



# **Quantifying Unfairness in Admission Tests**

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# The “Three Digit” SAT Math Question: Who Does Better? Males or Females?



$$\frac{4K8}{3} = m$$

6. In the equation above,  $K$  is a digit in the three-digit number  $4K8$ , and  $m$  is a positive integer. Which of the following could be the digit  $K$ ?

- (A) 1
- (B) 3 (Correct Answer)
- (C) 4
- (D) 5
- (E) 7

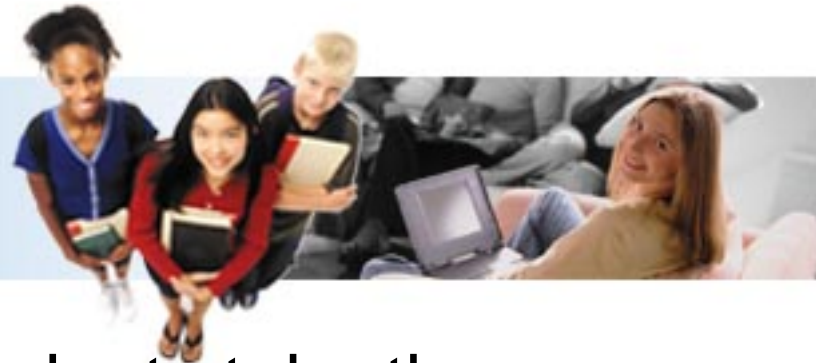
## The “Three Digit” Math Question: Females, 88% to 87%



$$\frac{4K8}{3} = m$$

6. In the equation above,  $K$  is a digit in the three-digit number  $4K8$ , and  $m$  is a positive integer. Which of the following could be the digit  $K$ ?

- (A) 1
- (B) 3 (*Correct Answer*)
- (C) 4
- (D) 5
- (E) 7



Every year over 400,000 students take the October SAT.

Two SAT data sets (Oct. 1998 & Oct. 2000):

- All bubbled answers of 100,000 randomly chosen students on each test, plus
- All their answers to the Student Descriptive Questionnaire (race, ethnicity, sex, etc.)

For each SAT question (“item level data”), I can find the % of subgroups answering correctly

# Male/Female Math Analysis of 2 SATs: Oct., 1998 and Oct., 2000



- 60 math questions per test, 2 tests:

**120** questions

- Query: How many male preference questions?  
Female preference questions? (Hints: 3 are no-pref. questions, males score higher)

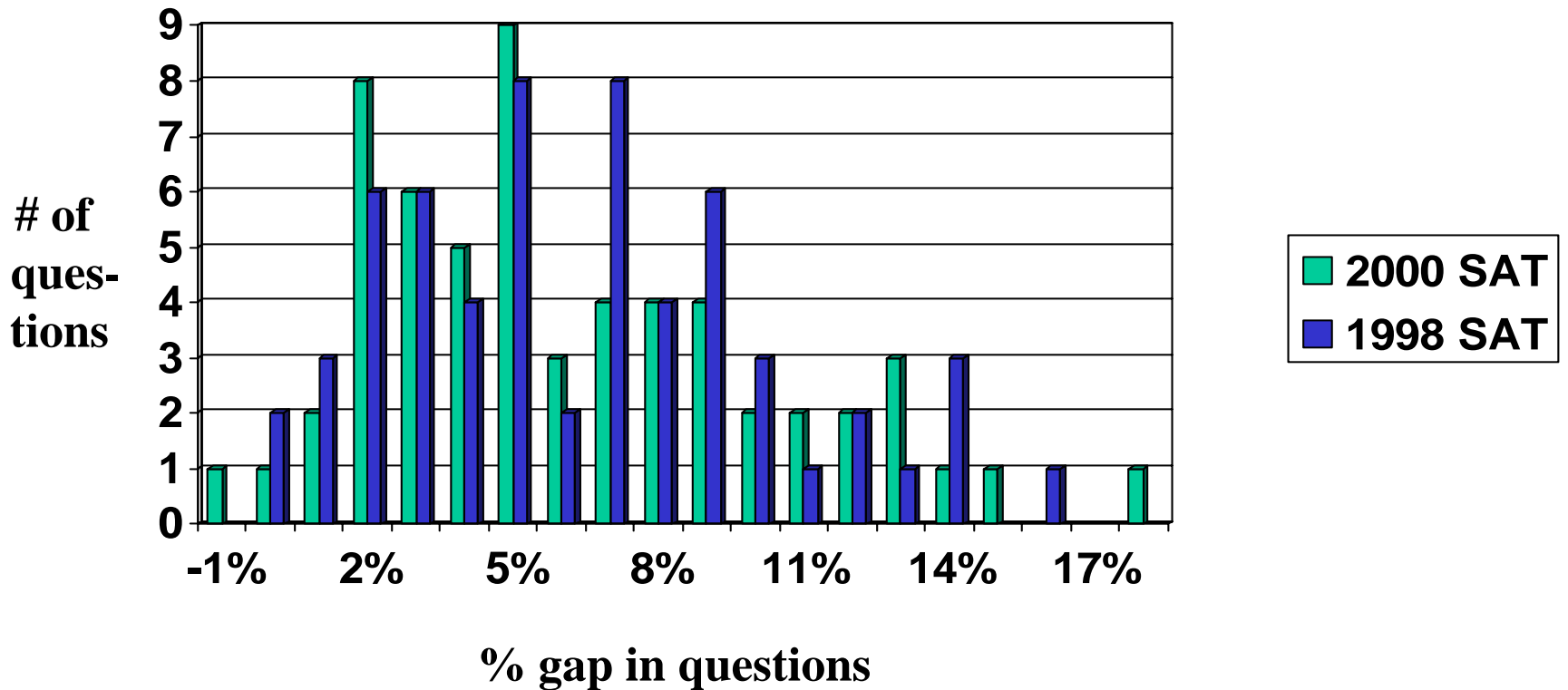
- The number of **female** preference questions out of 117 others is:

**1** question

- The number of **male** preference questions out of 117 is:

**116** questions

# Distribution of Male/Female Gaps in Oct. 1998 and Oct. 2000 Data Sets



## White/Black Comparison



- Pretesting: questions are “tried out” in the variable (unscored) SAT (and LSAT) section, and then selected or rejected for future use.
- Black preference question: the % of blacks answering correctly is higher than the % of whites answering correctly
- White preference question: the opposite, the white % is higher than that of blacks

## The “Actor’s Bearing” Question: Black or White Preference?



The actor’s bearing on stage seemed \_\_\_\_\_;  
her movements were natural and her  
technique \_\_\_\_\_ .

- (A) unremitting ... blase
- (B) fluid ... tentative
- (C) **unstudied ... uncontrived**
- (D) eclectic ... uniform
- (E) grandiose ... controlled

Source: Wall St. Journal, citing ETS



## The “Actor’s Bearing” Question: Black Preference, with an 8 % Gap



The actor’s bearing on stage seemed \_\_\_\_\_;  
her movements were natural and her  
technique \_\_\_\_\_ .

- (A) unremitting ... blase
- (B) fluid ... tentative
- (C) **unstudied ... uncontrived**
- (D) eclectic ... uniform
- (E) grandiose ... controlled

# Black/White Analysis of 2 SATs: October, 1998 and October, 2000



- 60 math & 78 verbal questions per test (138 total), 2 tests:

**276** questions

- Query: How many black preference questions? White preference questions? (Hint: whites score higher)

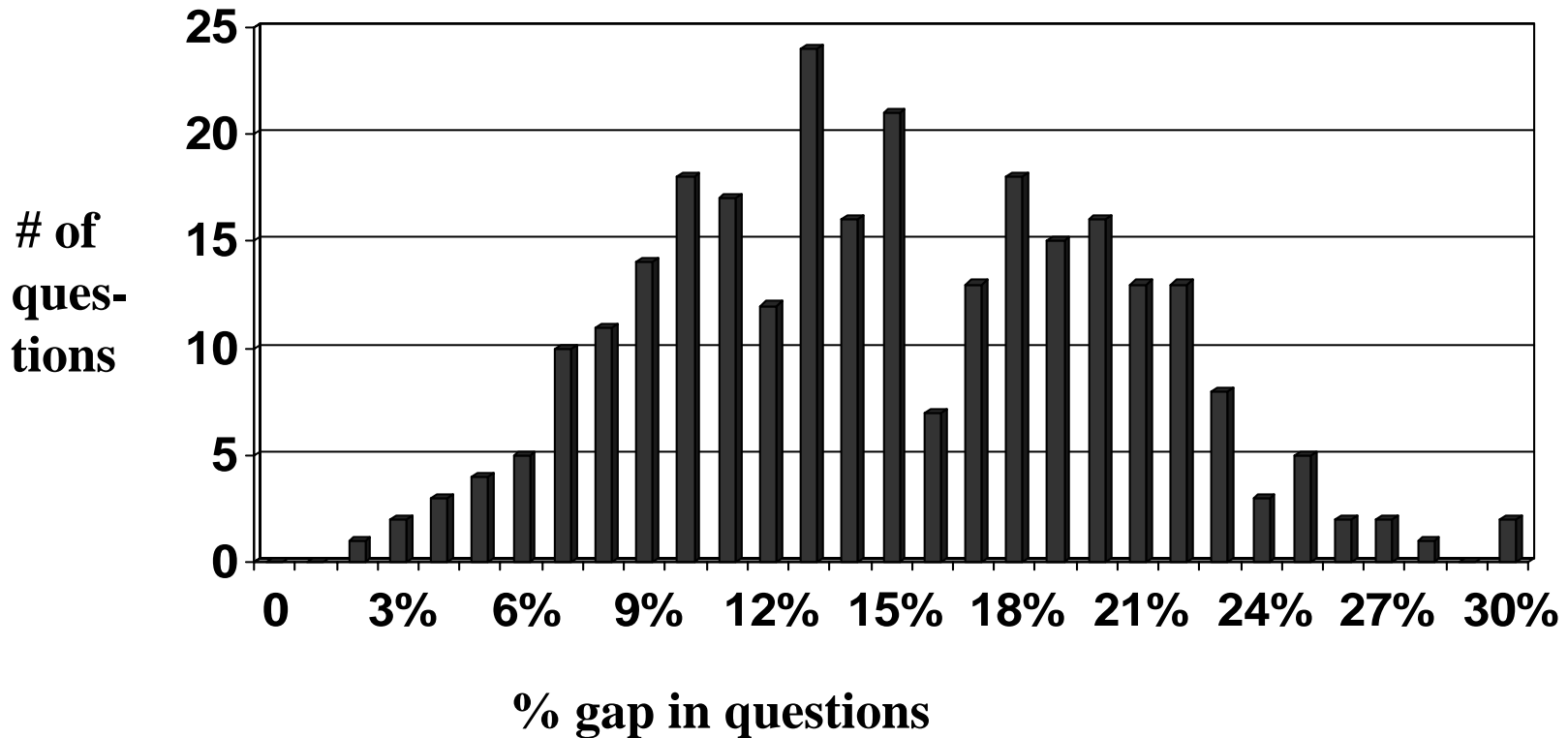
- The number of **black** preference questions out of 276 is:

**0** questions

- The number of **white** preference questions out of 276 is:

**276** questions

# Distribution of White/Black Gaps in Oct. 1998 and Oct. 2000 Data Sets



# Why? Point-Biserial Correlation ("Colorblind" Racism?)



- “Each individual SAT question ETS chooses is required to parallel the outcomes of the test overall. So, if high-scoring test-takers – who are more likely to be white - tend to answer the question correctly in pretesting, it’s a worthy SAT question; if not, it’s thrown out. Race and ethnicity are not considered explicitly, but racially disparate scores drive question selection, which in turn reproduces racially disparate test results in an internally reinforcing cycle.” *The Nation*, April 14, 2003, pg. 24.

# Question Selection Doesn't Explain the Entire Black/White Score Gap, But ...



- **All SAT questions capture something about race & gender, 99% of which is invisible**
- **Group score differences are set NOT when students test, but when questions are chosen**
- **Blacks can score high, but black preference quests. are ALWAYS eliminated – racial profiling?**
- **Bubble tests (HS exit, MS bar?) quantify race**
- **The SAT and LSAT, GRE , etc., (but I have no data) are white preference tests, with only white preference questions – ask for one b.p. question!**



- **All my recent data requests have been denied:**  
“I am rejecting your request for receipt of SAT item level data. Your previous study examining item level data on the SAT was badly flawed and the conclusions you drew were gross misinterpretations of the data.” Letter from Wayne Camara, CB, June 29,2007.
- **My methodology: calculating % from their data**
- **Even many conservatives would find it unfair to choose so that every question favors whites**
- **NCLB re-authorization: I propose requiring test company disclosure of “item level data” !!**
- **If CBC members won’t investigate and challenge white preference tests, who will?**