

# Sex vs. Gender



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# Sex vs. Gender

Sex: either of the two major forms of individuals that occur in many species and that are distinguished respectively as female or male

- based on type of gonad/gamete produced

BIOLOGICAL

Gender: the behavioral, cultural, or psychological traits typically associated with one sex

SOCIAL

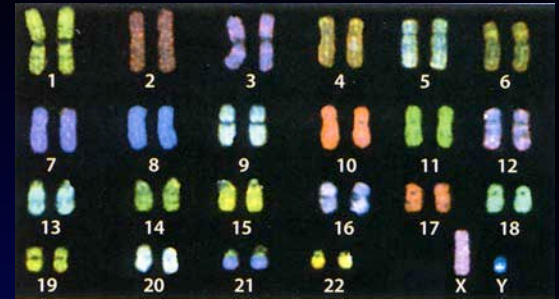
Merriam-Webster online

What gender is this keyboard?



# Sex Types ?

- Genotype
- Brain
- Gonadal Type
- Internal Ducts
- External Genitalia
- Phenotypic Sex
- Legal Sex

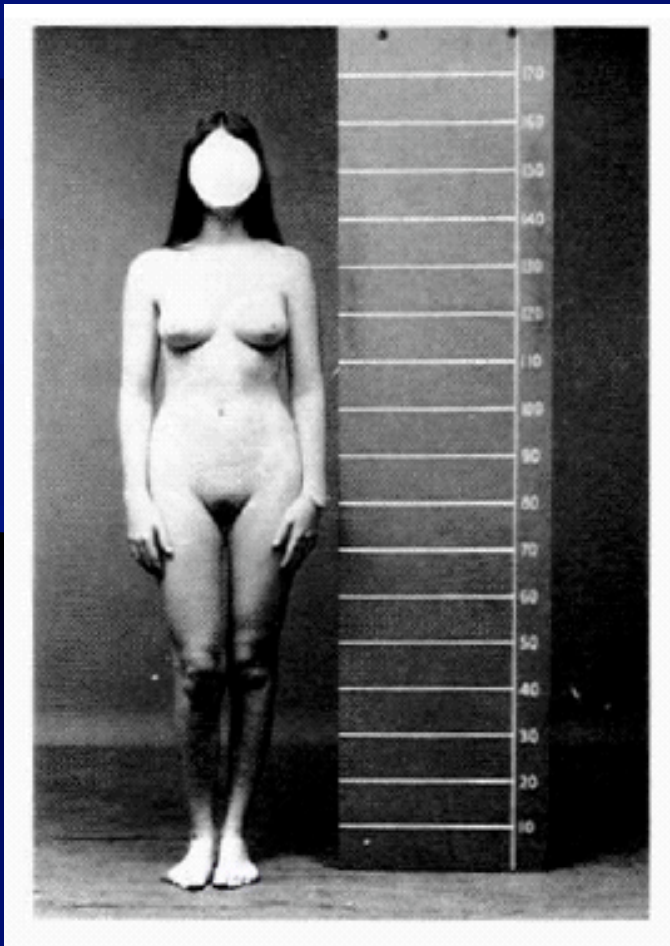


# Blue Headed Wrasse



# What is the sex of this person?

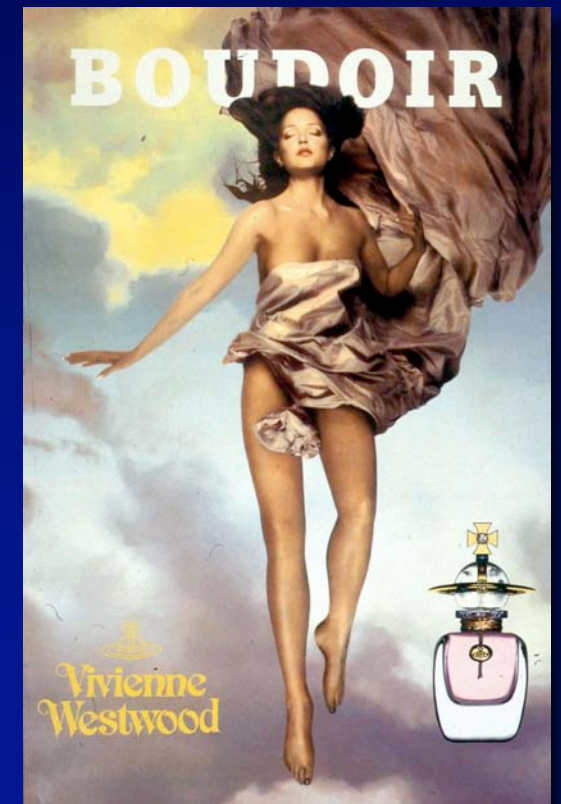
## Androgen Insensitivity Syndrome



- Genotype: XY
- Brain: no androgen
- Gonadal Type: infertile male
- Internal Ducts: none
- External Genitalia: female
- Phenotypic Sex: female
- Legal Sex: choice!

# Evolution of Gender

- Anisogamy gives rise to different mating types
  - (+ / -) (female/male)
- Recognition of opposite type has advantages
  - chemical (pheromones)
  - visual signals
    - secondary sex characters
      - coloration, horns, behavioral display



# Bird Courtship: Visual

- [http://www.youtube.com/watch?v=SB8UodV\\_DJg](http://www.youtube.com/watch?v=SB8UodV_DJg)
- <http://www.youtube.com/watch?v=k-0pI5Kp7UQ>

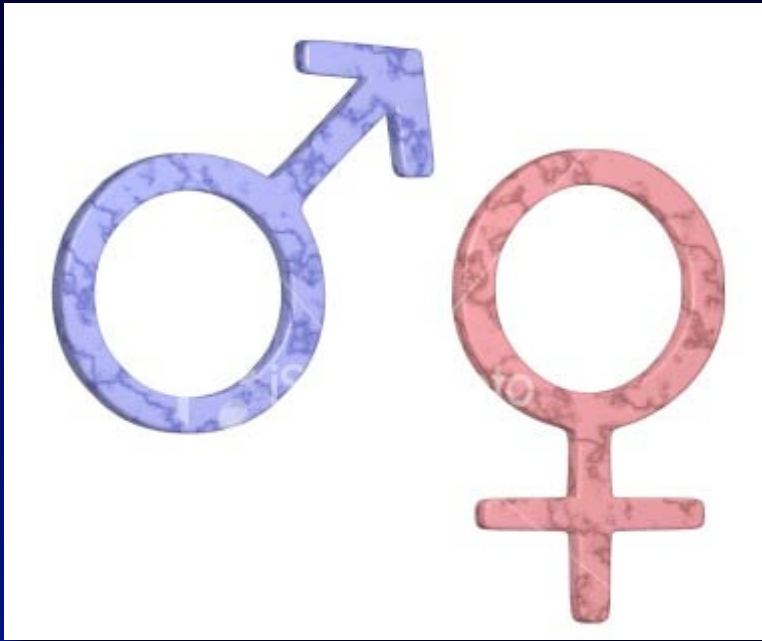


# Round Goby Males



- Sneaker males
  - Look like females
  - Produce more sperm
  - Can be more successful

# Gender or Sex Symbols?



**GENDER**



**Masculine**



**Feminine**

# Gender?



© 2006 John Stutz Photo www.johnstutz.com

# Is Gender Learned?

- Gender identity developed by age 3
- Gender constancy by 5 years
- But what determines gender?
  - Adults and children treat babies differently according to what sex they are
  - How people interpret behaviors according to sex
    - Boys are angry girls are scared



# Gender Reassignment

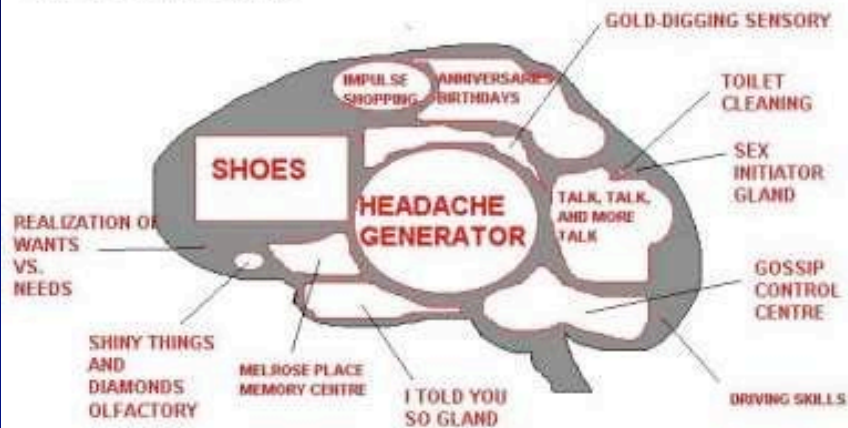
- Sexually ambiguous genitalia (malformations)
- Studies on XY males
  - 21 raised as males
  - 18 raised as females (surgery and hormone replacement)
- Percentage happy with their assignment
  - 76% of the men
  - 78% of the women
  - 2 patients changed gender in adulthood

# Gender Reassignment

- Reassignment to female after major injury to the genitalia
- Twin study: reassigned girl experienced gender identity problems
- Could sexually dimorphic development of the brain explain the differences?

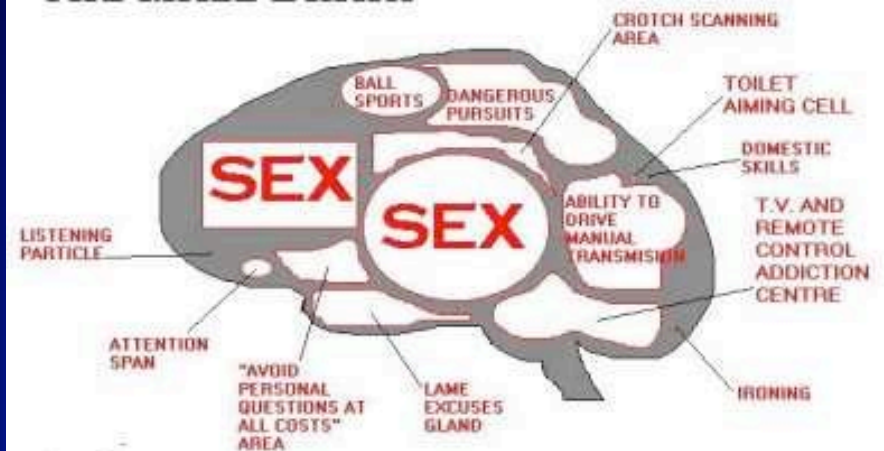
# Brain Gender or Sex?

## THE FEMALE BRAIN



FOOTNOTE: The "Put Oil into the Car" and "Be Quiet During the Game" glands are active only when the "SHINY THINGS AND DIAMONDS" Olfactory has been satisfied or when there is a shoe sale.

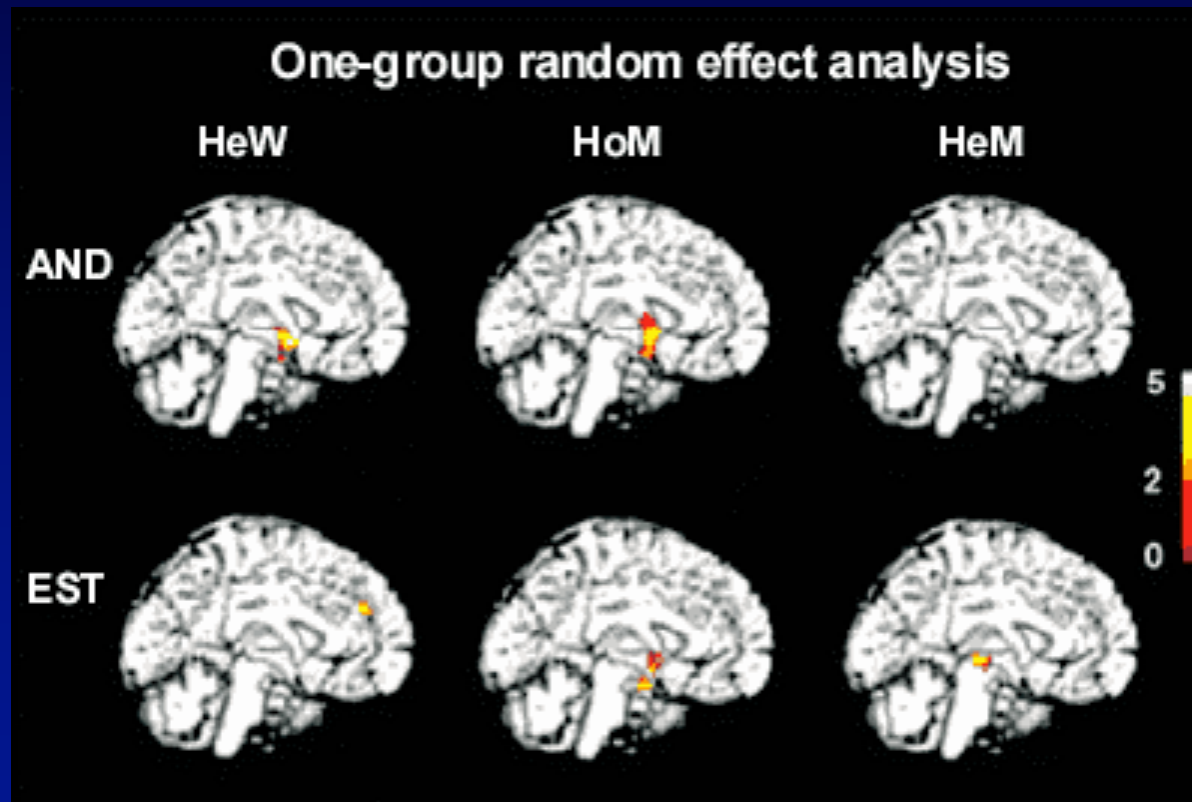
## THE MALE BRAIN



FOOTNOTE: the "Listening to children cry in the middle of the night" gland is not shown due to its small and underdeveloped nature. Best viewed under a microscope.

# Brain Responses to 'Pheromone'

- 4,16-androstadien-3-one (AND)
- *estra-1,3,5(10),16-tetraen-3-ol* (EST)

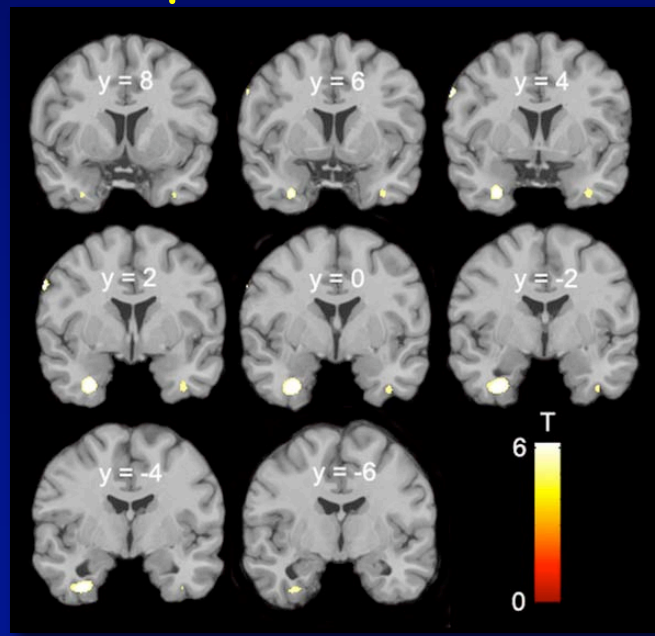


•IVANKA SAVIC et al / PNAS v.102, n.20 7356-7361 17may2005



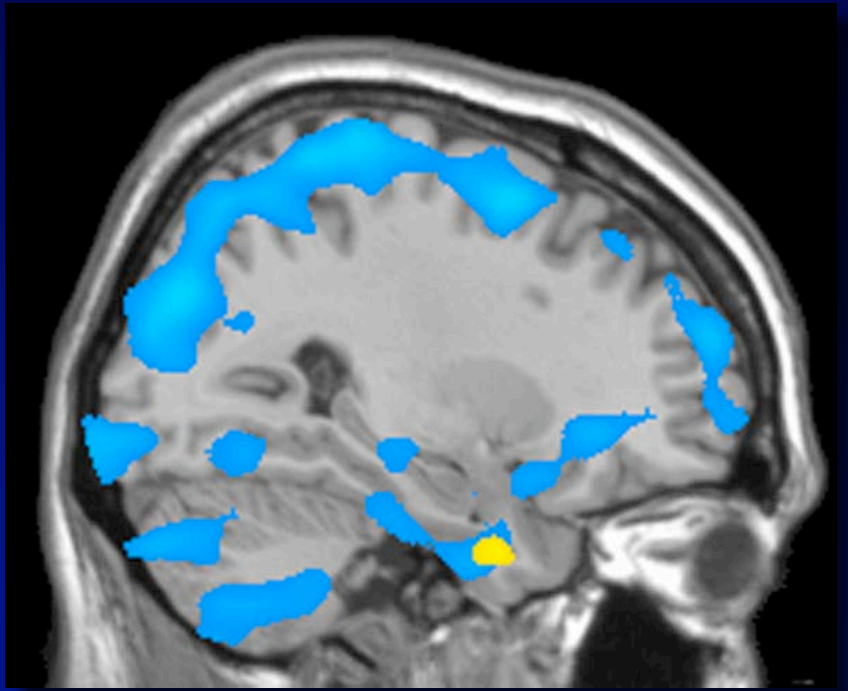
# Androgenization of the brain

- Ponseti et al. suggest they observe a brain correlate of prenatal androgenization in homosexual women
  - they have less grey matter in their peri-rhinal cortex than heterosexual women
  - Similar to male pattern



Ponseti et al. (2007) PLoS ONE 2(8): e762. doi:10.1371/journal.pone.0000762

# Gray Matter Concentration

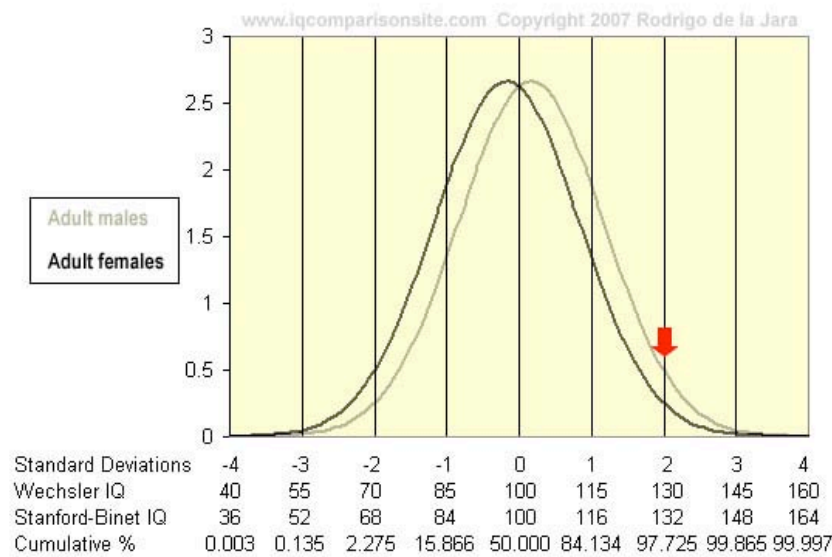


- Areas of decreased grey matter concentration
  - heterosexual men blue
  - homosexual women yellow ( $p < 0.05$ ).
- Reduced GM concentration of homosexual women (relative to heterosexual women) is located within a sex dimorphic brain area.

# IQ - Sex or Gender or Cultural Differences?

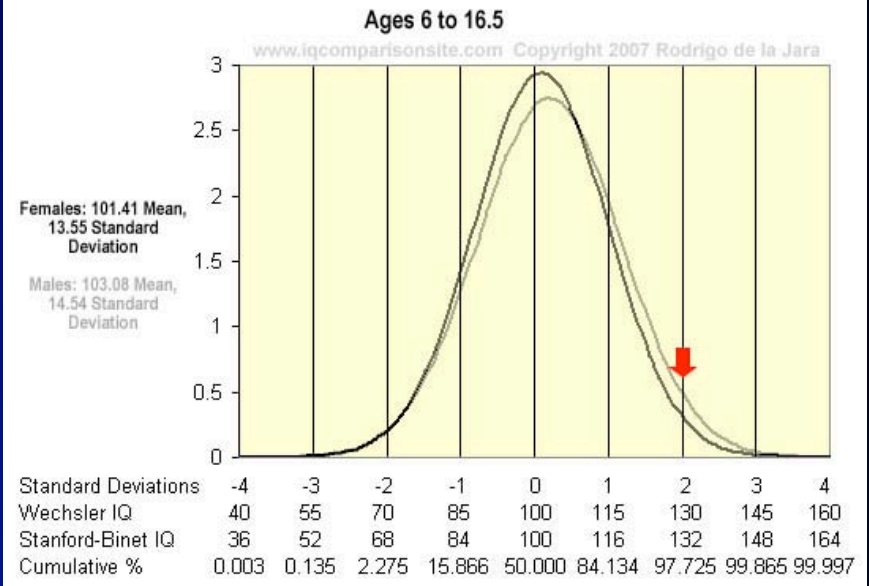
<http://www.iqcomparisonsite.com/SexDifferences.aspx>

Adult Sex Differences on the Raven Progressive Matrices



Jensen & Reynolds (1983),  
 Personal. Individ. Diff. 4, 223-226.

Sex differences on the WISC-R



Lynn & Irwing (2004).  
 Intelligence 32, 481-498.

# Conclusion

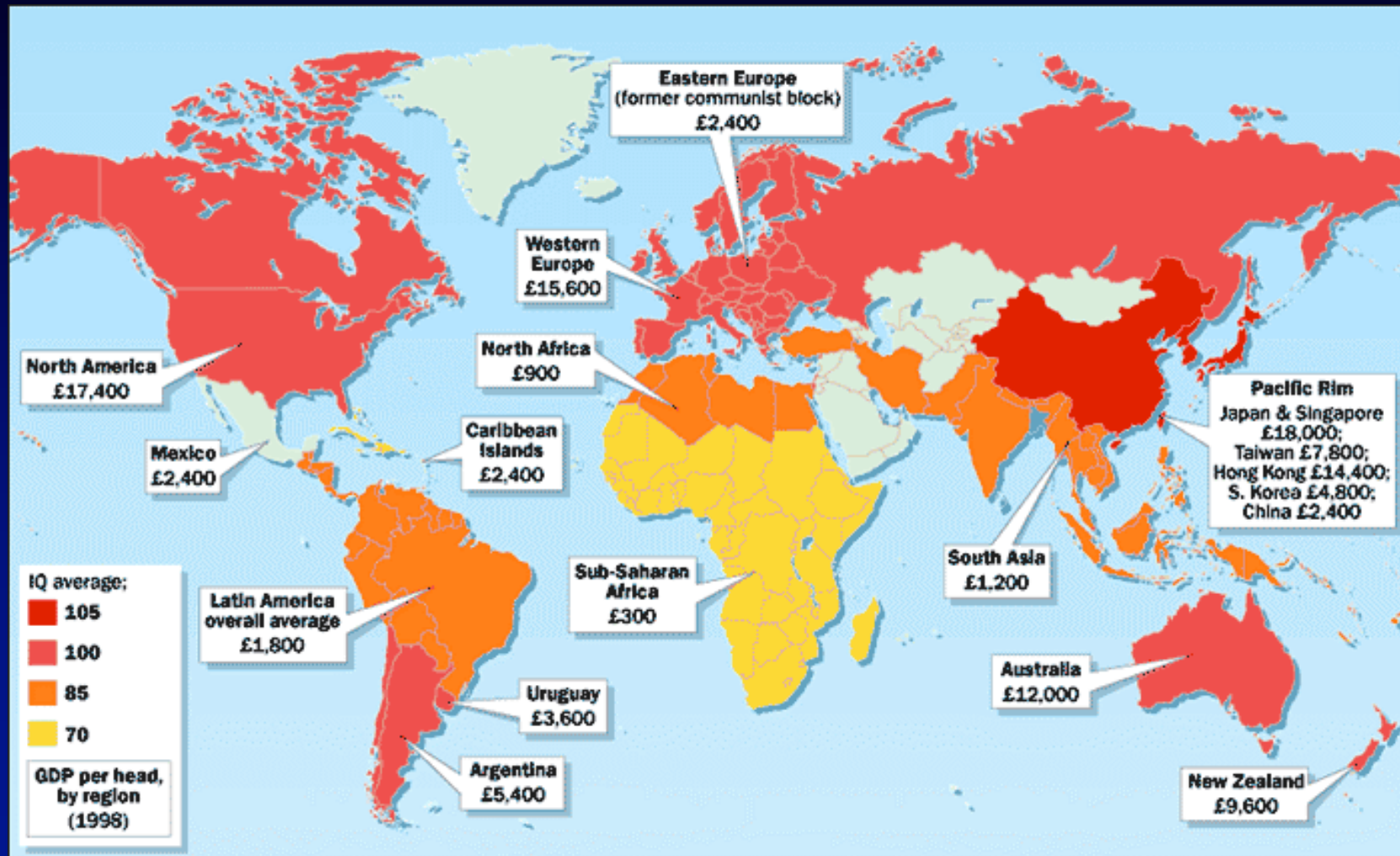
<http://www.iqcomparisonsite.com/SexDifferences.aspx>

- Male and female mean IQs are about equal below the age of 15 but males have a higher mean IQ from age 15 on.
- The effect of sex differences in IQ is largest at the high extreme of intelligence.
- Since many of the more prestigious roles in society are associated with high IQ, the lack of female representation in these roles may be partially due to fewer females being competitive at the highest levels.
- This does not mean that females should not be given equal opportunity to demonstrate their abilities as this would create an worsened artificial 'glass ceiling'.

# I.Q. fundamentalist

- two things are beyond dispute:
- 1) I.Q. tests measure hard and identifiable traits that predict the quality of ones thinking
- 2) this trait(s) is stable
  - that is
    - it is determined by our genes
    - and largely impervious to environmental influences.

# IQ and GDP per head



<http://alfin2100.blogspot.com/2006/06/visual-correlations-poverty-corruption.html>

# An Alternate Viewpoint



- IQ tests, as a rule, don't just measure a person's innate intelligence
- intelligence researchers know the tests are skewed by a person's
  - 1) socio-economic status
  - 2) whether they were malnourished as a child
  - 3) the quality of their education
  - 4) whether they perceive the test as a threat
  - 5) how much experience they have of similar tests.

# Flynn Effect - IQ



- psychologist James Flynn
  - IQ is as much a barometer of society and education as it is a measure of intelligence.
- I.Q.s around the world appeared to be rising by 0.3 points per year, or three points per decade,
  - for as far back as the tests had been administered.
- American born
  - 1930's I.Q. = 100,
  - 1955's (his/her children) I.Q.s = 108,
  - 1980's (his/her grandchildren) I.Q.s = 120
    - more than a standard deviation higher



# Flynn Effect - Part 2



- Reverse direction,
- teen-ager 2005, I.Q. = 100,
- grandparents 1940 I.Q.s = 82
  - seemingly below the threshold necessary to graduate from high school.
- go back even farther
  - schoolchildren 1900: IQ = 70,
  - Thus, a century ago the USA was populated largely by people who today would be considered mentally retarded...**Absolutely NOT.**
- If what I.Q. tests measure is immutable and innate,
  - what explains the Flynn effect
  - steady rise in scores across generations?

# New Yorker Article

## Flynn effect

- None of the Above
- *What I.Q. doesn't tell you about race.*
- by Malcolm Gladwell
- December 17, 2007

Name 3 things that produce heat.

1. Microwave
2. Oven
3. Toaster



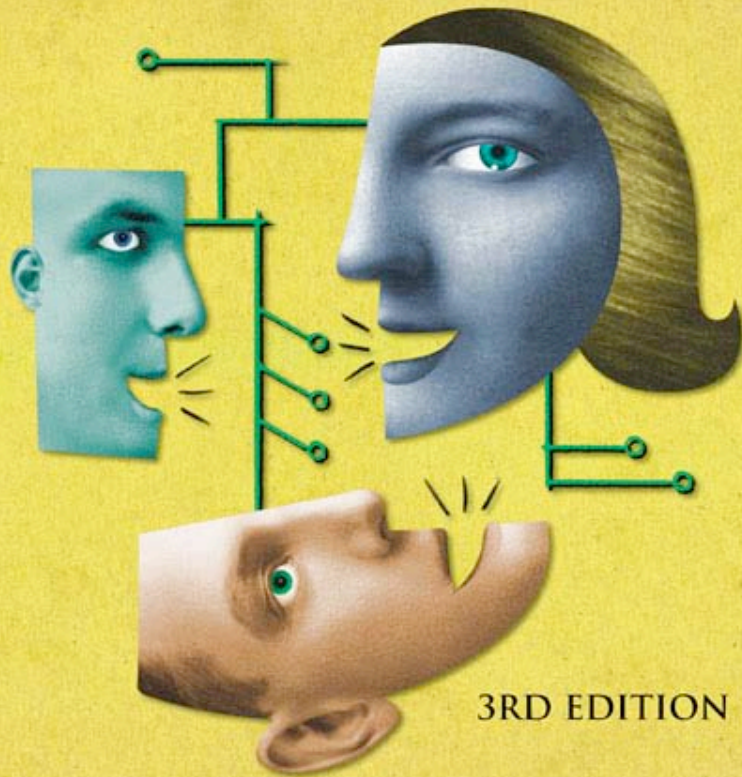
In Africa you would be wrong!!!

Tests are based on cultural understanding and language

STUDIES IN  
LANGUAGE &  
LINGUISTICS

# WOMEN, MEN AND LANGUAGE

JENNIFER COATES



3RD EDITION

# John Gray, Ph.D.

With a New Introduction by the Author

**#1 New York Times Bestseller**

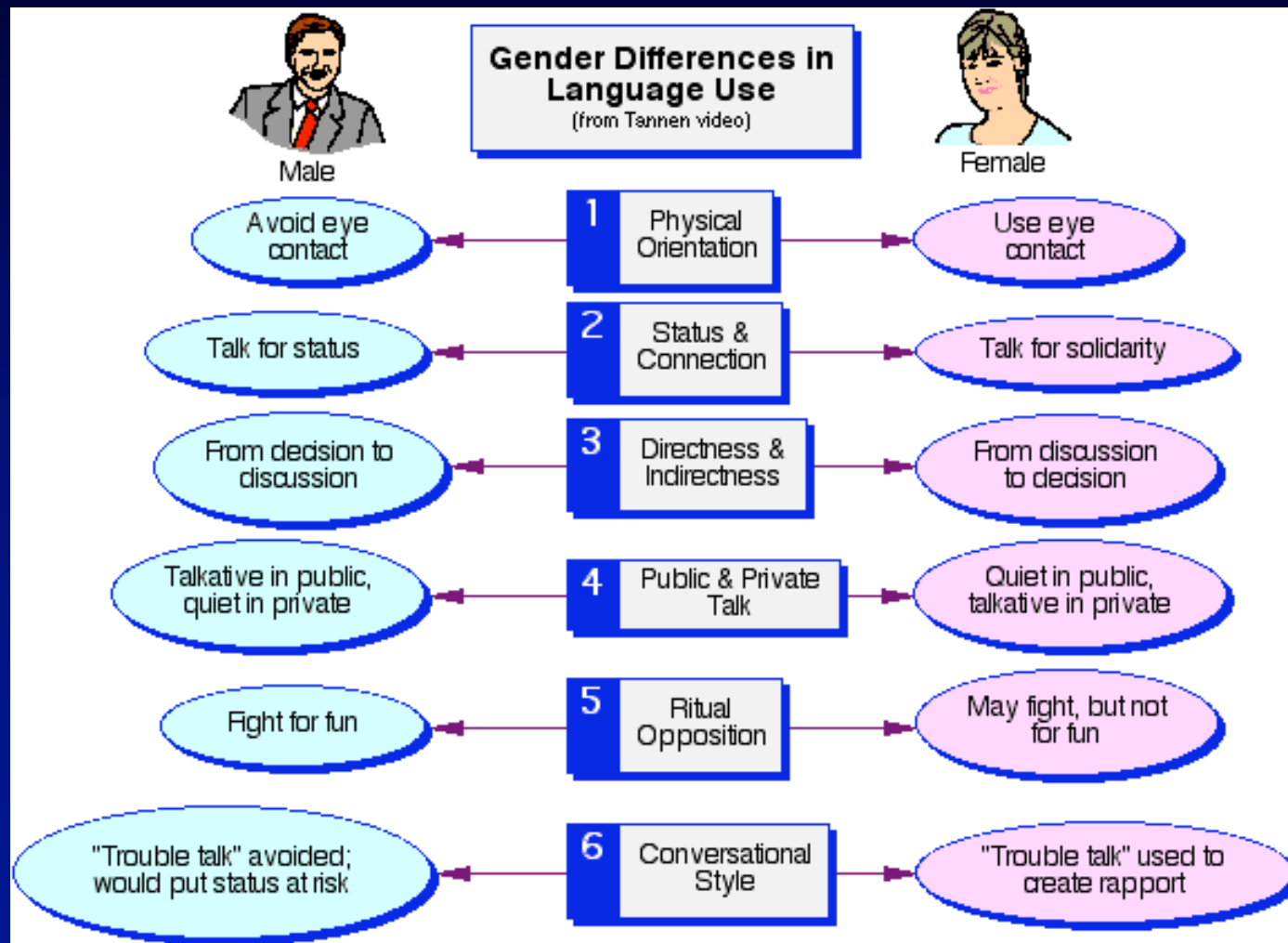
# MEN Are from MARS, WOMEN Are from VENUS



First  
time ever in  
paperback!

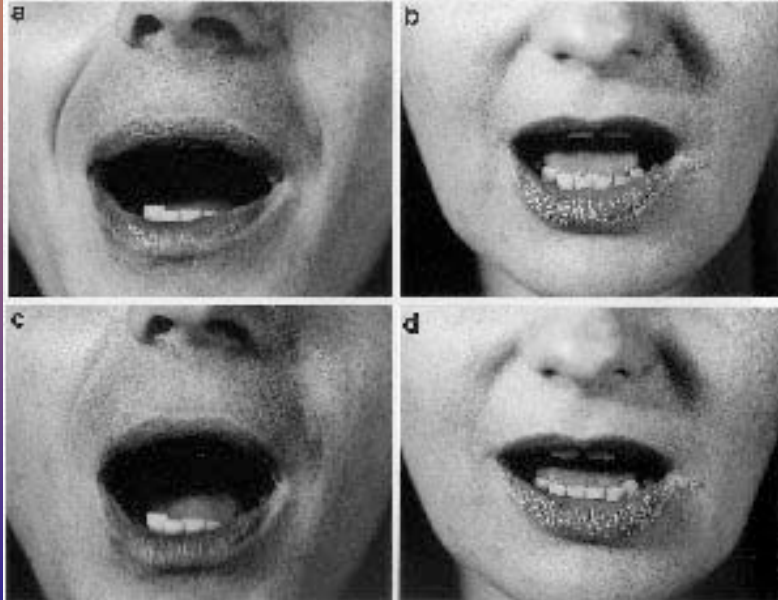
The Classic Guide to  
Understanding the Opposite Sex

# Gender and Language?

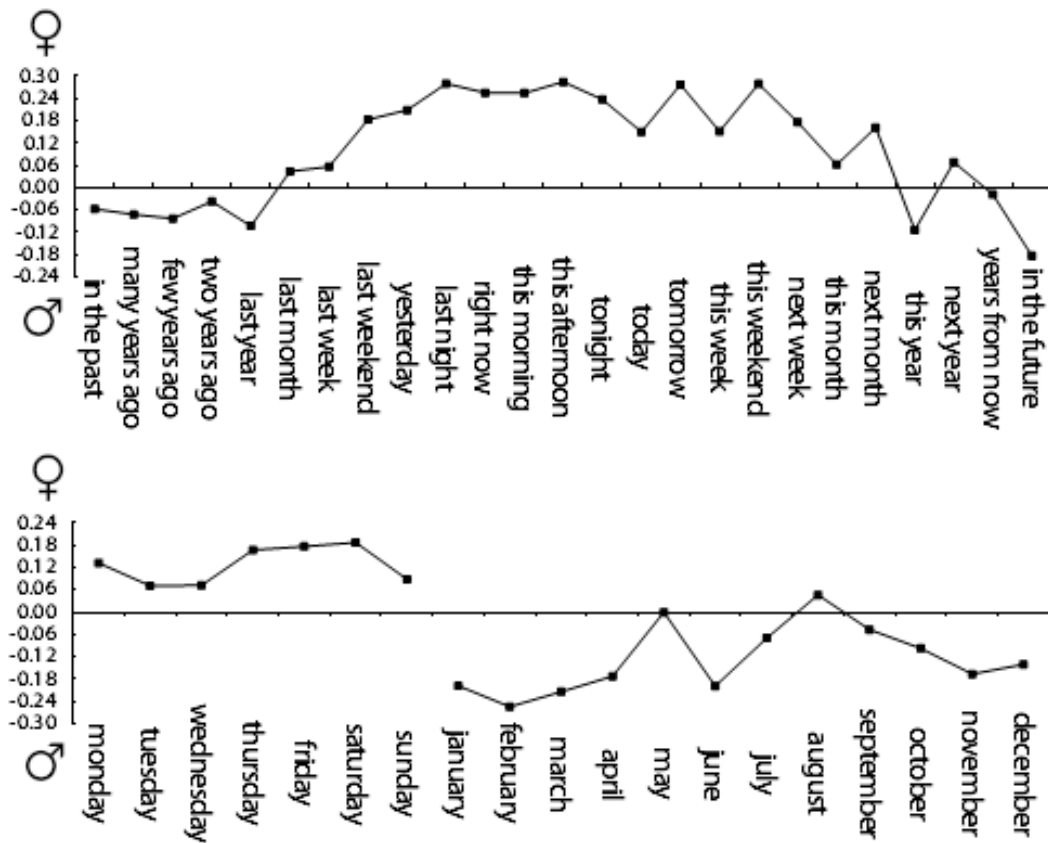


# Communication - Gender or Sex?

- Gender or Sex barriers?
  - woman speaks between 22,000 and 25,000 words/day
    - freely mixing logic and emotion, features of both sides of the brain
  - man speaks between 7,000 and 10,000 words/day
    - linear, logical and compartmentalized left-brain thinking



# Time, Gender & Sex?



**Fig. 1:** *Men are from march, women are from this weekend: the role of time in feminine and masculine writings*

# Language and Gender or Sex

**Original:** Twelve years ago a consortium of clinicians and scientists published a landmark paper evaluating male reproductive health and the environment (Toppari et al, 1996). This paper has stimulated research and informed clinical practice for over a decade. In writing the paper, careful attention was paid to reports of declining quality of semen in humans and subsequent effects on male fertility on an international scale. Results from laboratory studies were reviewed and compared with human outcomes. The analysis also considered changes in male reproductive effects influenced by environmental factors in wildlife. Such a comprehensive approach helped elucidate those areas of male reproductive health that were most likely to have been affected by environmental factors. This study also pointed up the importance of life stage to adverse environmental outcomes, earlier exposure often having a lasting effect.

**Keywords:** twelve years ago [a] consortium of clinicians [and] scientists published [a] landmark paper evaluating male reproductive health [and] [the] environment toppari et al 1996 this paper has stimulated research [and] informed clinical practice for over [a] decade in writing [the] paper careful attention [was] paid [to] reports of declining quality of semen in humans [and] subsequent effects on male fertility on an international scale results from laboratory studies were reviewed [and] compared [with] human outcomes [the] analysis also considered changes in male reproductive effects influenced by environmental factors in wildlife such [a] comprehensive approach helped elucidate those areas of male reproductive health that were most likely [to] have been affected by environmental factors this study also pointed up [the] importance of life stage [to] adverse environmental outcomes earlier exposure often having [a] lasting effect

The authors are male...

Gender Genie

<http://bookblog.net/gender/genie.php>



# Language and Gender or Sex

Female Score: 73  
Male Score: 64

The Gender Genie thinks the author of this passage is: female!



...with good female language skills!

Analysis											
Feminine Keywords					Masculine Keywords						
[with]	1	x	52	=	52	[around]	0	x	42	=	0
[if]	0	x	47	=	0	[what]	0	x	35	=	0
[not]	0	x	27	=	0	[more]	0	x	34	=	0
[where]	0	x	18	=	0	[are]	0	x	28	=	0
[be]	0	x	17	=	0	[as]	0	x	23	=	0
[when]	0	x	17	=	0	[who]	0	x	19	=	0
[your]	0	x	17	=	0	[below]	0	x	8	=	0
[her]	0	x	9	=	0	[is]	0	x	8	=	0
[we]	0	x	8	=	0	[these]	0	x	8	=	0
[should]	0	x	7	=	0	[the]	4	x	7	=	28
[she]	0	x	6	=	0	[a]	5	x	6	=	30
[and]	5	x	4	=	20	[at]	0	x	6	=	0
[me]	0	x	4	=	0	[it]	0	x	6	=	0
[myself]	0	x	4	=	0	[many]	0	x	6	=	0
[hers]	0	x	3	=	0	[said]	0	x	5	=	0
[was]	1	x	1	=	1	[above]	0	x	4	=	0
						[to]	3	x	2	=	6

# Gender genie thinks I'm male

Female Score: 362

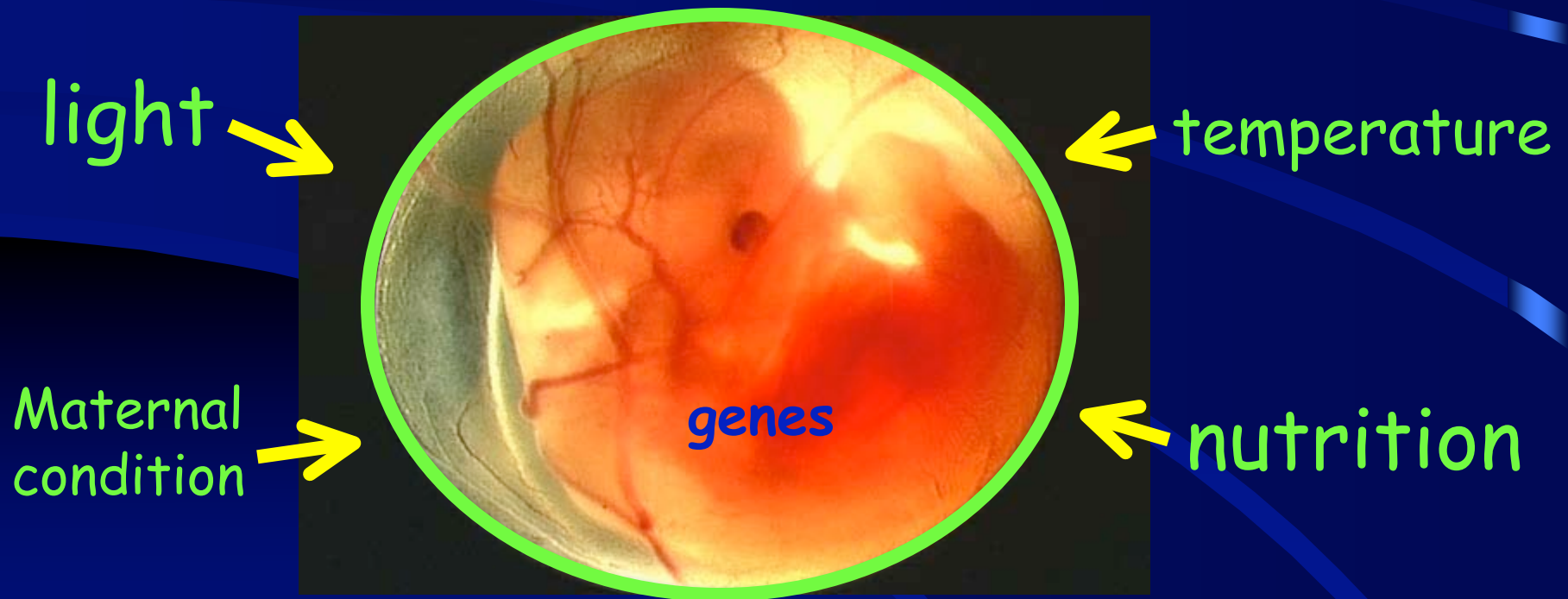
Male Score: 572

The Gender Genie thinks  
the author of this passage  
is: male!

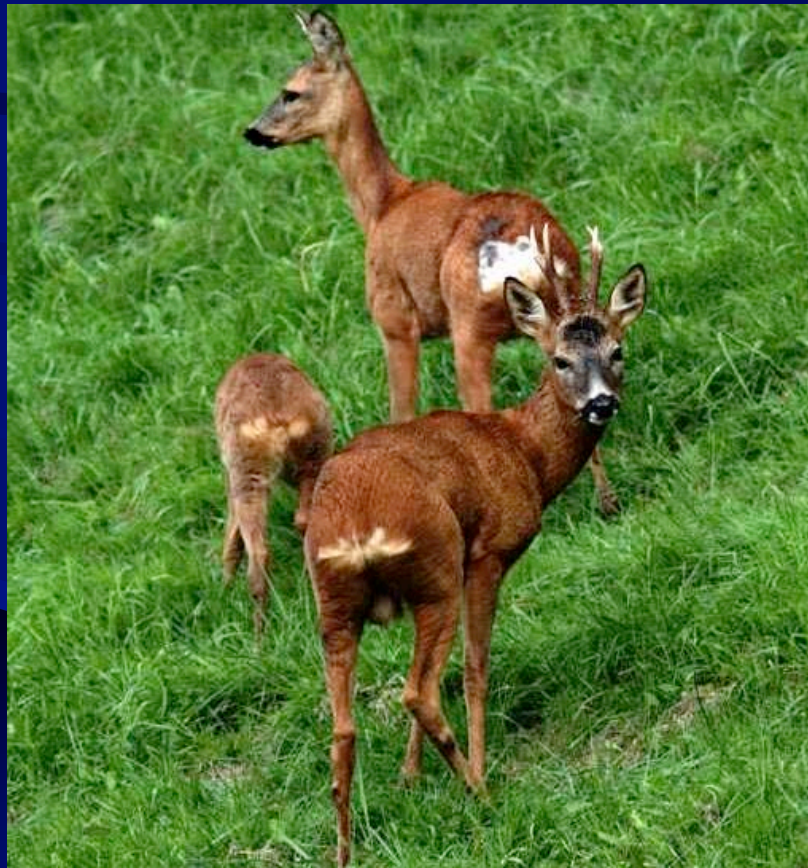


# Are there deterministic causes to gender?

Hormones in brain development  
Genes AND Environment



# Roe Deer



# Littermate Effects on Behavior

