

## Synthesis / Review

- Correlation & Variance
- IQ tests
- Claims and analysis of "The Bell Curve"
- Societal / Social issues

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## Review : correlation / variance

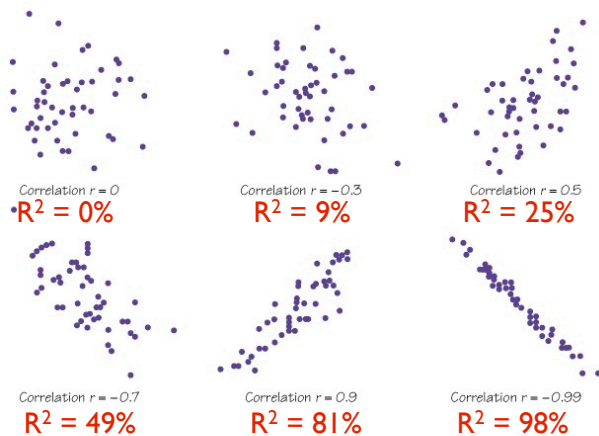
- Correlation expresses the strength of relationship between two variables

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## Correlations



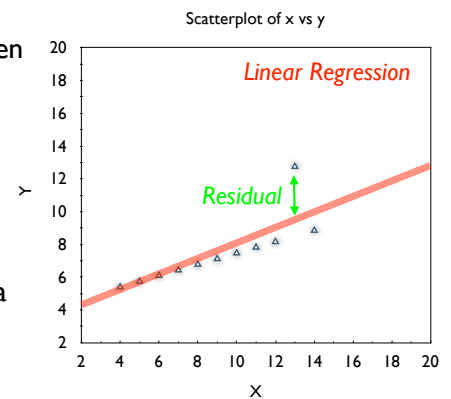
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## Residuals in Linear Regression

Residual is difference between actual Y and predicted Y' ( $Y - Y'$ )

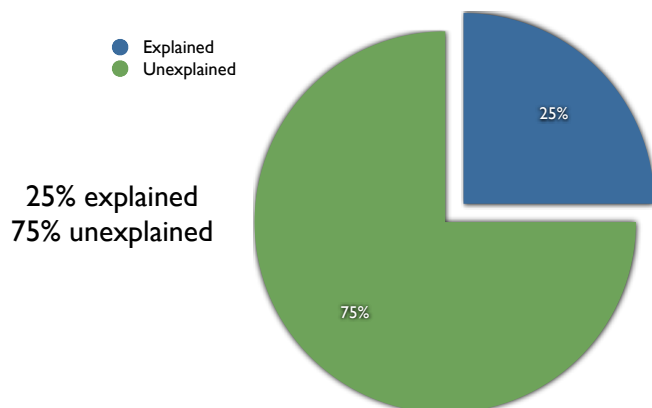
Graphically it is equal to how far away (vertically) a point is from the linear regression line



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## Variance Pie Chart



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## IQ testing

- IQ tests
  - Reliable? Yes. ( $R$ s of 0.90+)
  - Valid? Answer depends on context
- To determine validity
  - What is the Construct?
  - What are the Criterion(s)?

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## IQ testing

- IQ tests
  - Reliable? Yes
  - Valid? Answer depends on context
- Binet -- developed IQ test to identify low-functioning children to help.
- Assumptions:
  - Ranking or Normal / High functioning pupils?
  - Mutable?
  - Hereditary?

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## Stanford-Binet Test

- Louis Terman (American) developed Binet's test at Stanford.
- Applied a hereditarian framework
- Ranking

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## The Bell Curve (1994)

- Herrnstein & Murray -- as criticized by Gould
- Intelligence can be quantified as a single number
- IQ can rank people (or groups) in linear order
- Intelligence is genetic
- Intelligence is immutable

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## Intelligence : Single Number

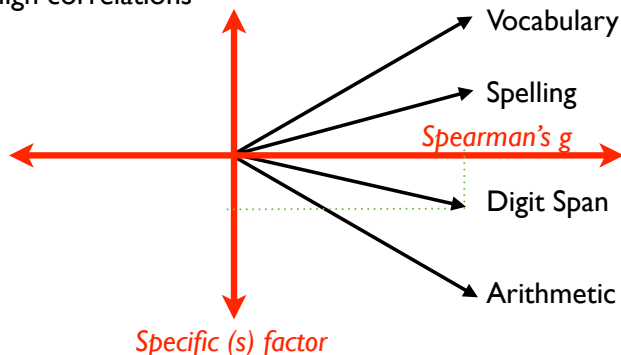
- Pros:
  - common "g" factor ( $R^2 > .80$ )
  - IQ tests give single result
  - high correlations between IQ and "success"
  - Factor analysis : objective
- Cons:
  - "g" has been over-estimated ( $R^2 < .40$ )
  - IQ test have multiple subtests
  - IQ measures 3 of 8 Multiple Intelligences
  - Factor analysis : subjective

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## Factor Analysis

Four Tests, showing high correlations

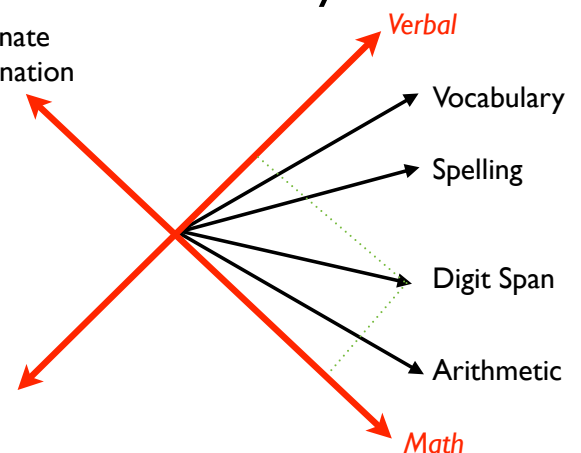


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## Factor Analysis

Alternate explanation



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## Intelligence : Rank Groups

- Pros:
  - genetic factor within groups is high
  - cross-group factor must be genetic
- Cons:
  - logical fallacy
  - height of villagers vs. city dwellers
  - even if group differences are genetic, % variance explained is low
  - can't predict individual behavior

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## IQ is Genetic / Immutable

- Pros:
  - biological: cross-species genetic differences
  - genetic disorders (e.g. Down's syndrome)
  - test score differences between Whites & Blacks
- Cons:
  - Flynn Effect (15 point IQ difference since WW2)
  - Children of Black & White soldiers + German women raised in Germany (no IQ differences)
  - IQ gains for Black children adopted into white households

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## Real-world Issues

- IQ & Death Row
- Cuts to Child Care
- Gender, IQ, and perceived IQ

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## Killer with Low IQ Executed

By JAMES C. McKINLEY Jr. Published: December 3, 2009

HOUSTON — Bobby Wayne Woods was executed Thursday evening in Texas after his lawyers lost a battle to persuade the courts that he was too mentally impaired to qualify for capital punishment.

Mr. Woods, 44, was convicted of raping and killing an 11-year-old girl in 1997. He received a lethal injection and was pronounced dead at 6:48 p.m. in the death chamber at a state prison in Huntsville, Tex., after the [United States Supreme Court](#) denied a request from his lawyers to stay his execution. His last words, at 6:40, were: "Bye. I am ready." Tests administered to Mr. Woods over the years placed his I.Q. between 68 and 86, prompting a bitter debate between his lawyers and the state over whether he was too impaired to face execution. The state and federal courts repeatedly sided with prosecutors.

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## Cuts to Childcare

California child care cuts postponed until Jan. 1

OAKLAND -- Subsidized child care services chopped from the state budget will continue through Dec. 31, according to a legal settlement and court order signed Wednesday in Alameda Superior Court.

About 55,000 children in California, thousands of whom are in the East Bay, originally were slated to lose their child care slots Nov. 1 after Gov. Arnold Schwarzenegger vetoed \$256 million from the state's welfare-to-work program. That date has been postponed three times as the result of a lawsuit filed in October on behalf of Parent Voices Oakland. The advocacy group argued that the California Department of Education failed to give families accurate and timely information about possible alternatives.

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## He's Not as Smart...

**A British researcher reports that the male ego is often larger than his actual IQ. But you might be surprised by what women think of men's intellect.**

By [Joan Raymond](#) | Newsweek Web Exclusive

Jan 23, 2008 | Updated: 5:25 p.m. ET Jan 23, 2008

Are men smarter than women? No. But they sure think they are. An analysis of some 30 studies by British researcher Adrian Furnham, a professor of psychology at University College London, shows that men and women are fairly equal overall in terms of IQ. But women, it seems, underestimate their own candlepower (and that of women in general), while men overestimate theirs. Furnham talks to NEWSWEEK's Joan Raymond about his findings and why perceived IQ matters...

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# Discussion

- Break into small groups
- Choose a group leader
- Pick one of the issues discussed :
  - IQ & Death Row
  - Cuts to Child Care
  - Gender, IQ, and perceived IQ
- Q: How would the key finding / issue change if:
  - IQ mutability is near 0%
  - IQ mutability is near 100%