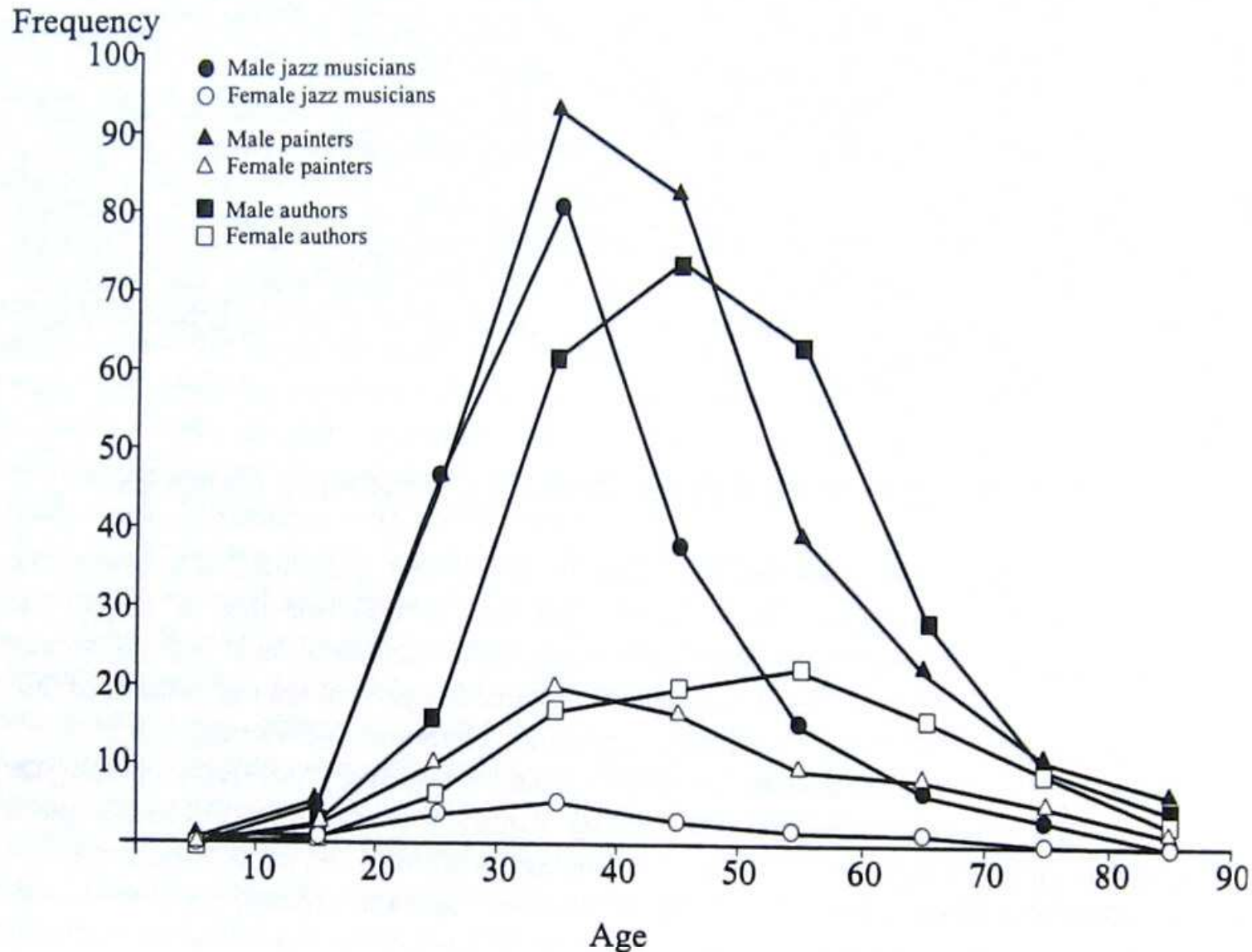
Numbers and percentages of Scottish boys and girls within each IQ score band (1932)



Sexual variance in IQ

The male IQ distribution is one standard deviation larger than the female, implying that there are twice as many males with an IQ below 55 and above 145

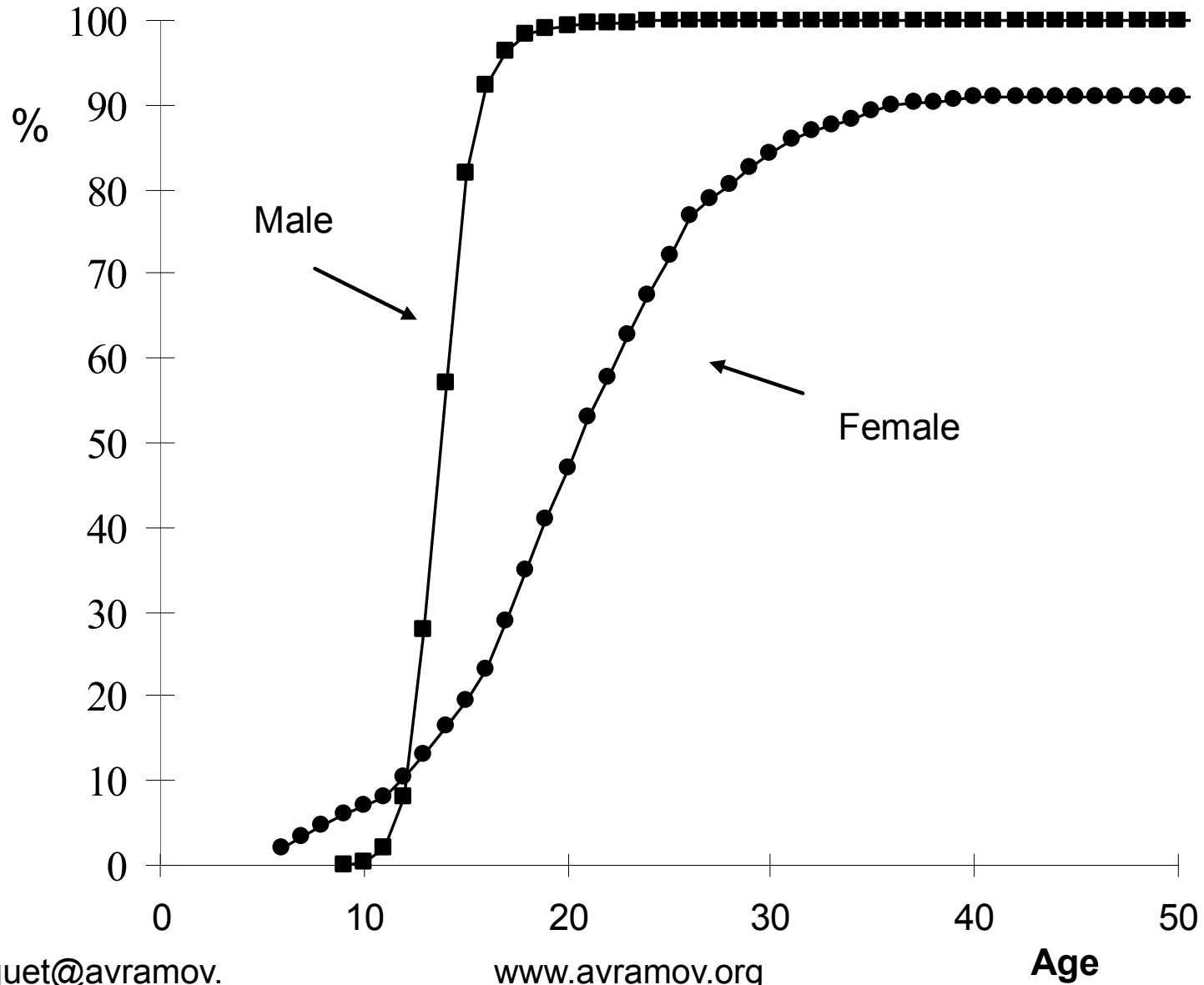
Male predominance in creative fields



Socially important sex differences in body build

- Male body strength:
 - sign of **strength** and health, and ultimately as an indication of ability to **provide**;
 - can easily lead to **aggressiveness and dominance**.
- Female beauty:
 - beauty ideals are universally related to **youth** characteristics and to the typical X- body shape of women, both being indicators of the capacity to **reproduce** and, in the latter case, of the ability to give birth to the large-brained human infant.

Genital sexuality



The origin and evolution of love

Human-specific maturation pattern



- Selection of several human-specific sexual characteristics as well as for the neuro-hormonal equipment which facilitate the development of enduring and **affective partnership relations**
- **Competing drives** or living conditions:
 - mildly promiscuous or polygamic nature of the human
 - urge for resource acquisition
 - community or parental control systems
 - degree of enduring compatibility between the partners
 - ability to develop long lasting affectionate feelings
- Modernization: characterised by a **shift** from survival to love as basis of family life

Evolutionary background of partner choice

- The **'good genes'** theory = preference for and choice of mates who possess features displaying viability, parasite resistance, immuno-competence and developmental stability;
- Sexual selection sensu stricto
 - **Parental investment** theory = women seek to mate with men who have the ability and willingness to provide resources which will benefit their children;
 - **Reproductive value** theory = degree to which individuals of a given age and sex have the capacity to produce additional viable offspring;
 - **Paternity confidence** theory = Parentally investing males, consequently, have a genetic interest in securing paternity confidence in order to avoid investment in offspring that is not theirs

Other aspects of partnership biology

- Combined partner features
- Type of partnership
- Single partnership
- Multiple partnership
- Dynamics of partnership
- Causes and consequences

The origin and evolution of the family

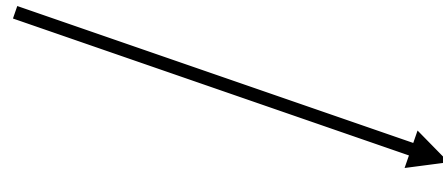
- Parental investment in long-maturing offspring
 - The origin of love
 - The evolution of altruism
- Families in modern culture
 - Recent trends in family related behaviour
 - Background of the modern family transition
 - Determinants of the recent family changes
 - Towards a revision of the definition of the (nuclear) family
- The future of the family
 - The disappearance of the family
 - Back to the traditional family?
 - Modern family variation
- What about a more remote future?

Sexual taboos against female sexuality

Sperm competition



Concealed ovulation

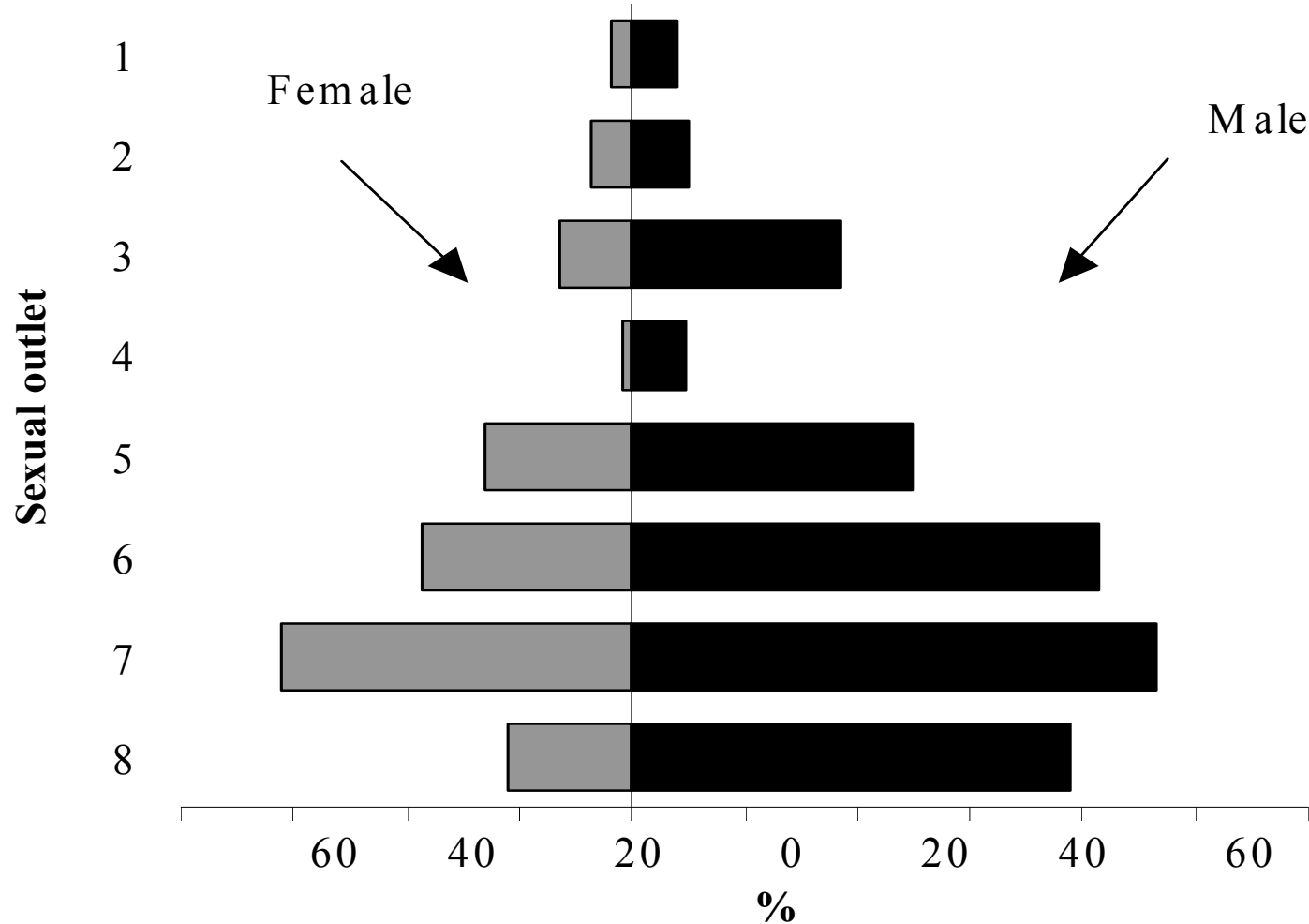


Male fear for female adultery



Head scarfs, veils, chadors, chastity belts, seclusion,
and genital mutilation

Sex differences in sexual outlet



1. animal contacts; 2. Intercourse with more than one partner; 3. Cumulative homosexual experience; 4. Homosexual contacts last four weeks; 5. extramarital coitus; 6. nocturnal dreams to orgasm; 7. masturbation; 8. pornographic magazines.

Socially relevant sexual differences in reproduction

Larger female share in reproduction:

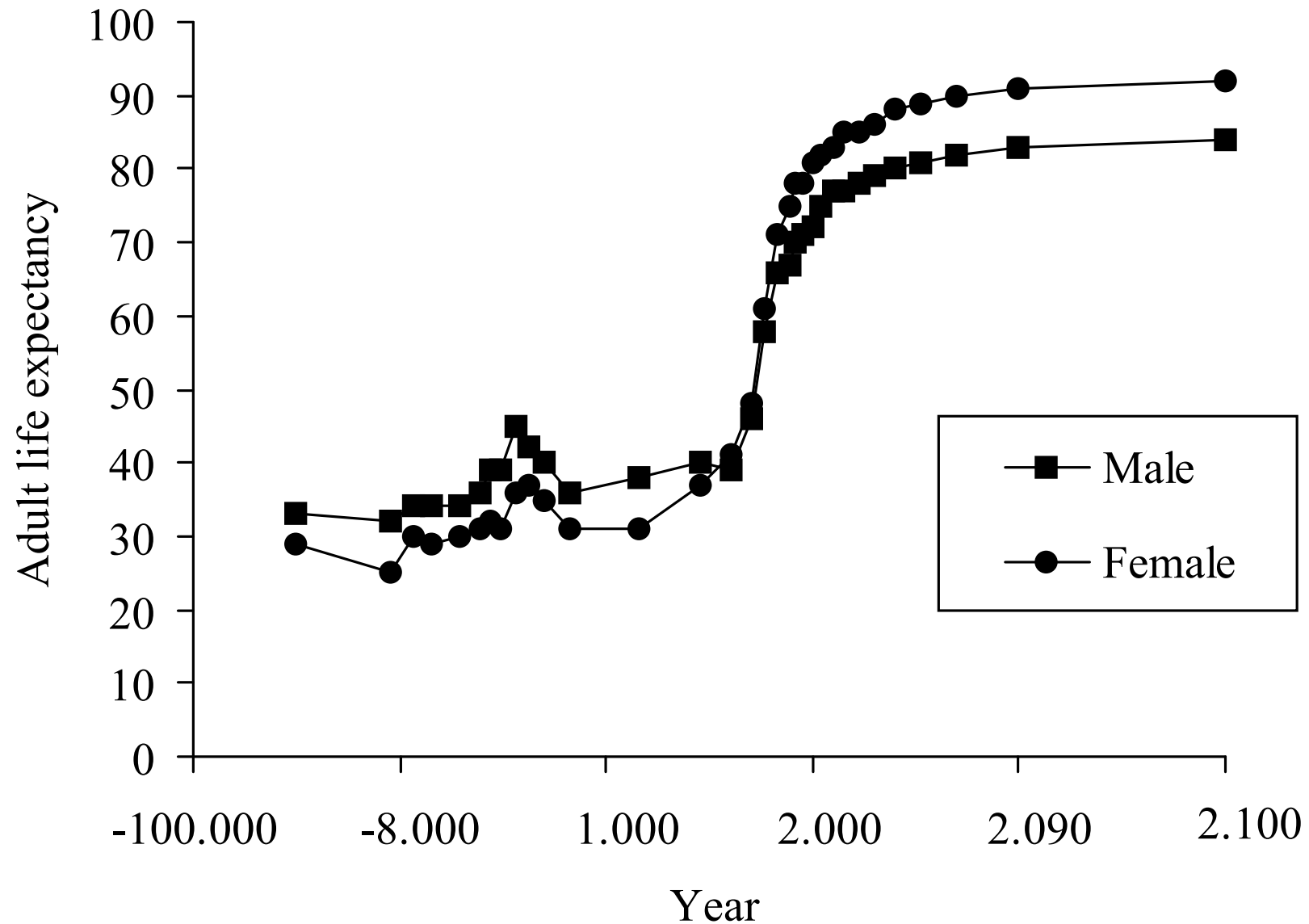
(pregnancy, delivery, lactation, care of infants)



Microlevel: relationship with partner and children

Macrolevel: role in society

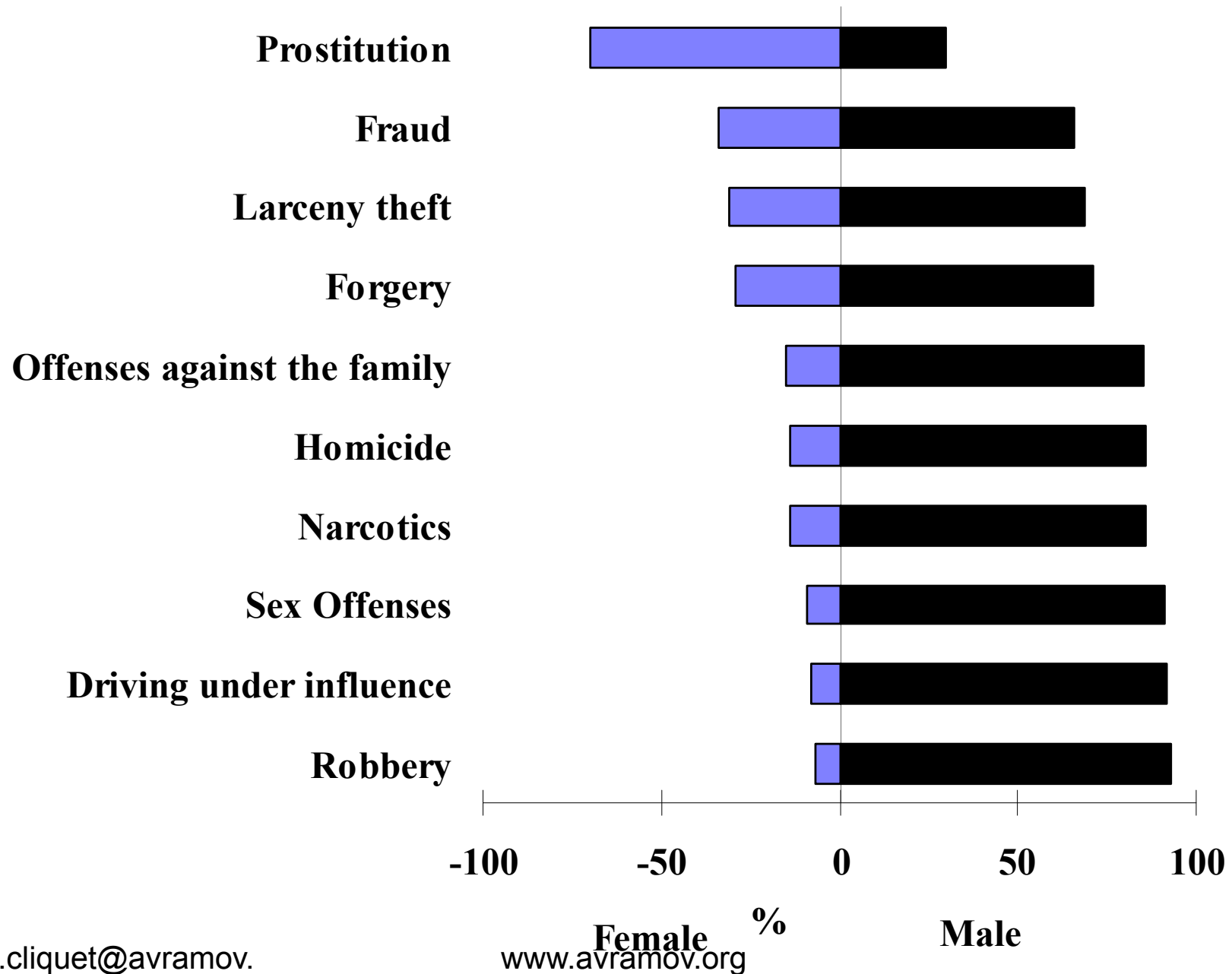
Change in sex difference in life expectancy



Evolutionary explanations for the sex differences in health

- Female superiority:
 - Selection for higher demands in **reproduction**;
 - X chromosome mosaic;
- Male inferiority:
 - Selection for **risky behaviour** (male-male competition);
 - Only one X-chromosome;
 - Slower maturation rate.

Sexual differences in criminality



Homosexuality

- Recent increase in interest in media and policy quarters:
 - increasing ideological pluralism;
 - progress of egalitarianism in general;
 - advances in scientific knowledge;
 - shift from a belief-based towards a knowledge-based ethics;
 - impact of the ‘holebi’-movement;
 - AIDS?
- Attention is disproportional to its demographic prevalence

Cultural causes of homosexuality?

- Example of the old **nature-nurture controversy** opposing social and biological sciences;
- Particular situational circumstances or cultural values and norms can elicit a **situational** homosexual behaviour;
- Particular **early life experiences** are believed to be able to influence the course of adult sexual orientation;
- However, social and cultural causes show only a **small effect** or interact with genetic or ontogenetic predispositions: sexual orientation is shaped at an early age through **complex interactions** of biological, psychological and social factors .

Biological determinants of homosexuality

- High concordance in homosexual behaviour according to the degree of **genetic relatedness** ($h^2 \sim 0.50$);
- **Prenatal hormonal** influences on sexual orientation;
- Differences in the anatomical structure of the **hypothalamus**;
- **Genetic markers** on section Xg28 of the X chromosome.

Evolutionary explanations for a sociobiological paradox:

How can homosexuality be transmitted and be maintained in the population if its carriers don't produce as many children as heterosexuals?

- (1) homosexuality is an evolutionary **maladapted form** of behaviour and is being selected against;
- (2) homosexual behaviour has some selective advantages resulting from **interactions** with other genes or interactions between individuals, the latter including the theories based on kin selection, reciprocity and homosociality;
- (3) homosexuality is a **byproduct** of one or more facets of the hominization process, in particular of the increasing plasticity of the human brain and the feminization process during human evolution.

Homosexuality:

interactions with other genes or between individuals

- Interactions between **genes**:
 - ‘Balanced polymorphism theory’: genes determining sexual orientation would have a reproductive advantage in **heterozygous** combination
- Interactions between **individuals**:
 - **kin selection**: genes transmitted via descendants of relatives whom one altruistically supports (e.g. through higher intelligence or sociality);
 - **Reciprocity**: resource exchange and a reduction in inter-male aggression;
 - **Homosociality**: same-sex bonding, particularly among males, contributes directly to survival and indirectly to reproduction

Homosexuality: a byproduct of the hominization process

- The increasing **plasticity** of the human brain: increased variability of human sexuality
- The **feminization** process during human evolution: advantaged less aggressive, more social, sensitive and communicative males, resulting in a too strong feminisation of some male individuals.

Homophobia

- All known cultures **exclude** exclusive homosexuality as a sexual option;
- Deep-seated **fears and anxieties**, fostered by insecurity concerning one's own sexuality and gender-identity;
- **Sociobiology**: in terms of maximizing their inclusive fitness, people may have an interest in the **sexual orientation of their offspring**

Future of homosexuality

➤ Immediate future:

- homosexual relationships may be expected to further increase, or at least to become more visible;
- social acceptance of homosexual households and families, as a minority variant, will increase;

➤ Longer-term future:

- genes for same sex preference would decrease in the gene pool, since genes for homosexuality would be **less transmitted** via (forced) heterosexual relations;
- increasing mobility produces more genetic heterogeneity so that selection for altruistic acts can no longer operate on the basis of close relatedness between altruist and recipient.

5. Sexual variation and sexism

➤ 5.1. Evolutionary background of sexual dimorphism

➤ 5.2. Sexism, feminism and masculism in modern society

Does sexual difference matter?

- Scientifically:
 - one of the most salient sources of biological variation;
- Socially:
 - strongly related to **inequities** in power, rights, privileges, status, and prestige;
 - in most cultures, **valued** in a differential way.
- Biologically:
 - **Ontogenetically**: major source of human motivation, action, and happiness;
 - **Genetically**: mechanism for transmitting genes and producing evolution

Sexism

The concept “sexism” has been coined to define ideological and social systems in which sexual variation is used as a primary criterion to assign **normatively differentially valued roles and tasks** in society.

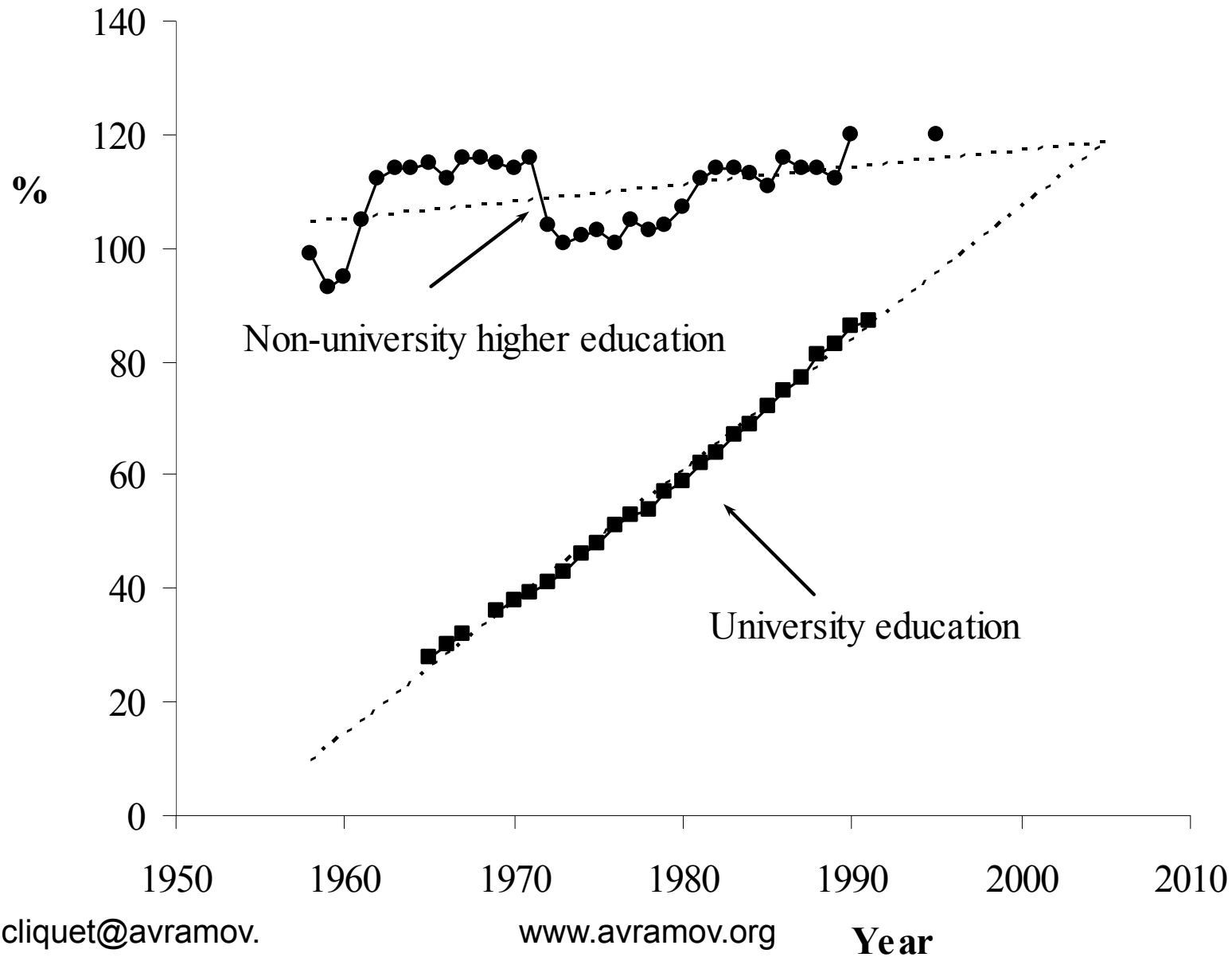
Sexually related social differences

- In traditional cultures:
 - social subordination of women is, from a cross-cultural point of view, a virtually **universal** phenomenon, worse in the agrarian and early industrial stages than in the hunting/gathering stage;
- In modern culture:
 - on average, women are still in a socially **inferior** position;
 - women are in a process of **slow and gradual** improvement of their social position.

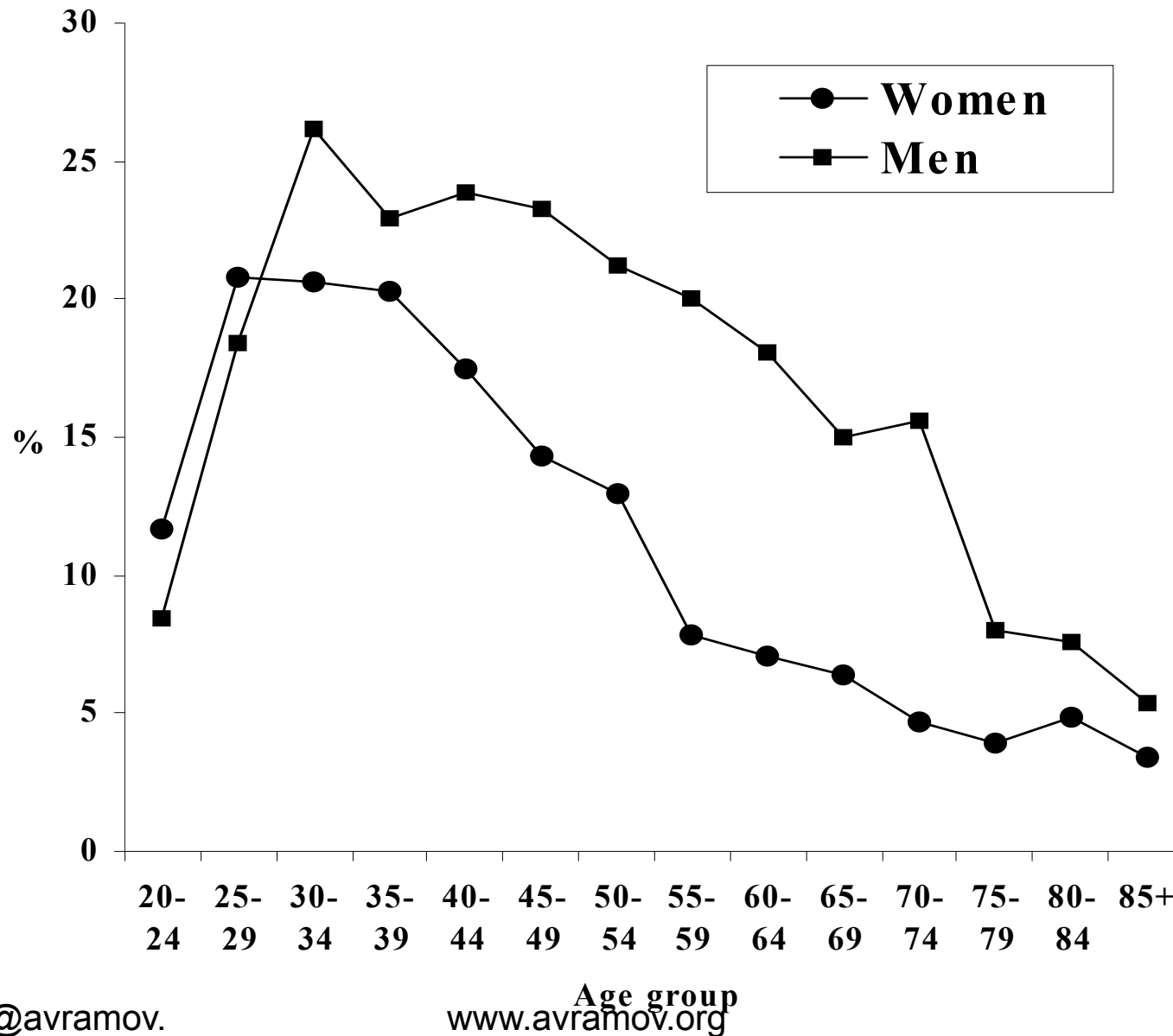
Determinants of female emancipation in modern culture

- Emancipatory forces
 - Scientific **knowledge** about sexual dimorphism, eroding the traditional ideological views;
 - Bio-medical progress, resulting in mortality and fertility **control**;
 - shift from a family based economy towards family-transcending types of **economic production**;
 - increasing **educational** opportunities;
 - female paid **labour**;
 - **Ideological** shifts: democratisation, individualization, egalitarianism, pluralism
- Opposing forces
 - **male biological heritage**, still oriented towards assertiveness, competition, aggression, dominance, and hegemony;
 - internal **dynamics of modern culture**, the further progress of which demands competition, risk taking exploration, dynamism;
 - powerful conservatory forces of **traditional ideologies**, trying to preserve the old (male-dominated) prerogatives and advantages.

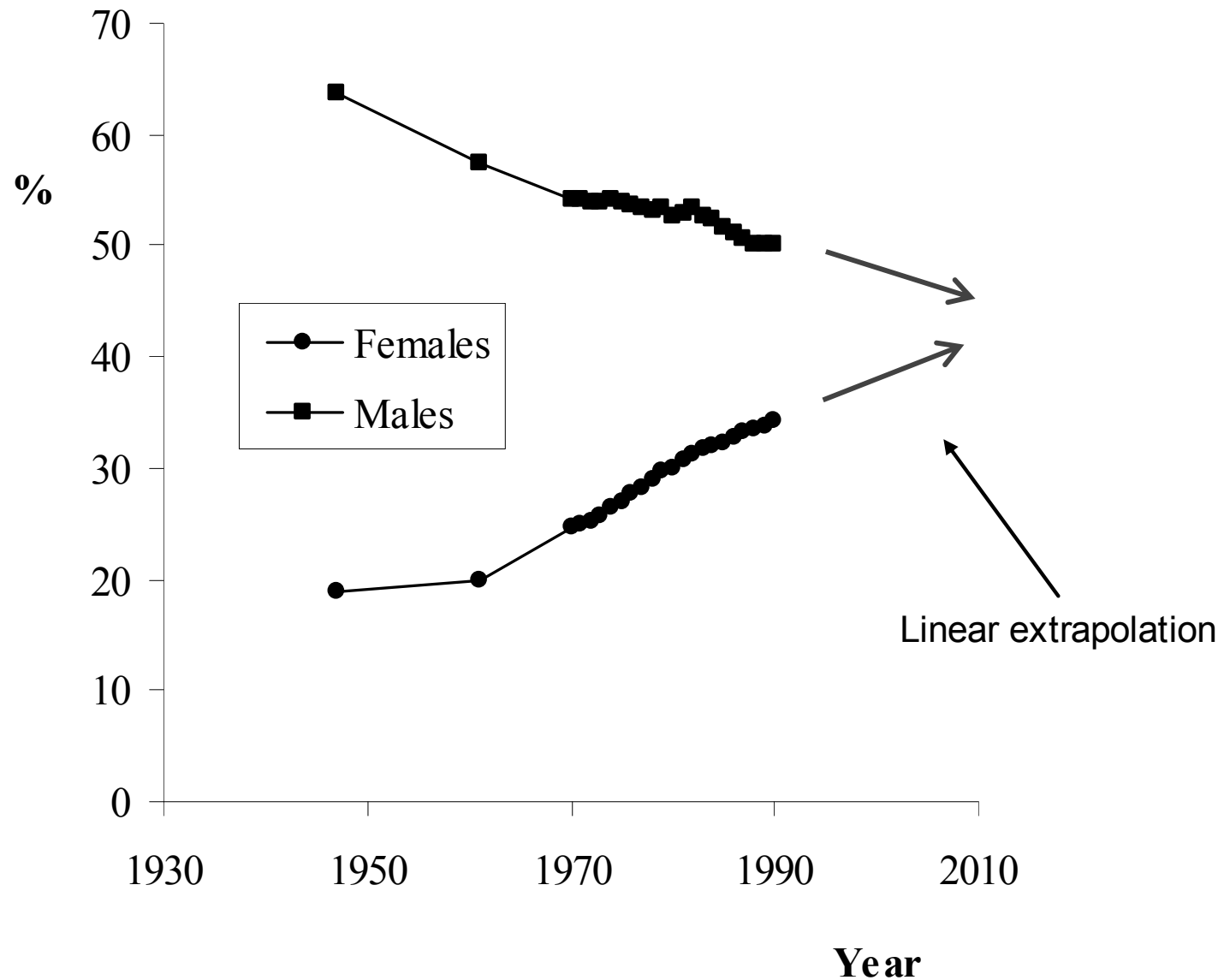
The presence of women in percentage of the presence of men in non-university higher and university education in Flanders



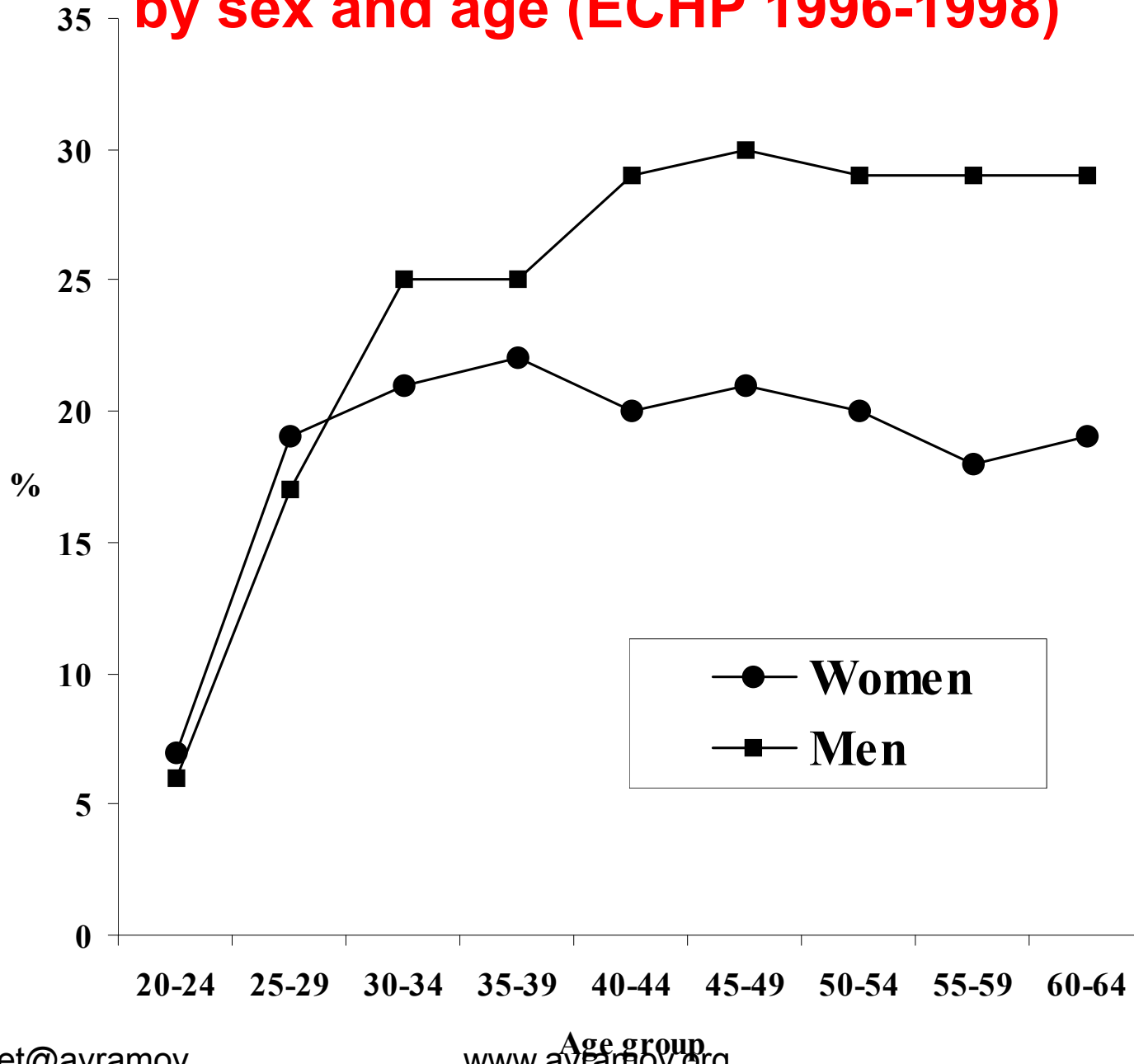
Third level education in the European Union by sex and age (ECHP, 1996-1998)



Proportion of women and men in the labour force in Belgium



Managers and professionals in the European Union by sex and age (ECHP 1996-1998)



Sexist ideologies in pre-modern cultures

- Tribal societies:
 - bio-social differences in tasks and roles of both sexes elucidated ideological positions favouring or strengthening **male dominance**;
- Agrarian societies:
 - Ethnic religions:
 - structured on kinship relations, foster **male dominance** with a view of ensuring the purity of the bloodline in order to protect the ethnic identity;
 - Universal religions:
 - initially including women in religious activities that transcended the roles of motherhood and housewife;
 - when embedded in the social structures and processes of agrarian society, they took over the **prevailing patriarchal structures** and provided ideological foundations for male dominance.

Emancipatory ideologies in modern culture

- Marxism (with its socialist and communist variants), liberalism, and Christian-democracy:
 - eventually **all included principles and policies** with a view of restoring - or better of establishing at last - social equity and equality between the two sexes;
 - contributed more or less to female emancipation, but so far they **did not succeed** in realising full sexual equity and equality.
- **Feminism:**
 - had to emerge to accelerate the sexual emancipatory process;
 - has still to elaborate equitable strategies well adapted to the novel environment of modern culture.

Science, sexism, and sexual emancipation

- In the past many biologists and physicians have unwarrantedly advanced **(pseudo)biological arguments** to explain and even justify the socially inferior position of women in family and society;
- Many feminists fear that **biological sciences support** conservative ideologies and legislation aimed at maintaining the traditional political and other inequalities and inequities between the sexes and thus contribute to the perpetuation of the sociological minority position of women.

Modern biological knowledge: the ultimate basis for female emancipation

- Biology **refuted traditional views** on the nature of the sexes and destroyed even the earlier ideological foundation of sexual inequality and inequity;
- Bio-medical knowledge has induced a revolutionary mortality control, allowing fertility control, - the **ultimate conditions** for women's new opportunities!
- Modern technology is increasingly **eroding** the traditional male physical advantage with respect to muscular strength and speed;
- Sociobiology put human sexual dimorphism in an **evolutionary perspective**: a strongly reduced, albeit not fully disappeared phenomenon.

Female social inferiority versus biological superiority: a paradox?

➤ **Biologically:**

- women are the basic sex;
- with a much more important share in reproduction;
- a better health;
- a more balanced personality;
- more inclined towards social interaction;
- more resistant against stress, etc.,

➤ **Sociologically:**

- inferior position

Explanations for the biosocial sex paradox

- Many feminists: **cultural** determinants are the major cause of the social subordination of women;
- Sexists: stress the importance of **biological** factors.
- Reality: **more complex**
 - **Hunting/gathering cultures**: male has taken advantage of his biologically selected potentiality for agonistic and competitive behaviour (male-male competition; ingroup-outgroup conflict) to extend his tendency to dominate to women and children;
 - **Agrarian cultures**: social position of women degraded considerably as a result of a concurrence of circumstances such as the accumulation of (private) property due to subsistence surpluses;
 - **Early industrial culture**: the traditional power relations from the agrarian period seemed to fit quite well in the newly emerging social structures;
 - **Advanced modern society**: bio-social ecological basis for patriarchy disappeared, and the process of sex emancipation became possible.

Feminism and masculism

➤ Feminism:

- Two major waves;
- Several 'feminisms' (radical feminism, 'equality feminism', 'difference feminism', lesbian feminism, etc.;
- Substantial achievements;
- Still a long way to go;
- Most fractions underestimate the **impact** of biological factors.

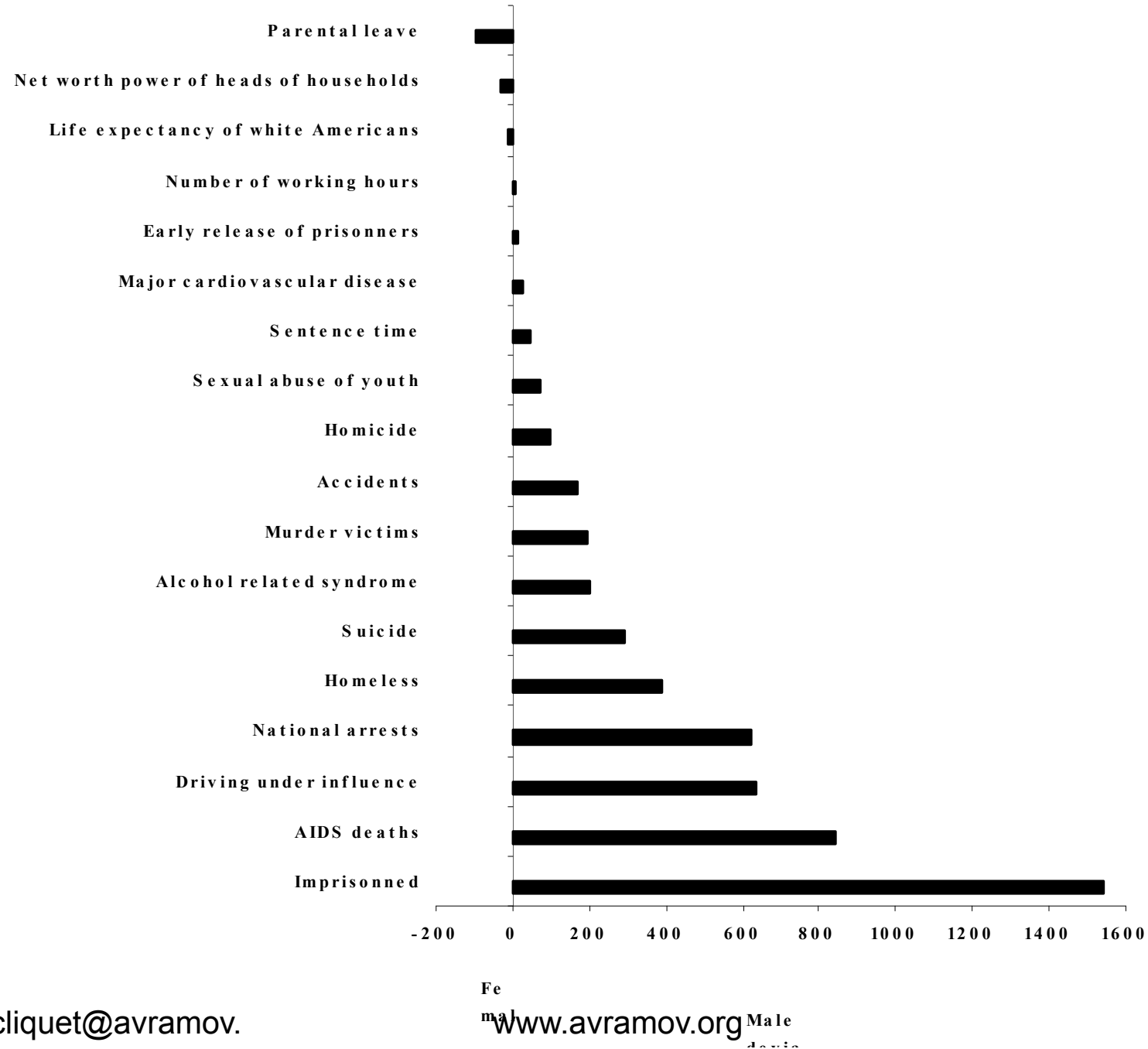
➤ Masculism:

- leaning the wounds done to heterosexual men by the relations between the sexes;
- defending the masculinity hegemony;
- Misinterpret completely the biosocial background of the so-called '**subjugated sex**'.

Men: the disposable sex?

- Masculine complains about the increasing male discrimination;
 - lower male life expectancy;
 - higher morbidity;
 - higher retirement age;
 - military conscription;
 - more severe punishment for criminal behaviour;
 - higher professional risks;
 - male achievement compulsion;
 - career stress;
 - night work;
 - shortage of friends;
 - paternal deprivation;
 - exuberant alimony obligations,
 - more often the war victims
 - higher suicide rates,
 - more often the victims of violent crime,
 - experience more motor vehicle fatalities,
 - higher chance to become homeless,
 - higher chance to get AIDS
 - higher chancer to get imprisoned.

The disposable sex according to Farrell (1993)



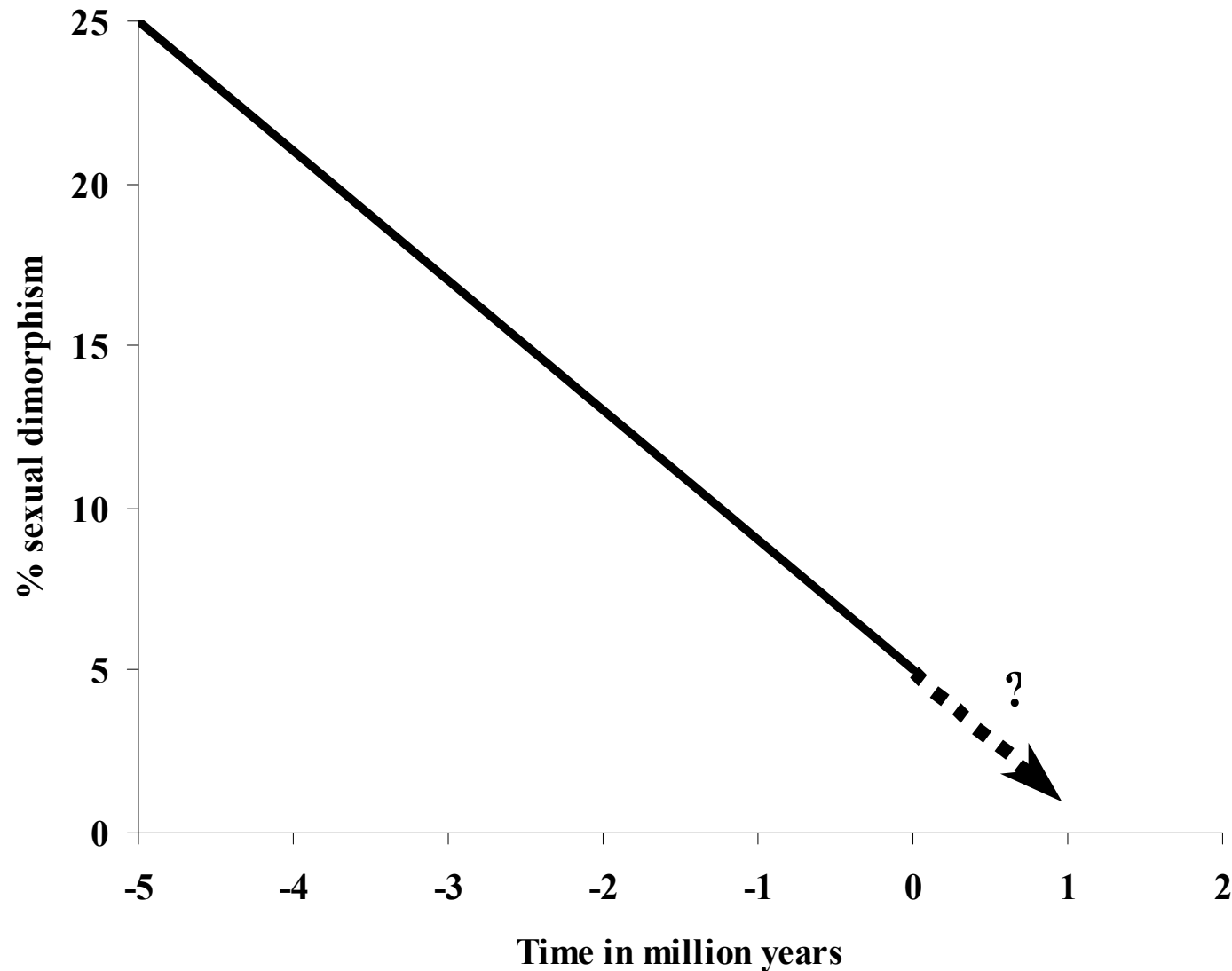
Sociobiological evaluation of masculine complaints

- Dwindling patriarchy: a **frustrating** experience!
- Masculine complaints:
 - rely on well-established facts;
 - are the direct or indirect **social** consequences of **masculine drives and endeavours** of most men themselves or of societal structures and processes created and driven by dominating males, resulting from the **risk taking** behaviour related to **competitive action** which, on its turn, goes back to the **neuro-hormonal**, and in the end, the **genetic specificity** of the human male.

The maladaptation of sexual dimorphism in modern culture

- Human sexual dimorphism: **adaptation** to the EEA (environment of evolutionary adaptedness);
- In the novel environment of modern (and **peaceful**) culture: inadapted
 - Modern warfare: too dangerous;
 - Resource exploitation: depletion
 - Economic competition: too stressful.
 - Maximization of inclusive fitness: ecologically unsustainable

The feminisation of the human male in the course of the hominization



From a masculine to a feminine approach

Masculine approach	Feminine approach
Belligerent	Pacifist
Resource exploitation	Resource conservation
Competition	Cooperation

Inevitability of patriarchy?

- Goldberg (1973; 1993) :
 - The Inevitability of Patriarchy'
 - 'Why Men Rule'?
 - Analysis correct, prognosis incorrect
 - Biological basis of male dominance
 - Unchangeability of biological predispositions
 - Biological phenomena are changeable
 - Ontogenetically (short term)
 - Genetically (long term)
- 