against blacks are, in logistic regression terms, arguing that the black-to-white odds ratio is less than 1.0; those who argue that the university admissions policies are "reverse discriminatory" against whites are arguing that the black-to-white odds ratio is greater than one.

Lerner and Nagai's black-to-white odds ratio of 111 to one is truly a stunning statistic. Given equal levels of SAT scores (verbal and math), high school rank, legacy, residency, and gender, black applicants have more than 100 chances to be admitted for every one chance that their white counterparts enjoy. It's no wonder that university administrators use every trick in the book to prevent competent analysis of their admissions data! It's no wonder that they fudge the data! It's no wonder that it takes a court order to spring the information that, if the university administrators were being honest with the public, they would provide!

A similar tale was told by Drs. Jerry and Ellen Cook in a report they prepared for the Regents of the University of California titled "Medical School Admissions: Problem Summary." The administration of the University of California, San Diego, stonewalled their attempt to examine the GPAs, MCATs, and minority status of entering medical students. Under threat of a Freedom of Information Act court order, the Cooks obtained that data in a difficult to use, computer-hostile fashion. They obtained it, nevertheless. An examination of their scatterplot of GPA and MCAT scores by minority or nonminority status reveals almost no overlap between white and black admittees. The weakest nonminority admittees were competitive with the strongest minority admittees. Contrary to the *Bakke* decision, race was not just one factor among many in the admissions decision; instead, race was the overwhelming factor.

The Cooks presented this analysis to Ward Connerly. Connerly subsequently led the successful drive to eliminate race preferences from all UC decisions, and then led the successful drive to pass California Proposition 209. Connerly's description of the dishonesty and duplicity of the University of California administration is bone-chilling (Ward Connerly, *Creating Equal: My Fight Against Race Preferences*, Encounter Books, 2000, 109-35 *[Editor: Reviewed in this issue of* AQ*]*). It is as if, among university administrators, lying is virtuous and telling the truth is evil! This systemic dishonesty and distortion comes from those who are supposed to be most committed to the search for truth.

The universities, those bastions of the search for truth, have become the primary location of institutional and intellectual dishonesty. They spin the story. They attack the character and reputation of anyone who dares to confront them with the facts. And the only thing that matters is that they win the PR battle. The thought police of political correctness will no doubt castigate the characters and reputations of Lerner and Nagai rather than meet their arguments. But the university is better off because the two authors of "Reverse Discrimination by the Numbers" had the vision, the wisdom, and the courage to present an honest analysis of data relevant to an important social issue.

Richard A. Zeller, Ph.D.
Statistical Consultant

To Be Congratulated

To the editor,
Early joiners of the National Association of Scholars may recall my 1988 publication in *Academic Questions* (Vol. 1, No. 3), "Thunder from the Left," which analyzed affirmative action quotas at Harvard

Medical School. At that time, parity, the typical goal of affirmative action programs, would have required about 140 blacks per thousand whites (i.e., 12 percent of the black-white total).

As I pointed out then, if one assumed, reasonably, that medical students were recruited from the IQ range from 115 upwards, and that blacks and whites were recruited from the same IQ range, there would be available only about seven blacks per thousand white admittees who were qualified. The gap between this and the twenty-times-larger ratio (140/7) demanded for parity would reflect the average difference of about 18 points between the means of the black and white IQ distributions and its correlated reflection in average Medical College Admission Test scores. Parity could be satisfied only by recruiting blacks from a segment much lower down in the IQ distribution than the one from which whites were recruited, beginning at about IQ 97, which is 18 points below the white threshold of 115. Medical schools settled instead for an intermediate ratio of about forty blacks per thousand whites, in the process receiving little credit for easing the admission of blacks and continued blame for not achieving full parity.

In the summer 2000 issue of *AQ*, the excellent article by Robert Lerner and Althea K. Nagai, "Reverse Discrimination by the Numbers," reported that, in 1999, blacks were 111 times more likely than whites to be admitted as undergraduates to the University of Virginia when various qualifications, such as Scholastic Assessment Test scores, were held constant. This huge multiple of the white odds resulted in parity at UVA, where blacks comprised 14 percent of the black-white total of admittees.

It may be helpful to readers to try to relate the two sets of findings to each other. Despite the enormous difference between my factor of twenty to achieve parity in medical schools and Lerner and Nagai's odds ratio of 111 to 1, which produced undergraduate parity at UV, these statistics are not inconsistent; they simply reveal different aspects of the same problem. The unusually sophisticated analysis Lerner and Nagai employed seems reasonably consistent with mine if the difference in direction of comparison and the implications of holding qualifications constant in their work are kept in mind. My comparison was between the number of qualified blacks and the much larger number of blacks needed for parity; their comparison was between the chances of admission for blacks and whites of equal qualifications throughout the range of qualifications, further clarified later. The difference in settings, college versus medical school, although also relevant, can be set aside for the purpose of offering a purely conceptual clarification of the statistics.

Imagine trying to admit twenty times as many blacks to reach parity, despite lower qualifications on average, assuming that objectively outstanding applicants of either race are already admitted automatically, and hence there is no point in looking among those few. One must do two things.

First, one must be sure to admit virtually all blacks at SAT or MCAT levels that are acceptable (as distinct from outstanding) for whites. With white applicants, one could normally afford to be choosy by considering additional criteria (for example, one might try to increase the number of humanities majors by rejecting applicants headed for over-subscribed majors), because there is an abundance of whites at those test score levels and one cannot admit them all in any case.

Second, one must also admit blacks at SAT or MCAT score levels that would not gain white applicants much consideration

at all, unless perhaps they happened to be star athletes. This second policy probably contributes far more than the first to the huge odds ratio. Witness Lerner and Nagai's report that at least 75 percent of blacks were admitted with lower SAT Verbal scores than at least 50 percent of whites.

Together, both policies drastically inflate the total odds of being accepted if one is black, even though the goal is to multiply the proportion of blacks by only twentyfold. Observers, who have witnessed hiring or admission decisions in which a black applicant received overriding preference, and possibly even special inducements, despite credentials that would have seemed much less impressive for a white, will understand intuitively what an overall odds ratio of 111 to 1, holding constant qualifications, implies in the real world. Lerner and Nagai are to be congratulated for quantifying a phenomenon so many of us have uneasily observed.

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Robert Lerner and
Althea Nagai respond:

Professor Allen's bitter attack on our scholarship begins with his damaging admission that "the authors are probably correct in the conclusions that are drawn from the data." Despite this, our scholarship is said to be "unprofessional" and its "representations of science" are "frankly awful." He makes this claim at the same time that Professor Zeller in his letter describes our piece as "particularly valuable" and our presentation as "clear and effective" while Professor Gordon describes our presentation as "excellent" and "unusually sophisticated."

Who is right? Professor Allen claims to show that we have made four mistakes in presenting our argument. His own discussion, however, indicates that he has not read our article very carefully and does not understand some of the statistical concepts he invokes. We analyze each so-called mistake in turn to see how Professor Allen has misread our essay.

The first so-called mistake is that we supposedly argue on the basis of some arcane mathematics that large correlations indicate causation. We did no such thing. In fact, Professor Allen totally ignores what we did say. To show just how poorly he has read our essay, we quote from it copiously:

- "in order to demonstrate causality three conditions have to be met: 1) correlation, 2) time ordering, and 3) the absence of extraneous third variable causation" (72).

- Subsequent sections of the paper have the following subheadings: "Correlation," "Time-Ordering," and "The Absence of Extraneous Variables."

- "[I]n observational studies . . . the inferring of causality is limited to finding plausible extraneous variables and explicitly testing for their effects *without ever being absolutely certain that one has accounted for all extraneous effects*" (74, italics added).

- "Extraneous Variables: A Discussion in Light of UVA Data" (81 and passim).

All of these statements and discussions are more precise ways of describing exactly how we say that correlation by itself need not be causation, contra Professor Allen.

Our second so-called mistake can be quickly disposed of. Professor Allen claims that we do not have signature evidence for our discussion of the admissions process at UVA. We never claimed that we had such evidence for our case study of UVA,

which is why the statistical analysis of admissions records is essential in order to ascertain whether racial preferences in admissions exist. Once again Professor Allen attacks a straw man. However, we are happy to report that such signature evidence for UVA, which we take in the case of reverse discrimination to consist of "admissions matrices . . . official memoranda . . . or testimony describing the operations of admissions policy" (75), which indicates "professed motive" (75), now exists in the public domain.

According to a recent report in *Money Magazine,* the University of Virginia recently scrapped its admissions point system which granted applicants points for many factors, including three points for SAT scores at or above 1300, two points for ranking in the top 1 or 2 percent of their high school class, and two points for simply being African American. This is clear signature evidence of reverse discrimination that was not available to us when we began our study, but which we accept as conclusive evidence of preferential admissions at UVA.

We turn next to the third so-called mistake, which is that we ignore the possibility of multicollinearity in our prediction equation resulting from the high correlations between applicants' SAT scores and their high school grades that supposedly invalidates our conclusions. In citing *The Bell Curve* in this context, Professor Allen once again indicates that he failed to read our article and understand its purpose. Our research is *not* interested in predicting individual achievement as a function of cognitive ability, which is the subject of *The Bell Curve,* but rather in predicting the behavior of the UVA admissions committee. It is widely agreed that UVA uses student SAT scores and high school grades as admissions criteria, and the prediction equation presented on page

79 shows this to be the case. As we state in the paper, "a crucially important set of extraneous variables that must be included in any statistical study is individual [academic] qualifications such as grades and SAT scores" (74).

Now it is true that an applicant's verbal SAT score, math SAT score, and high school rank are correlated with each other (although not as much as might be expected), but this is irrelevant to the purpose in including them in the prediction equation. To repeat, this purpose is to examine the black-white admissions rate when controlling for applicants' academic qualifications, and for this purpose, all complete representations of academic ability are equally interchangeable, which Professor Allen should know if he understood multicollinearity as well as he claims to understand it.

What Professor Allen fails to understand is that multicollinearity, which refers to a condition whereby the estimates of regression coefficients are imprecise and unstable due to correlations among the independent variables, could only be a potential problem for us if we were interested in determining whether math SATs, verbal SATs, or high school rank were the more important predictor of admissions. Since we are not interested in ascertaining which indicator of achievement is the best predictor of admissions status, his objection is irrelevant even if it were warranted, which it is not.

The irrelevance of this so-called mistake can be seen from a calculation we performed that combined these indicators into a single index of academic ability. We did this simply by adding together verbal and math SAT scores, transforming the combined index and class rank score into separate z-score variables and then adding them together. When we reestimate the multiple logistic regression equation using the single variable academic

achievement index instead of using the three separate variables of verbal SAT score, math SAT score, and high school rank, and making no other changes in the equation in our essay, the black to white relative odds ratio is 102 to one, which is virtually identical to the 111 to one relative odds ratio presented in our article. If Professor Allen really understands what multicollinarity means, he should know that it is the joint effect of these merit variables that is relevant to our presentation and not their separate effects. His point is a complete nonsequitur.

The final so-called mistake is equally as imaginary as all the rest. There is no need for a structural equation approach to admission decisions because, contra Professor Allen, there is no structure. To repeat once again, this study, unlike the *Bell Curve,* attempts to study an admissions process, not trace out the effects of one or more individual variables as predictors of the individual's future behavior in society at large.

The next time Professor Allen comments on a study, he should take the trouble to read it first before criticizing it in order to avoid the kind of embarrassing mistakes he has displayed here, which lead us to wonder about Professor Allen's motives for launching such a nasty, albeit totally unwarranted, attack on our work.

Mention of *The Bell Curve,* however, brings us to Professor Gordon's most interesting letter which illustrates the "problem" facing admissions officers who insist on combining high admissions standards with a substantial degree of racial/ethnic proportional representation. On the assumption that an IQ of 115 is needed to complete medical school successfully, there will be a "shortage" of qualified black candidates available if racial/ethnic proportional representation is the ultimate goal of admissions policies. Professor Gordon is clearly right that admissions officers generally have adopted an intermediate solution to this "problem" by both lowering black standards somewhat and increasing enrollment somewhat. This is reflected in our black-white admissions odds ratios. And as Professor Zeller pointed out in his letter, the greater the impetus toward proportional representation, the larger the black-white odds ratio will be.

We fear, however, that Professor Gordon may underestimate the range of responses on the part of educational institutions to this "problem" that are harmful to the academic mission. As shown by Professor Gordon's important calculations, preferential admissions policies must by necessity create a substantial black-white test score gap among students on every campus governed by such policies. Over a long period of time, organizational responses to this gap have resulted in such policies as grade inflation, weaker course offerings, multicultural curriculum requirements, and no-fault graduation policies, which have been discussed extensively in *Academic Questions.*

Professor Zeller rightly points to efforts on the part of colleges and universities to prevent independent and objective analysis of the admissions data that drive these policies. Sadly, Professor Zeller is also right that impugning the motives of those who seek the truth about university admissions and other such policies is standard fare for defenders of the educational status quo.

We would like to thank Professor Gordon and Professor Zeller for their generous comments about our work.