

Unconscious Bias in the Workplace or “Where have all the women gone”? - Diversity and the BCS

Presentation provided by Gillian Arnold, Chair, BCSWomen
Delivered to BCS Aberdeen, 20th January 2015, by Sharon Moore

About your speaker



Sharon Moore

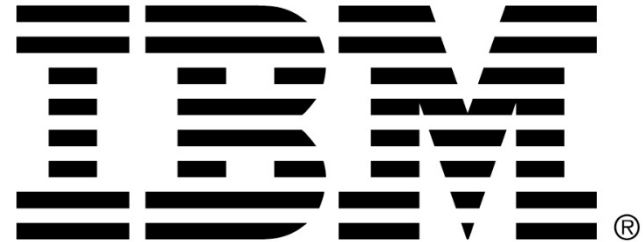
sharon.moore@bcs.org



samoore



University
of Glasgow



Women

Women in Technology



“Technology startup companies are finding it increasingly difficult to hire employees from outside the UK due to the lengthy and complicated visa application process.

Computer Weekly spoke to several startups who are struggling to find talented employees in the UK and are finding it equally difficult to jump through the hoops of hiring talent from abroad.”

ComputerWeekly

September 2013

What's the problem?

- 933,000 companies employ IT professionals
- Many UK companies report IT user skill gaps
 - Larger companies
 - Public sector organisations
 - Developers, Implementers, Strategies and Planning.

Currently women make up just 18% of those employed in IT despite being just under 47% of the total UK workforce.



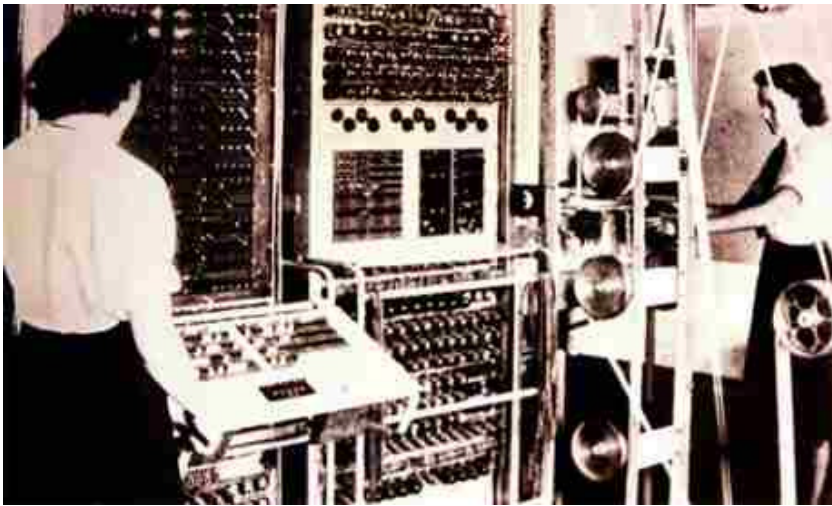
IBM System 360, Model 30, Memory size: up to 64K bytes, 1965

3330 introduced 1970 and held 100 MB



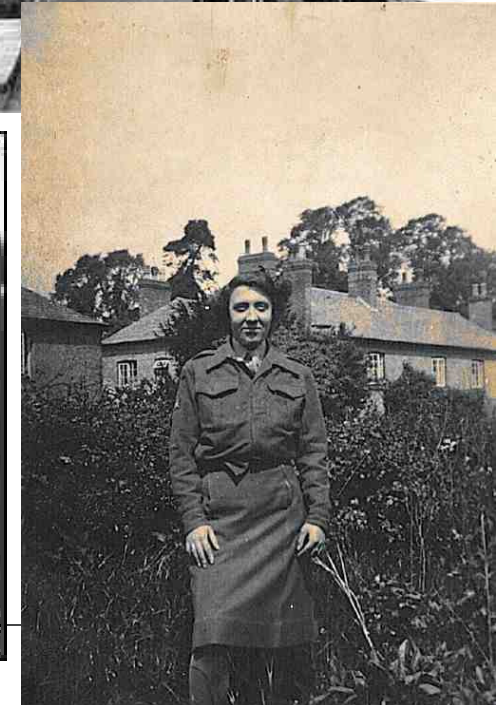


Women of Bletchley



By the end of the war, of 2000 bombe operators, about 1700 were women.

Obviously there are many reasons for this – but nobody has ever suggested that these women were incapable, or in any way the “bottom of the barrel”. Quite the opposite.



Programming was not always a male pursuit



ENIAC team



ENIAC programmers

The leaky pipeline



- **Everyone does IT in junior school**
 - **When we get to GCSE/Nationals the girls start to drop out...**
 - **Then at A-level/Highers more go...**
 - Then at degree even more go...
 - Then there's a failure to retain women in the workplace

- 50K women in the UK have SET qualifications and are no longer working in SET professions (UKRC)

**How does biology explain the
low numbers of women in
computer science?**

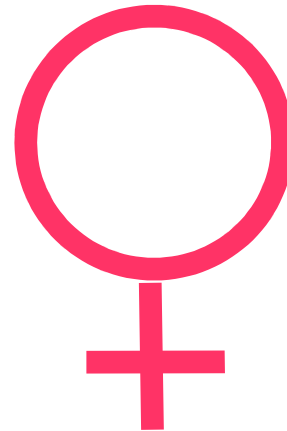
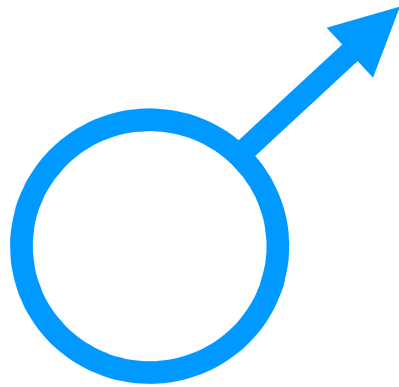
Hint: It doesn't.

My name is Terri.
I'm a mathematician.

I'm also female.

Nowadays, I work as a computer scientist.
There aren't that many women in CS.

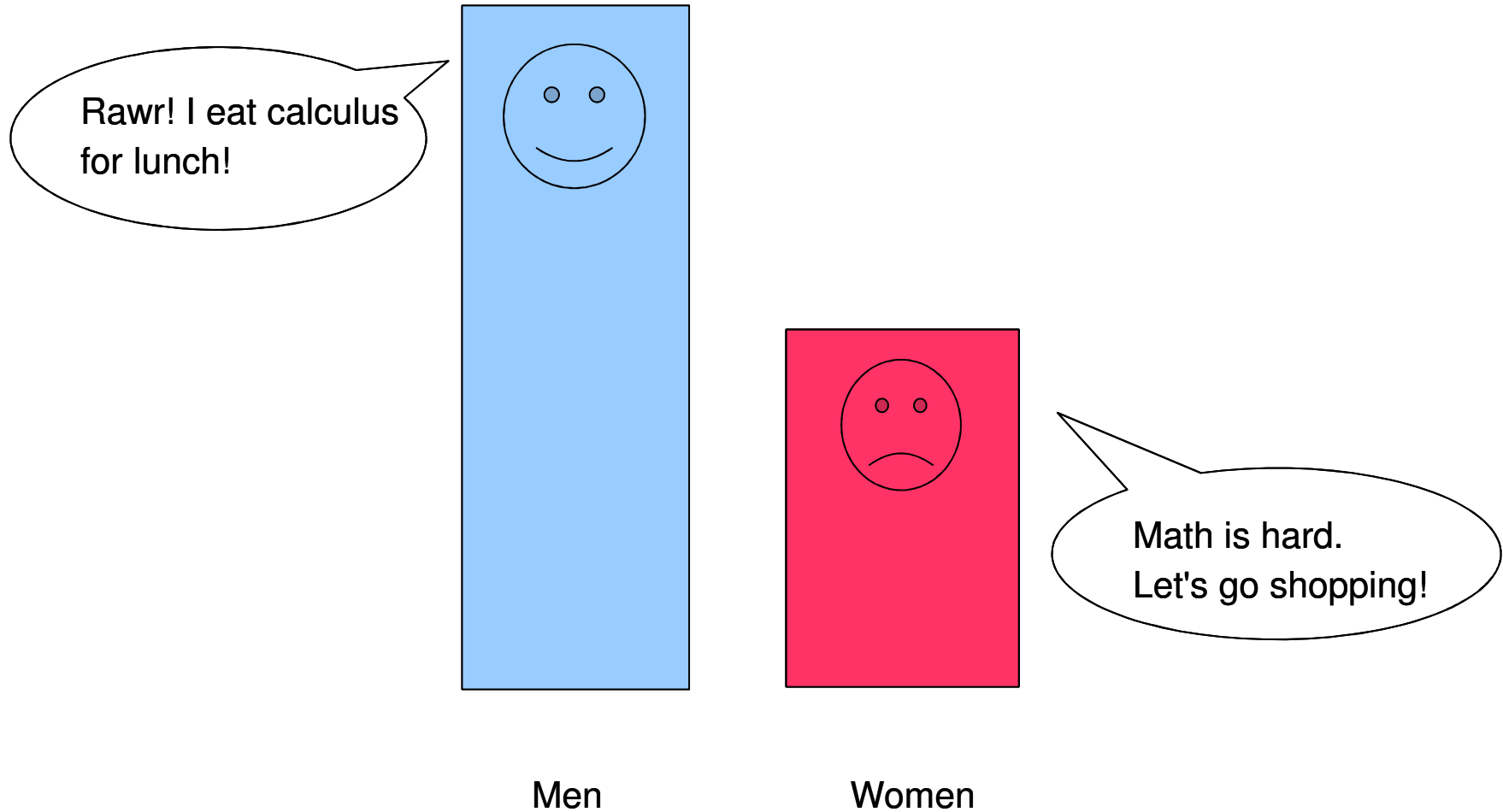
People like to say this is due to
biological differences in math ability between men
and women.



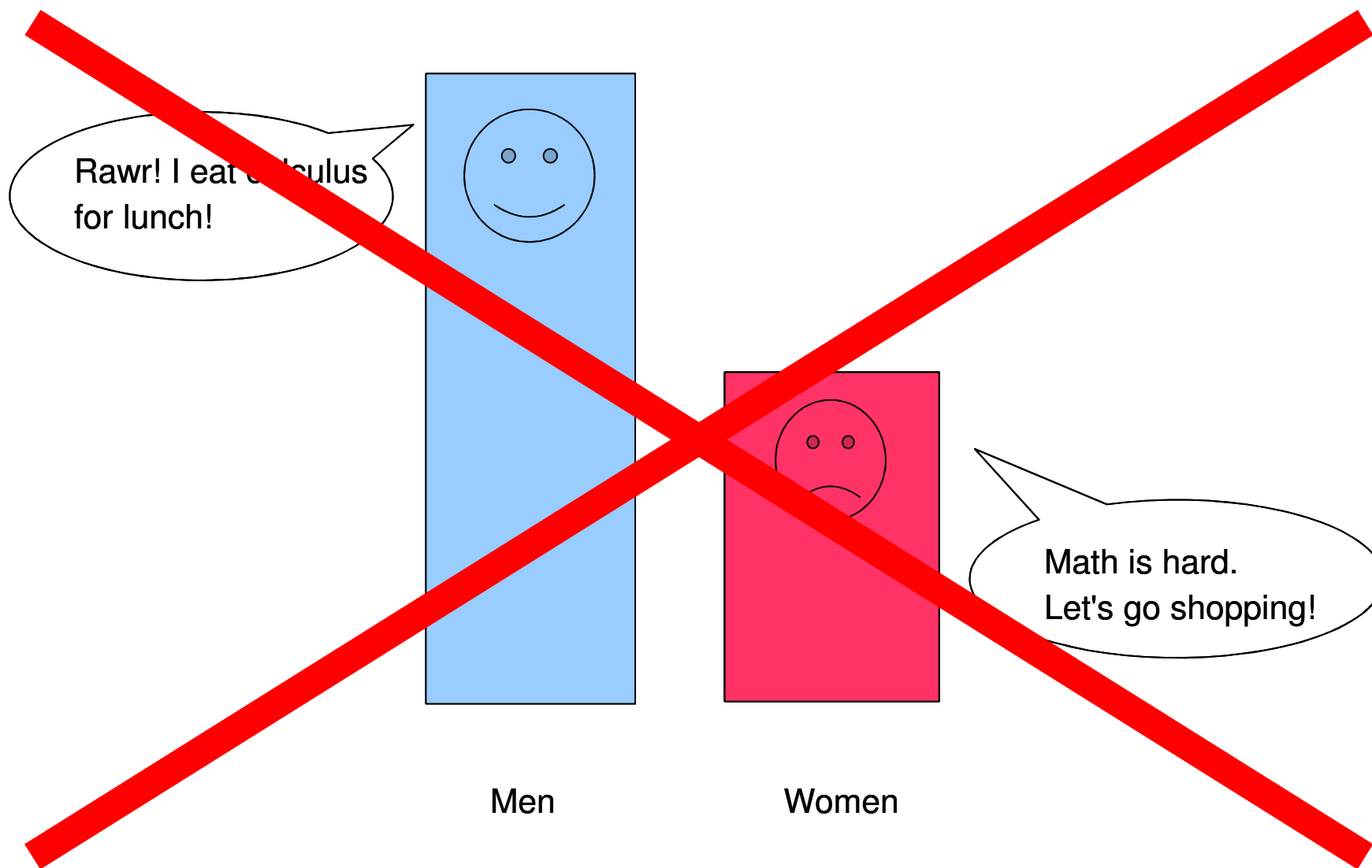
Turns out,
people really suck at math.

Let me explain.

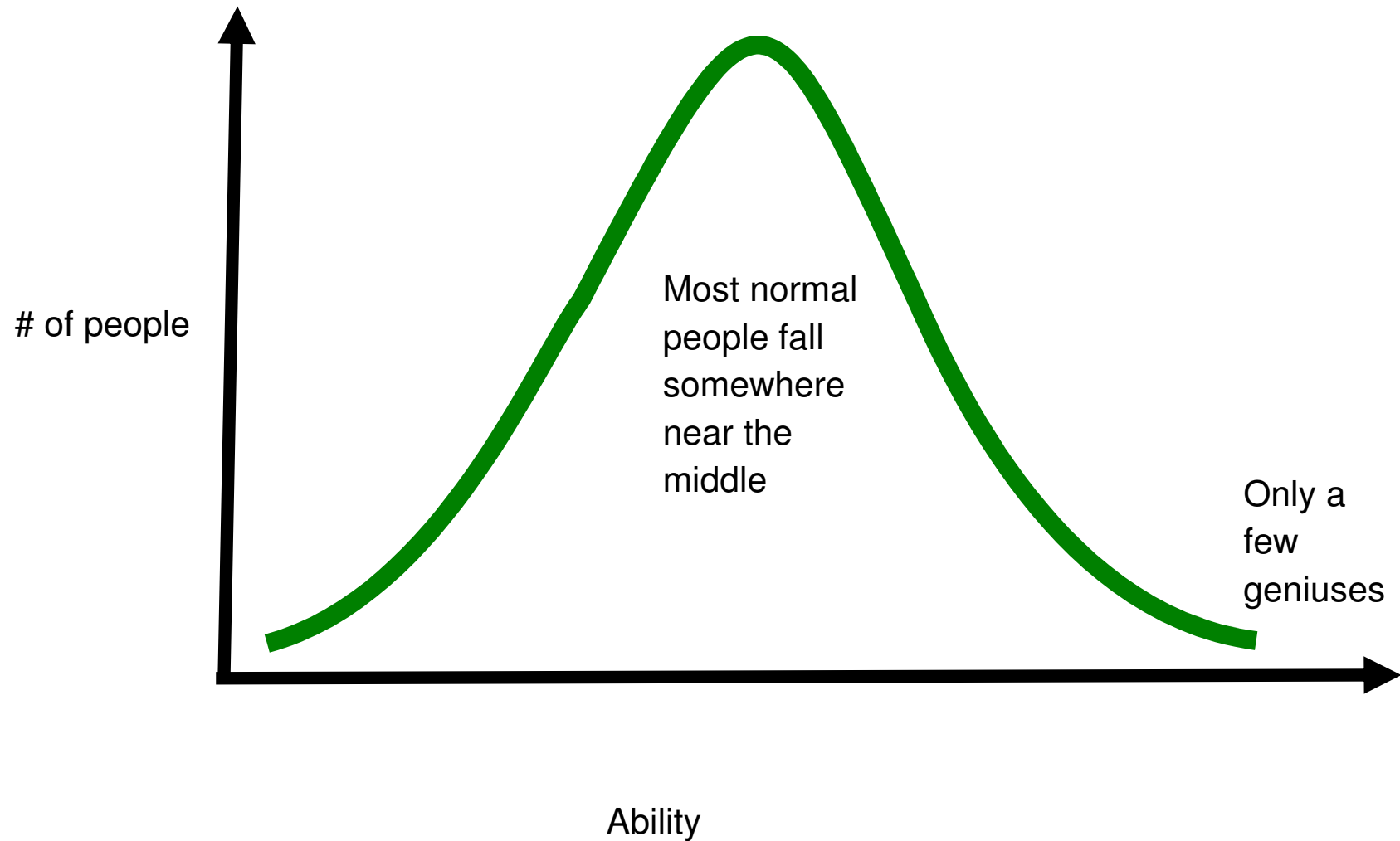
People claim the biological differences go like this:



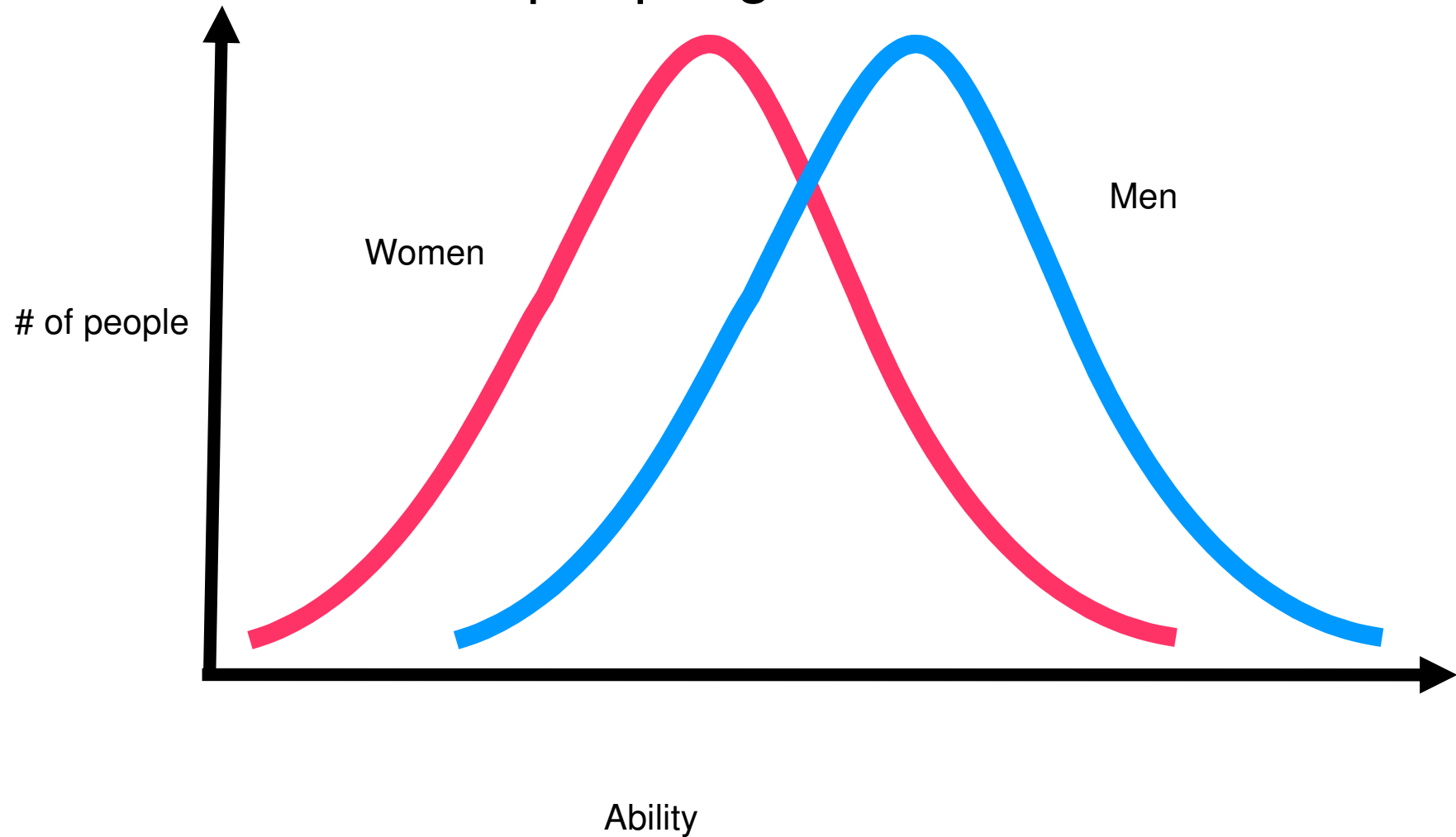
That's not how it works



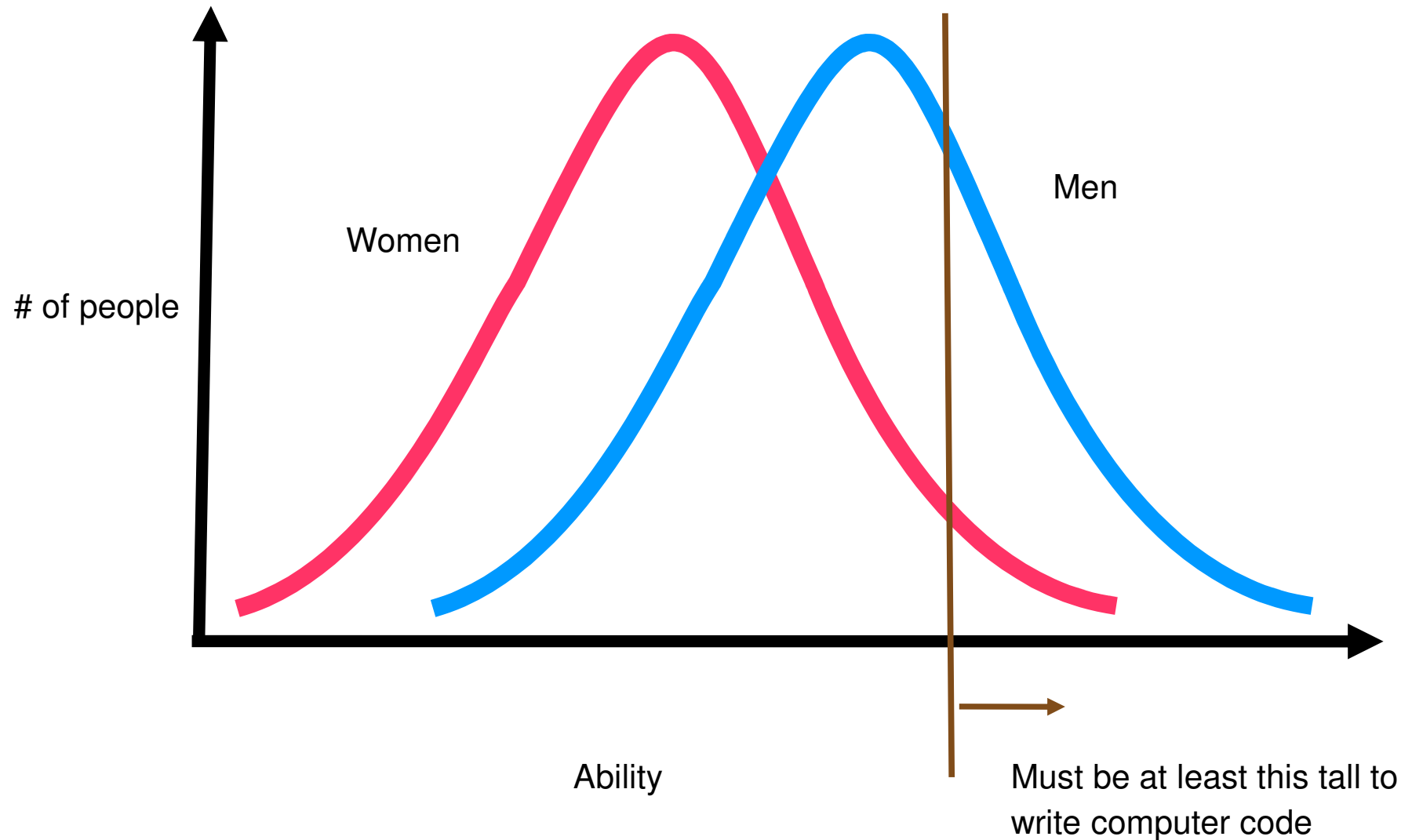
Ability graphs look more like this:



When they hear men have higher math scores than women, people guess math is like this:



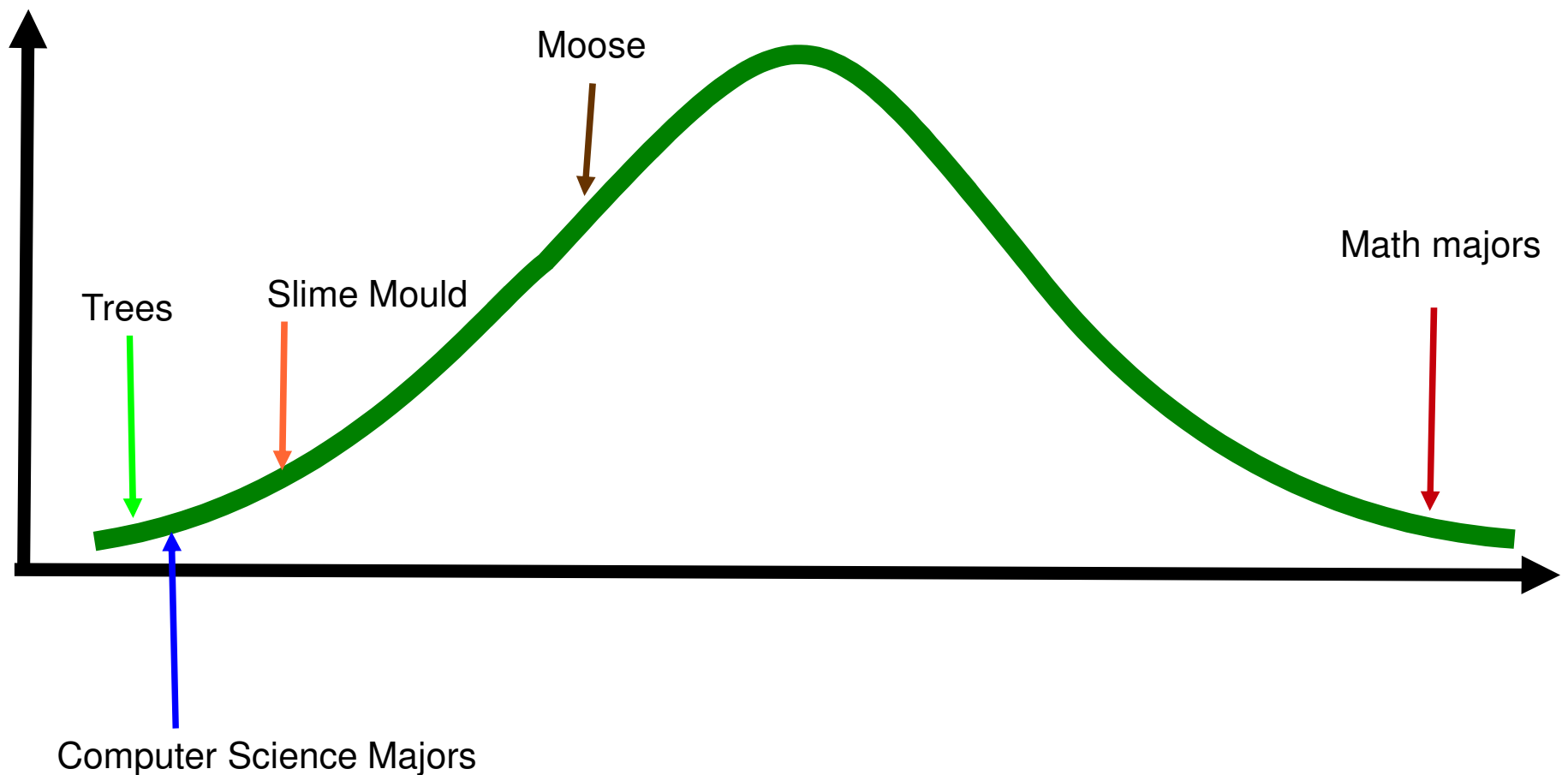
Which *could* explain why computer science is around 75% male...



...except that it's a lie.

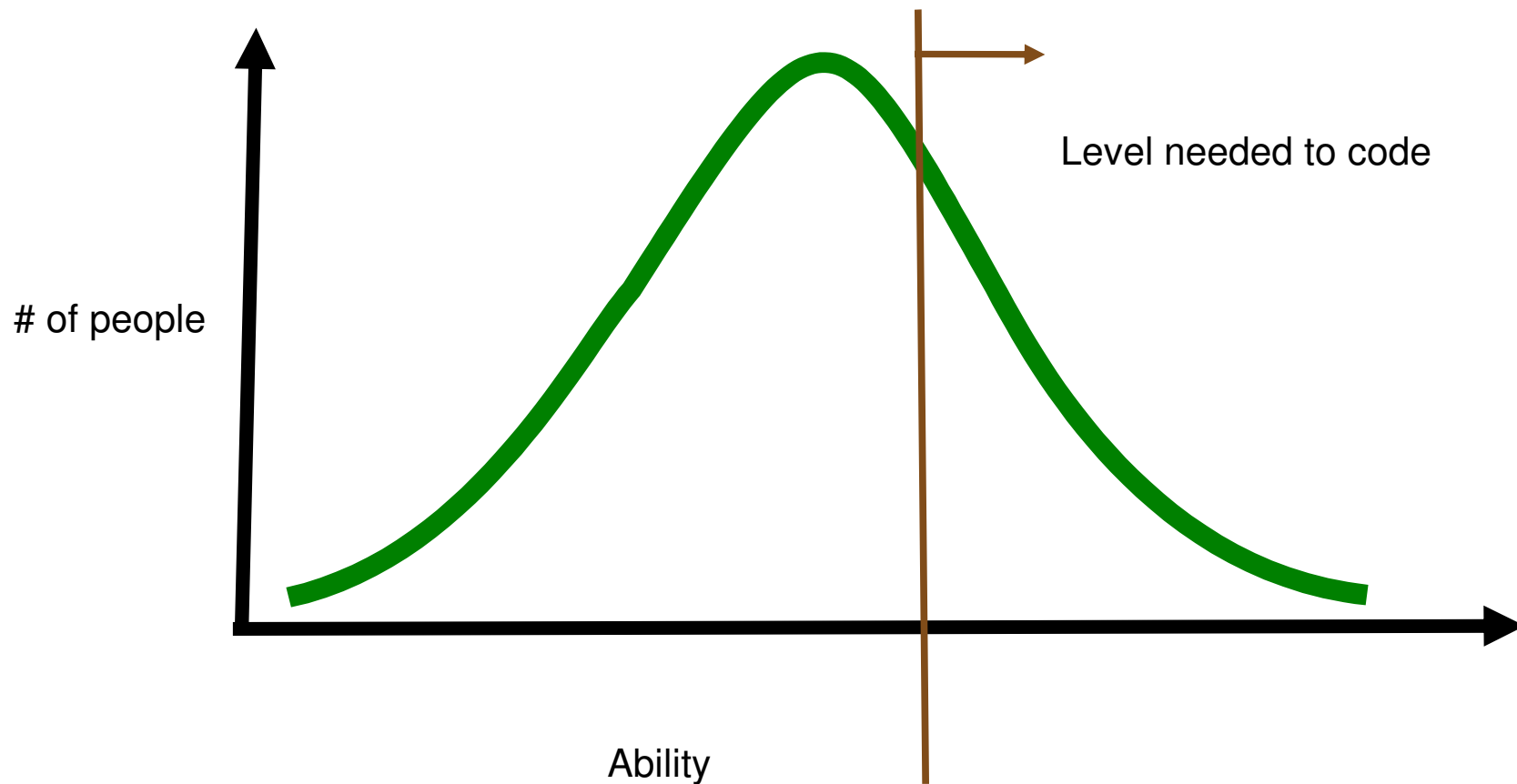
Lies, damned lies, and statistics, eh?

First, CS doesn't require that much math ability.
When I was an undergrad,
we drew the graph like this:

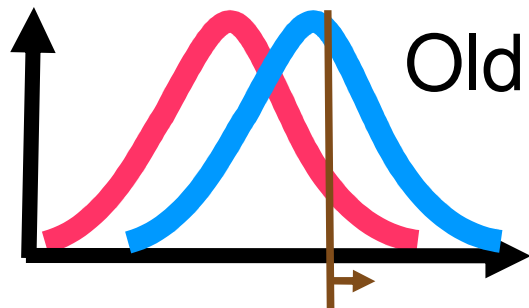


Heh.

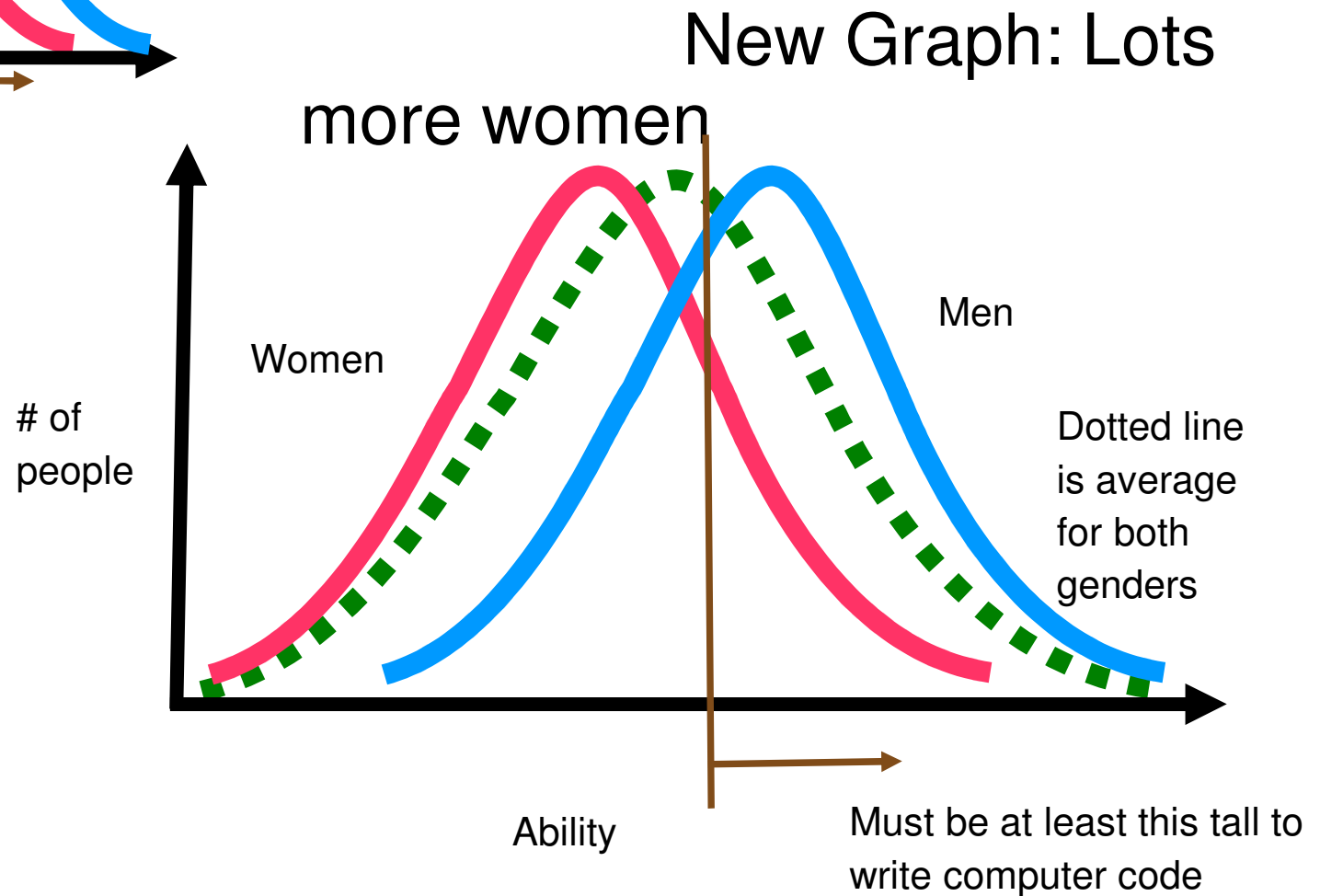
But degree rivalry aside,
I've been teaching CS for 7 years.
You only need moderate math skills to code.



So that'd be something like this...

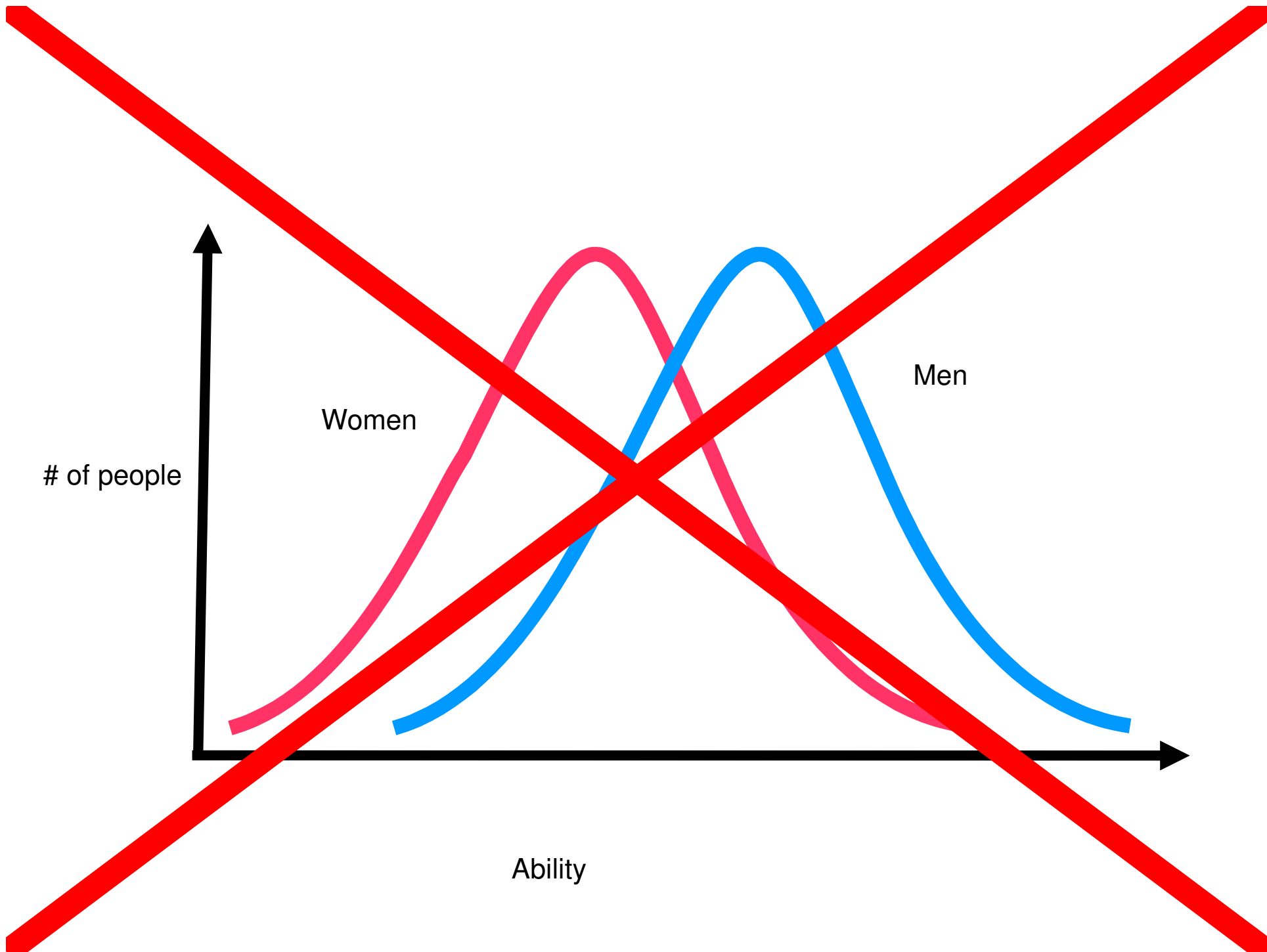


Old Graph: Very few women

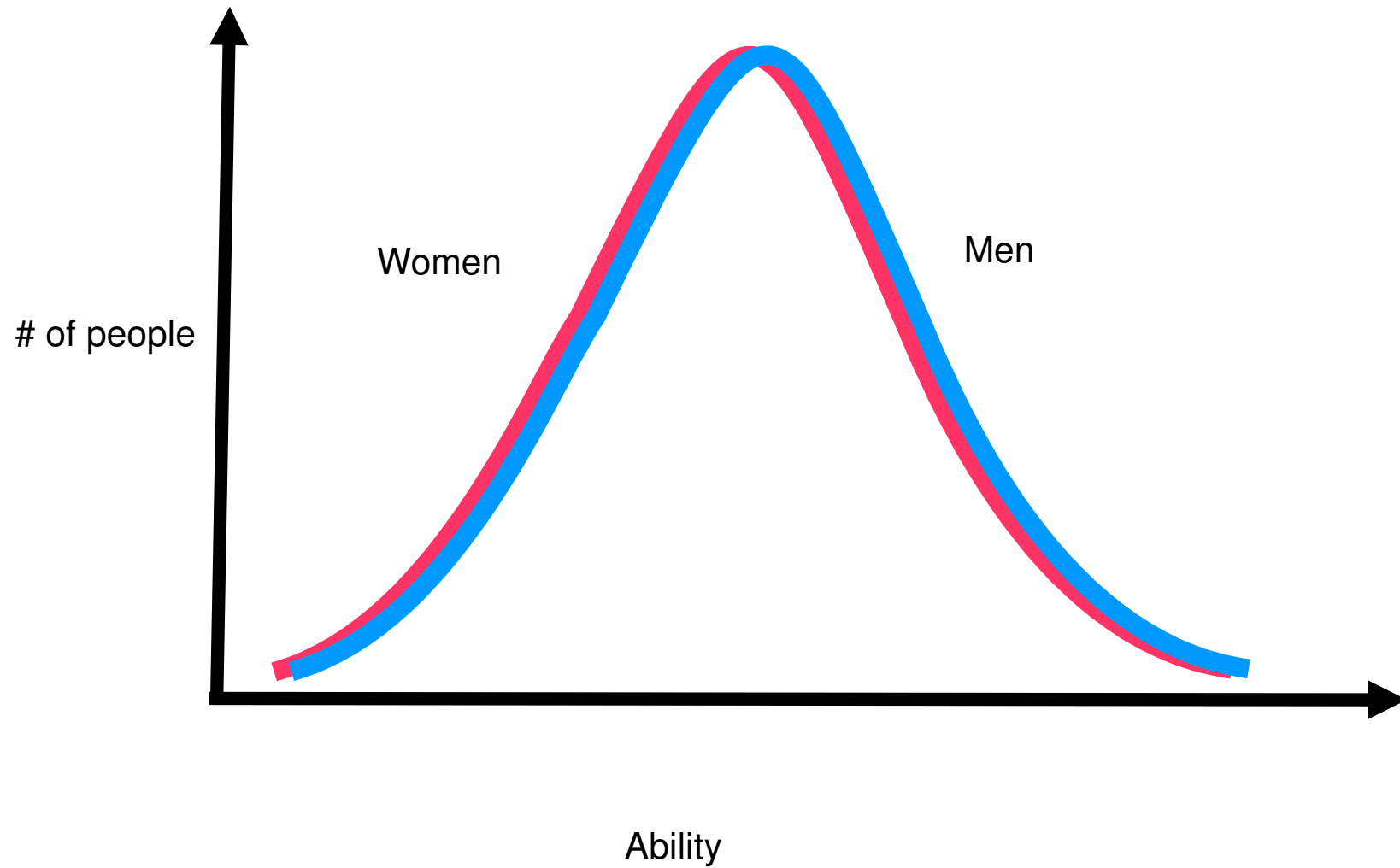


Except...

Remember how I said the graph is a lie?



The population difference looks more like this:



Don't believe me?
Here's the graph from a paper on the subject.

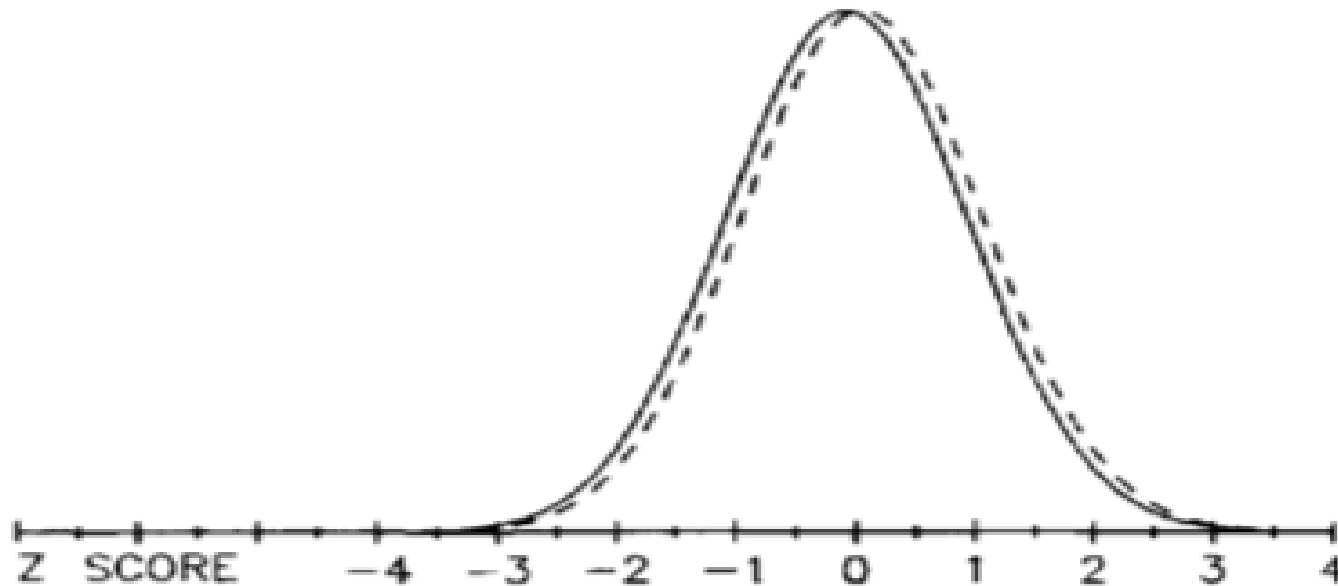
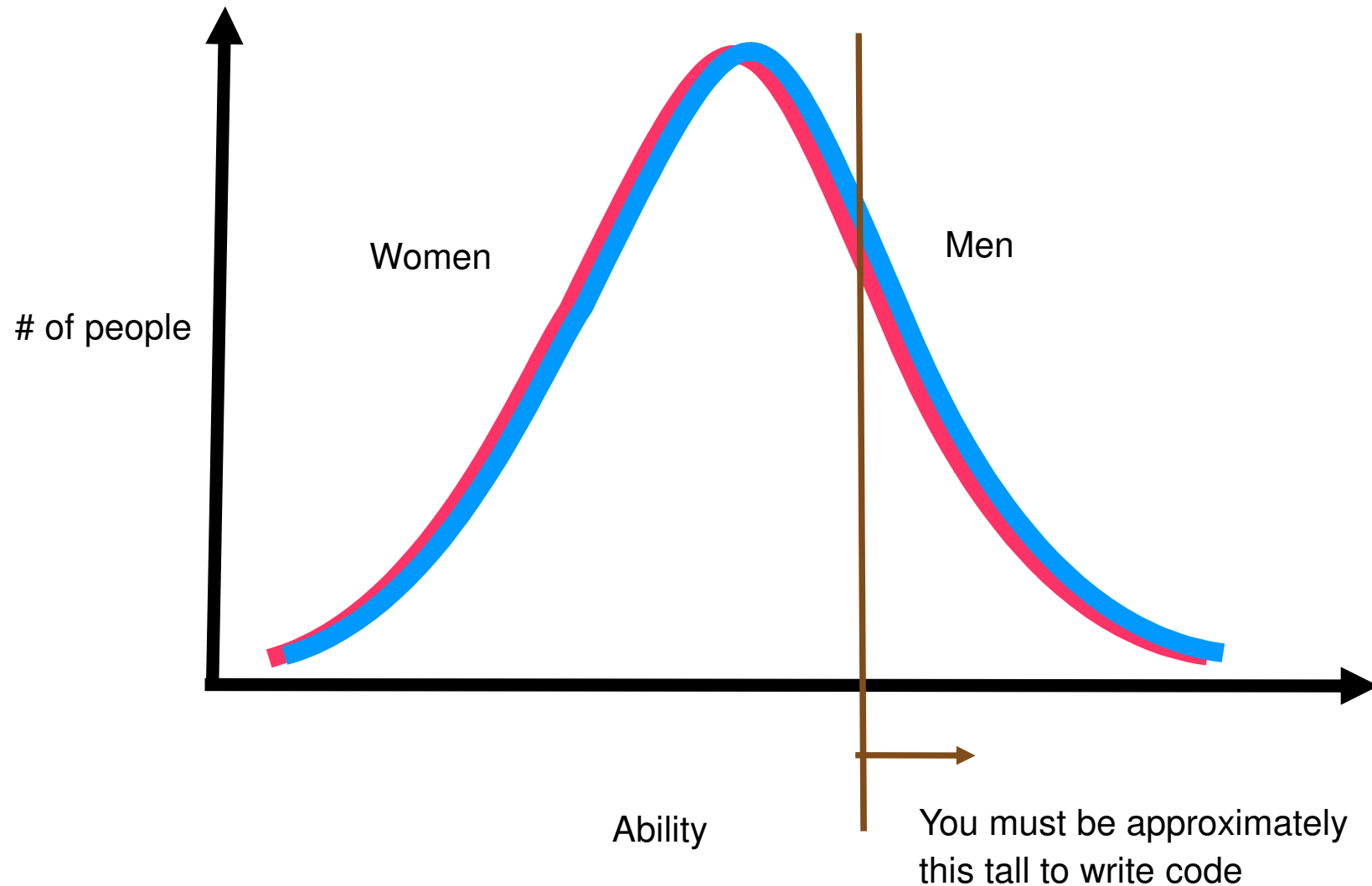


Figure 1. Two normal distributions that are 0.15 standard deviations apart (i.e., $d = 0.15$. This is the approximate magnitude of the gender difference in mathematics performance, averaging over all samples.)

Hyde, J; Fennema, E; Lamon, S. "Gender differences in mathematics performance: A meta-analysis." *Psychological Bulletin*. Vol 107(2), Mar 1990, 139-155.

So if we put that line back in...
We should have nearly 50% women



Therefore,
Biological differences do **not** account for the
gender disparity in computer science.

They can't.
They just aren't that significant.
Not even close.

Also...

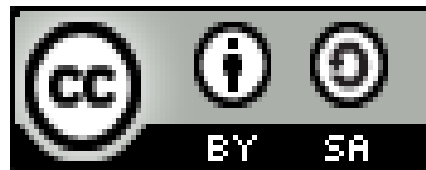
You know who *really* sucks at math?

People who think biology explains why there
aren't more women in CS.

Now you know.

Thanks for listening.

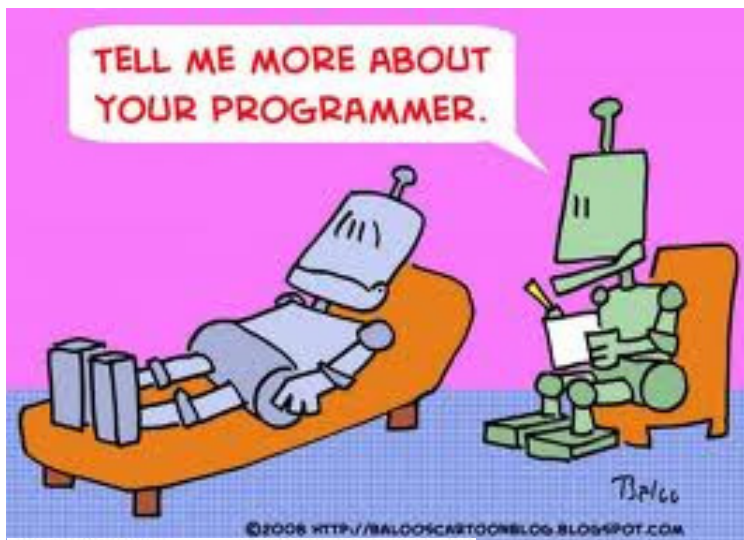
This presentation was created by Terri Oda
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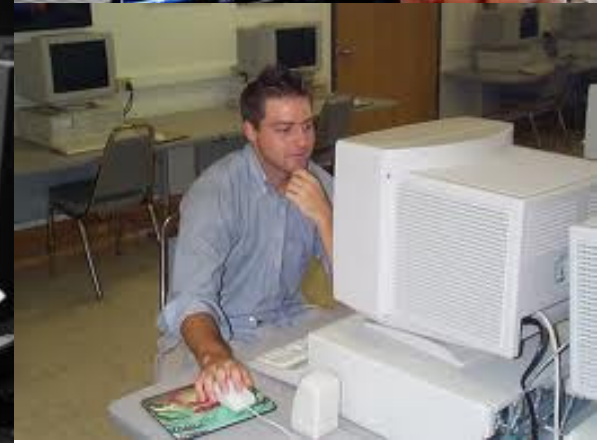
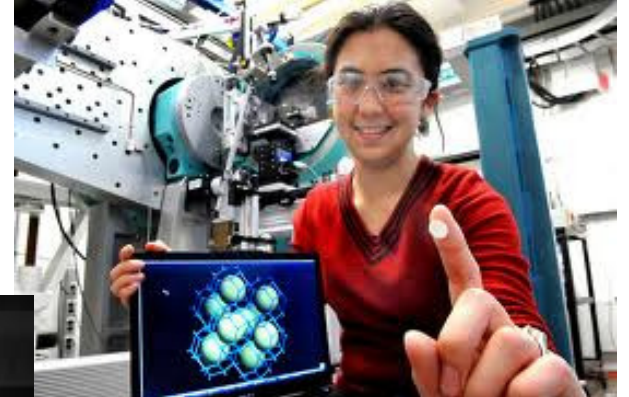
If you want to use it in other ways, just ask:

terri@zone12.com

Or email to let me know you liked it!



Top (humanoid)
images for
programmer
and computer
scientist



Employers are looking for equity

2010 Landmark: less than 20% of the workforce were white male and under 45

Women are the driving force of over 70% of the purchasing decisions in Europe (although they make up only 51% of the population) therefore a company's sales people might be usefully women.

If the employment rate for women remains constant, Europe can expect a shortfall of 24 million people in the active workforce by 2040 (the shortfall can be raised to only 3M if the number of women employed can be brought up to that of men)

57% of companies who implement gender diversity policies report an improvement in customer satisfaction

There are plenty of benefits in equity



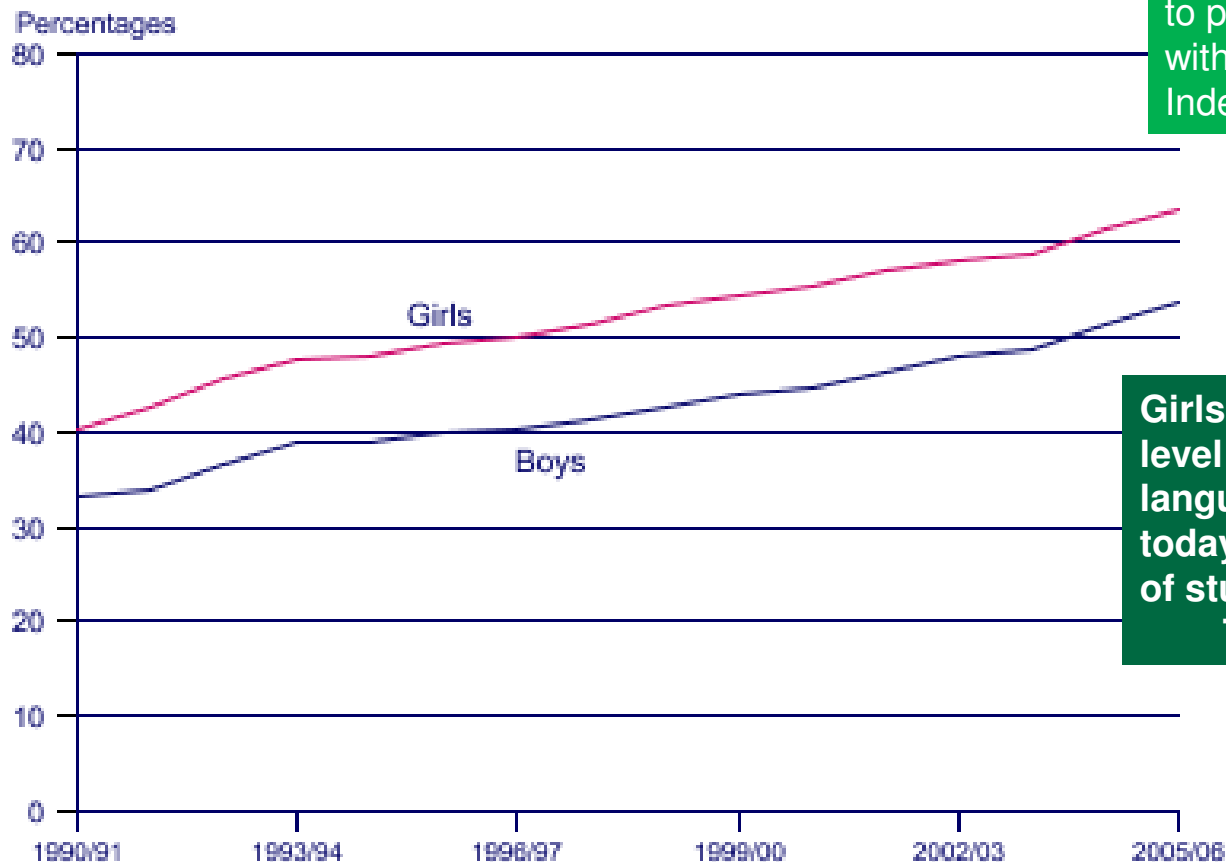
- Equity increases the range and size of the candidate pool, thus maximizing the chances of hiring the best new faculty or staff.
- By modelling diversity in the senior levels in the professions, equity demonstrates to women and underrepresented minorities that they have a future – a good future!!!
- Gender equity in salary, promotion, and access to resources maximizes the number of people who will receive the power and resources they need in order to do their best work.
- Equity reduces the possibility that some people are prospering at the expense of others.
- Equity increases the likelihood of innovations in ideas, policies, research, teaching, and scholarship.
- Equity has financial benefits.
- Equity has brand benefits.

Solving an equity problem can lead to better conditions and greater productivity – for everyone.

Thsnks to Dr. Virginia Valian, Hunter Coll. NY

Equity offers access to the intelligent and gifted

Anecdotally, firms say they seek women out for their interpersonal skills they bring to project work which is commonplace within the sector.
Independent Online



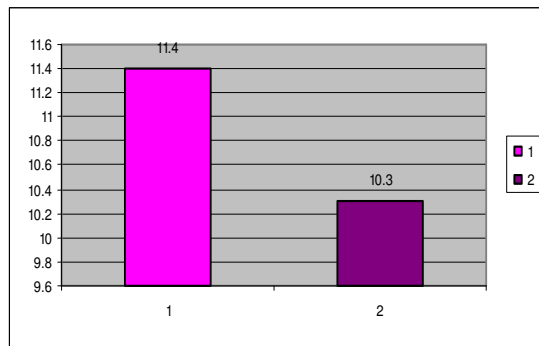
Girls are outperforming boys in every A level subject apart from modern foreign languages, according to figures released today, which show another record number of students awarded top grades.
Times Online

Equity offers better profits and innovation

- The companies where women are most strongly represented at board or top-management levels are also the companies that perform best, both on organizational and financial measures.

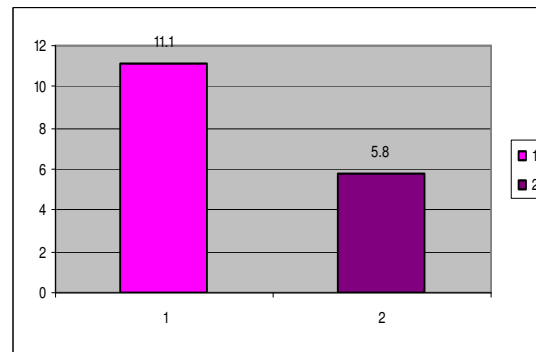
Average ROE

2003-2005

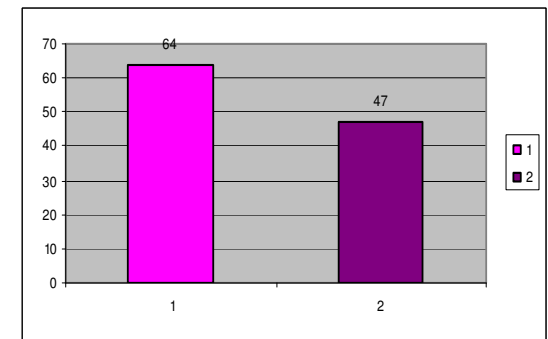


EBIT

2003-2005



Stock Price Growth



Sources: McKinsey, Women Matter Report October 2007 & European Commission

Unconscious Bias



Allowing unconscious thoughts or biases influence seemingly objective decisions. For example:

- Approximately 75% of both men and women have an implicit stereotype in which they more strongly associate women with ‘family’ than ‘career’.
- There is a strong attitudinal preference for ‘youth’, which is as strong among 60+-year-olds as it is among 20-year-olds.
- Automatic racial bias occurs regardless of age, gender or education.
- 58% of Fortune 500 CEO’s are six foot tall or higher, yet only 14.5% of the male population are that height.

Unconscious Bias

- Researchers have demonstrated that individuals tend to process incoming information by relying on cognitive shortcuts—in essence, stereotypes.
- Bias against another thus begins to occur at the point when new information is processed by the individual, such as upon a first meeting, and continues with each interaction between two people.
- **IAT – Implicit Association Test**
 - Stereotype IAT
 - Stereotype IATs measure associations between concepts that often reflect the strength to which a person holds a particular societal stereotype. For example, the Gender-Science IAT reveals that most people associate women more strongly with liberal arts and men more strongly with science.

Definition Source - Wikipedia

Project Implicit

Gender/Career

Weight

Skin Tone

Race

Religion

Gender/Science

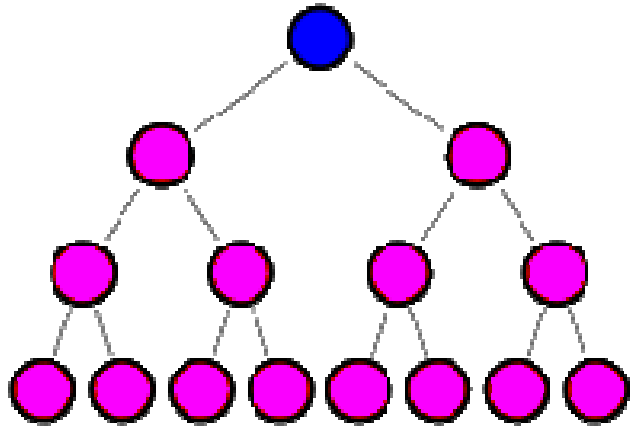
Age

Unintended Consequences



- Hiring Decisions
- Mentoring people
- Performance reviews
- Selection of Board Members
- Marketing campaigns
- Awarding research funding
- Awarding training or development opportunities
- Awarding promotions or Job Assignments
- Working with customers

What can organisations do?



- Recognise
 - Cultural Audits
 - Diversity Audits
- Review
 - Recruitment
 - Performance Management
 - Promotion
 - Assignments
 - Mentoring
- Educate
 - Start at board level
 - Capture middle management

Be Open!

What can you do?

- Complete an IAT
- Understand Unconscious and Implicit Bias
- Look for it in yourself and others
- Take your rightful place at the table
- Be proud of who you are

Assume innocence of intent!!

What can you do?



Prove your Value



- Promote yourself and be assertive about your performance and ambitions
- Recognise your talents, understand your own worth.
- Get a group of trusted mentors
- Look at role models constantly
- Set your own objectives where there are none set for you
- Join your professional organisations and take advantage (IET, IEE, REng, BCS, CIM)
- Find an assertiveness course quickly and use the principles
- Ask for a pay rise annually, ask for one at the start!
- Take some risks
- Evaluate your manager

70% of female respondents rate their own performance as equivalent to that of their co-worker while 70% of men rate themselves higher than co-workers

(McKinsey – Women Matter)

Do encourage networking

- Computing is not a solo pursuit
 - “Lone geek” is a stereotype, and a problematic one
- Women-led events help loads
 - Networking, role models, advice, support
 - They usually always welcome men along
- Research suggests that women role models can be very important
 - Role model influence added to the prediction of career choice over and above women students self-perceived ability (Quimby & DeSantis, 2006)

Networking is key



- Girlgeeks, Girlgeek Dinners
- BCSWomen
- WES (Womens Engineering Society)
- WRC (Womens Resource Centre)
- Linuxchix
- Green Grid Forum
- WIT
- BCS Specialist Groups
- BCS Branches

- ... and that's just for gender

Be Genuine and authentic

Have a goal for each session

Go to lots of groups

Volunteer

Be a powerful resource to others

Be able to articulate your role

Know what you want from others

Follow up on contacts and referrals

Give to get

Do engage with mentoring

- A mentor is someone you can discuss your career (and life) choices with, who's a bit further on than you.
- MentorSET is a great organisation that finds women mentors for women in SET
- Mentoring doesn't have to be same sex/race...
- It also doesn't have to be formal
 - Think about the women and girls you know – particularly the girls – and encourage them to engage with technology as creators, not just users.

Can't get what you need?

- Get it elsewhere!!!
 - Find another manager
 - Find another job
 - Find experience outside the organisation

As I finish...

- Computing is a brilliant, engaging, creative, technical, challenging, intellectual, rigorous area.
- You can have a **brilliant** career in computing, if you're a woman or a man
- We don't want to over-emphasis gender differences
 - But there's no denying the importance of computing to our everyday lives
 - And 51% of the population are women... why aren't we driving it? We're certainly using it.

Do get in touch!

- If you want to get involved then we'd love to hear from you
- BCWomen Scotland: sharon.moore@bcs.org
 - (emails to BCSWomen members in Scotland usually come from sharon.moore@uk.ibm.com)
 - We don't have all the answers but we've read a lot of papers and been to a lot of meetings:-)
- <http://www.bcs.org/bcswomen>

And finally, remember...



THERE HAS ALWAYS BEEN A PLACE FOR WOMEN IN **C**OMPUTING.

BCS as the Gold Standard for Diversity in the IT Sector

Some interesting facts



- 48% of men see themselves as “extremely or very ambitious” whilst only 35% of women have a comparable self image. (Harvard Business Review)
- 15% of highly qualified women aspire to positions of power as opposed to an average of 27% men. (Harvard Business Review)
- The pay gap is partly caused by the under-valuing of part-time work, which is predominantly carried out by women. Women are therefore more likely to be held back in lower paid and lower status positions than men.”
- Women make up 47% of pc users in Europe.
- 93% of women who have taken career breaks and intended to get back to work, only 74% managed to do so and only 40% found full time work (McKinsey)
- World-class procurement organisations that focus heavily on supplier diversity generate 133% greater return on the cost of procurement operations than average performers. This drives an additional \$3.6M to their company’s ledger for each \$1M in procurement costs.
- Mixed gender teams produce the most frequently cited patents – citation rates 26 to 42% higher than the normal

Some interesting facts (2)



- A study by Professor Janet Hyde states that on 78% of psychological variables the differences between men and women are either small or zero. The 3 main areas are sexuality, aggression and motor performance.
- A researcher met 3 male CEOs, each of whom described themselves as “hungry” but at a conference with over 150 female attendees not one person admitted to using that phrase. We are more likely to say we are ambitious or passionate. What we now think of as male industries are not necessarily packaged for women.
- Research by the Women and Work Commission suggests that if women’s skills were better harnessed the country would gain about £23Billion.