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CRITICAL RACE SCIENCE
AND CRITICAL RACE PHILOSOPHY OF SCIENCE

Paul Gowder*

INTRODUCTION

Over several decades, feminist philosophy of science has revealed the ways in which much of science has proceeded from "mainstream" assumptions that privilege men and other hierarchically superordinate groups and existing socially constructed conceptions of gender. In doing so, it has produced a research program that, while rooted in the post-Kuhnian philosophy and sociology of science that has been taken up by many students of scientific method more generally, has been used to critique great swathes of modern science and to reveal both the biases of the mainstream, and the transformative potential of a science that proceeds from the epistemic standpoints of women as well as men and from the research questions and concerns that arise from the goal of promoting equality between men and women.

By contrast, there is not yet a consolidated research program that could fall under the name "critical race philosophy of science" (or, perhaps more accurately and certainly more inclusively, "critical race science studies").[1]

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1. Indeed, some of the work that could lay claim to the mantle of critical race philosophy of science has been generated from outside the critical race theory research program. For example, Sandra Harding, arguably the founder of feminist philosophy of science, has explained how the insights she has generated also apply to the category of race. *See generally* Sandra Harding, *Science, Race, Culture, Empire*, *in* A COMPANION TO RACIAL AND ETHNIC STUDIES 217 (David Theo Goldberg & John Solomos eds., 2002); THE "RACIAL" ECONOMY OF SCIENCE: TOWARD A DEMOCRATIC FUTURE (Sandra Harding ed., 1993). The history of science suggests that this is a natural development, and one to be welcomed: women and people of color have been treated similarly in fundamental ways by the "mainstream" scientific enterprise. *See generally* Nancy Leys Stepan, *Race and Gender: The Role of Analogy in Science*, 77 ISIS 261 (1986) (explaining how similar metaphorical reasoning has underlain the scientific treatment of both categories). Nonetheless, the insights of feminist standpoint theory (to be discussed below) suggest that a unified meta-scientific research program by people of color, driven by the aims of critical race theory, has distinctive contributions to make on its own terms.

There is extraordinary work from a critical race perspective in discrete areas of research, such as in the critique of the use of racial categories in genetic research and medical research more generally,[2] on race in sociology and allied fields, such as education and demography (and with the latter, census-taking),[3] and on the history of scientific racism.[4] There are also philosophers of science, some of whom might be described as "critical," who argue about whether race exists.[5] But those areas of research have not been unified into a single school of scholarship that asserts itself in the form of general ideas about race and empirical research, one that can inform

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2. *See generally* DOROTHY ROBERTS, FATAL INVENTION: HOW SCIENCE, POLITICS, AND BIG BUSINESS RE-CREATE RACE IN THE TWENTY-FIRST CENTURY (2011) (criticizing contemporary science for its pernicious reliance on social construct of race); Lundy Braun & Evelynn Hammonds, *The Dilemma of Classification: The Past in the Present*, *in* GENETICS AND THE UNSETTLED PAST: THE COLLISION OF DNA, RACE AND HISTORY (Keith Wailoo, Alondra Nelson & Catherine Lee eds., 2012) (tracing history and lingering effects of colonial racial classifications in contemporary research); Lundy Braun et al., *Racial Categories in Medical Practice: How Useful Are They?*, 4 PLOS MED. 1423 (2007) (critiquing simplistic use of racial categories in medical treatment); Jenny Reardon, *The Democratic, Anti-Racist Genome? Technoscience at the Limits of Liberalism*, 21 SCI. AS CULTURE 25 (2012) (critiquing genetic science even for purportedly progressive approaches, such as allowing subjects to self-define racial categories, for ignoring the social context in which such self-definition was embedded); Alexandra E. Shields et al., *The Use of Race Variables in Genetic Studies of Complex Traits and the Goal of Reducing Health Disparities: A Transdisciplinary Perspective*, 60 AM. PSYCHOLOGIST 77 (2005) (critiquing the ways in which race is used in biological sciences and offering recommendations for methodological and policy improvement).

3. *See, e.g.*, Tukufu Zuberi & Eduardo Bonilla-Silva, WHITE LOGIC, WHITE METHODS: RACISM AND METHODOLOGY (2008) (collection of essays exploring connection between racial hierarchy and sociological methods); *see also, e.g.*, Dolores Delgado Bernal, *Critical Race Theory, Latino Critical Theory, and Critical Raced-Gendered Epistemologies: Recognizing Students of Color As Holders and Creators of Knowledge*, 8 QUALITATIVE INQUIRY 105 (2002) (describing a critical race epistemology in educational research which recognizes social location–rooted knowledge in students); *see also* CLARA E. RODRIGUEZ, CHANGING RACE: LATINOS, THE CENSUS, AND THE HISTORY OF ETHNICITY (2000); Symposium, *Critical Race Theory and Education*, 8 QUALITATIVE INQUIRY 3 (2002); Gurminder K. Bhambra, *A Sociological Dilemma: Race, Segregation and US Sociology*, 62 CURRENT SOC. MONOGRAPH 472 (2014) (criticizing white sociological tradition for ignoring parallel black sociological tradition and the intellectual distortion that ignorance has caused). For discussion about the census, see Matthew Snipp, *Racial Measurement in the American Census: Past Practices and Implications for the Future*, 29 ANN. REV. SOC. 563 (2003) (discussing consequences for social science of changing census categories).

4. *See, e.g.*, ELAZAR BARKAN, THE RETREAT OF SCIENTIFIC RACISM: CHANGING CONCEPTS OF RACE IN BRITAIN AND UNITED STATES BETWEEN THE WORLD WARS (1993); WILLIAM H. TUCKER, THE SCIENCE AND POLITICS OF RACIAL RESEARCH (1994). This category has some overlap with the critique of medical and genetic research, especially as a response to studies purporting to describe a relationship between genetic race and intelligence. *See generally* Audrey Smedley & Brian D. Smedley, *Race As Biology Is Fiction, Racism As a Social Problem Is Real: Anthropological and Historical Perspectives on the Social Construction of Race*, 60 AM. PSYCHOLOGIST 16 (2005) (critiquing concept of race as used in genetic arguments about black intellectual ability).

5. *See, e.g.*, Kwame Anthony Appiah, *The Uncompleted Argument: Du Bois and the Illusion of Race*, 12 CRITICAL INQUIRY 21 (1985); Lisa Gannett, *The Biological Reification of Race*, 55 BRIT. J. PHIL. SCI. 323 (2004); Adam Hochman, *Against the New Racial Naturalism*, 6 J. PHIL. 331 (2013).

empirical research internal to the critical race research program ("critical race science") and enlighten and critique research external to that program.[6]

We need one. To show why, I argue that the act of observation itself becomes a fraught enterprise when it interacts with race, and that empirically informed critical race theory and critical race theory informed philosophy of science can mitigate that problem. When we (even, I shall suggest, the "we" that includes social scientists, critical race theorists, and critical race social scientists) observe the race of others, that observation is not a neutral act. We cannot just observe the "fact" of someone's race as if it is out there in the world—and by saying that, I do not just mean the (fairly well-accepted) point that race is a social rather than a natural kind,[7] but also that even the social facts of race are observationally unstable. Moreover, race is a complex, rather than a simple, social kind, in that it is best empirically conceptualized as a cluster of observations, which are not always perfectly correlated, rather than an individual observation.[8]

While I do not mean by this Essay to deny the possibility of objective knowledge (or, heaven forbid, truth) *tout court*, as some postmodernists have been known to do, I do deny that there can be any objective knowledge about any individual's race (or the races of a collection of individuals), because people do not have races except as a product of cognitions that change depending on the cognition-haver's distinct position in a social world. I further assert that, in our (2015 American) culture, it is difficult and sometimes impossible to acquire objective knowledge about facts linked to race within our patterns of biases and stereotypes—not because those facts do not exist, but because the mental operation of observing them is irredeemably tainted by the hierarchical racial categories present in our social world.

When we see someone's "race," at best we are observing a pattern of linguistic behavior from the observed and others who interact with the observed (what A says B's race is, what B says B's race is, et cetera), including the behavior of the observer him or herself. An observer may

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6. *Cf.* HELEN LONGINO, SCIENCE AS SOCIAL KNOWLEDGE: VALUES AND OBJECTIVITY IN SCIENTIFIC INQUIRY 214 (1990) ("[O]ne could practice science as a feminist by (1) recognizing the ways in which the background assumptions of mainstream science facilitated certain conclusions and excluded others and (2) deliberately using background assumptions appropriately at variance with those of mainstream science.").

7. *See generally* SALLY HASLANGER, RESISTING REALITY: SOCIAL CONSTRUCTION AND SOCIAL CRITIQUE 365–80 (2012) (explaining the notion of race as a social kind). In this Essay, I assume that those who deny that race exists apart from as a social phenomenon are correct. However, some philosophers assert that there can be a (non-racist) biological notion of race. *See, e.g.*, Quayshawn Spencer, *A Radical Solution to the Race Problem*, 81 PHIL. SCI. 1025 (2014). Space does not permit me to argue with those philosophers here; however, I do note that even if one accepts their views, it does not follow that what they see as biologically real racial categories are amenable to observation on an individual-by-individual basis.

8. *See* Maya Sen & Omar Wasow, *Race As a 'Bundle of Sticks': Designs That Estimate Effects of Seemingly Immutable Characteristics*, 19 ANN. REV. POL. SCI. (forthcoming 2016) (reviewing an extensive body of literature suggesting race is an unstable evaluation of an underlying cluster of observations, such as names, physical and social locations, physical features, and the like).

also observe physical and social characteristics that are associated with race on our dominant popular cultural ("folk") theory of race, but the second set of observations depends in part on the first. Racial observations are embedded in a complex network of multidirectional causation between observer, observed, observational categories, and other social facts; that embeddedness is inconsistent with objective observation of race or those other facts.

In short, to observe race is to ascribe it, an irreducibly social act. But empiricists of all types—including critical race theory empiricists; other kinds of social scientists, such as census-takers; appliers of affirmative action policies; and other policy-making and implementing officials—find themselves observing race, either directly, in experimental research and original data generation, or indirectly, in relying on the observations of others as encapsulated in survey data and the like. Many times, these observations are not methodologically sophisticated and risk reifying hierarchical race categories, even as they purport to study them.

We need a critical race philosophy of science because this is true of all kinds of observations, and we can understand the problems facing race best if we understand it as a distinctive species of a general problem. Helen Longino put it best: "Observation is not simple sense perception (whatever that might be) but an organized sensory encounter that registers what is perceived in relation to categories, concepts, and classes that are socially produced."[9] This fact about observation becomes a danger when it collides with the fact that some of those "categories, concepts, and classes" are hierarchically organized, like gender and like race, for it suggests that the social hierarchies can distort the results of the science and can become self-reinforcing through the scientific process.

* * *

Before moving on, we must specify a vocabulary even to express the references to "race" in this Essay. The folk theory of race suggests that one's race (derived from something like facts about one's skin color and one's ancestry in some mysterious combination) is more or less invariant across time and space; accordingly, our ordinary language only permits me to speak of, say, someone who *is* "black" or "white" regardless of who is observing the someone and under what social context. But because the folk theory is false, ordinary language will have to give way. Moreover, even sophisticated social scientists who make use of observer-contingent racial categories (i.e., self-identified race and the race identified of a subject by a survey-taker) fail to take account of the time-contingent, complex, and interactive nature of those ascriptions, which can change due to events in the life of observer or observed, including events attached to the act of observation itself (some of which will be discussed below). As this Essay describes a number of studies with race as a variable, it ought to be a model for relative precision in racial description.

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9. HELEN E. LONGINO, THE FATE OF KNOWLEDGE 100 (2002).

I shall describe racial terms, then, with respect to both observers and times. For example, I shall say that a "self-ascribed" race is one which the person whose race is relevant applies to him or herself, and an "observer-ascribed race" is the race that a (specified) external observer applies to the observed.[10]   When I speak of such racial ascriptions, I shall mean only those ascriptions that are made at a single time and in a single social context, because we also know that racial ascriptions are conditional on short-term changes in social facts about the individual as well as long-term changes in the social meaning of race in and across cultures. Ordinarily, that time and context will be the time and context of a given research study, for example, when the social scientist carrying out an observation records a race assigned to a research subject. However, sometimes there will be multiple times at issue; in such situations, I shall specify the time as well. In reporting the results of studies which (sloppily) ascribe a race to subjects, but do not report who has issued that ascription, I will say that the subjects have an "unknown-ascribed" race.

Our vocabulary has to be able to express not only inconsistency but consistency. There are some people who have strong racial ascriptions (in our cultural context) that do not tend to change based on observer or time. We will all pretty much agree, for example, that Dr. Dre and Oprah Winfrey are black and that Mitt Romney and Eminem are white, and it is hard to imagine those ascriptions changing any time soon. I shall describe such situations as cases of "generally ascribed" race. Of course, it is possible for people to disagree about general ascriptions, to deny, for example, that we all understand Eminem as white (he has, after all, made a career out of what many understand as a distinctively black form of cultural production). It will thus sometimes be necessary to identify the source of a supposed general ascription as well.

These observer- and time-relative appendages to racial observations should extend to the ascription of race-linked secondary qualities, particularly those related to racial stereotypes. For example, blacks are stereotyped as hostile and violent,[11] and this stereotype is consistent with the empirical phenomenon by which observers tend to perceive unknown

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10. Sen and Wasow aptly point out that researchers are generally unable either to observe or to experimentally manipulate the race that subjects ascribe to those whom they observe. Sen & Wasow, *supra* note 8, at 20–21. Instead, what they observe in experimental contexts are *signals* of race (as in, for example, experiments that manipulate the assignment of racially stereotypical names). I speak of racial ascriptions rather than signal observations here to capture the idea that race researchers typically are trying to use measurements of signal observations as a proxy for racial ascriptions, and with the implicit or explicit supposition that subjects who are exposed to a racial signal will be more likely to ascribe the race in question to the one about whom the signal is sent. Incidentally, whether some piece of sense-data is a component or a signal of race may itself be observer-dependent: a black-sounding name, for example, may be taken by one observer (consciously or unconsciously) to count as evidence of the race of the one whose name it is, and by another to count as part of what it means to be black.

11. Patricia G. Devine & Andrew J. Elliot, *Are Racial Stereotypes* Really *Fading? The Princeton Trilogy Revisited*, 21 PERSONALITY & SOC. PSYCHOL. BULL. 1139, 1146–48 (1995).

objects in the hands of blacks as weapons and of others as not weapons.[12] Those who are more subject to such stereotypes are more likely to make those ascriptions. Accordingly, it will be necessary to specify, for example, who decides that a given subject is hostile or holding a weapon in a scientific study and when that decision is made.

That being said, we may now move onto the material proper.

I. THEORIES, STANDPOINTS, AND OTHER OBSERVATION-DISTORTERS

Since the latter half of the twentieth century, many philosophers and sociologists of science have recognized that observation is theory-laden.[13] The idea, loosely speaking, is that the concepts we use to describe and understand the things we observe can only be accessed using our preexisting theories of those observations.

For example, for a chemist to say that she observes a solution emitting a "gas" presupposes some account of the behavior and properties of gases that allows her to apply that concept to the data that come in through her sensory apparatus. The problem begins when we consider that the experiment our chemist is conducting might bear on the question of whether she should accept her account of the properties of gases in the first place. What a mess! This kind of theory-ladenness leads on a fairly direct skid to holism: our chemist's observation of a gas turns out to be capable of denting not a single scientific proposition but a collection of propositions, such that, for example, if she expects to see a liquid but sees a gas, she knows that she might reject *either* the theory that says her reaction should have produced a liquid or her account of the properties of a liquid.[14]

So suppose an observer sees a light-skinned (as she understands it) subject, and that subject introduces his biological parents to the observer. It turns out that the observer perceives his mother as very dark-skinned, such that the observer ascribes blackness to the mother. It is obvious that the race she ascribes to the subject will depend on her personal theory of race, in particular, on the extent to which she subscribes (consciously or unconsciously) to the notion of hypodescent (the "one-drop rule"). If, to her, race is more about skin color, then she may ascribe blackness to the mother and whiteness to the son.[15] By contrast, if race to her is about

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12. Christopher R. Jones & Russell H. Fazio, *Person Categorization and Automatic Racial Stereotyping Effects on Weapon Identification*, 36 PERSONALITY & SOC. PSYCHOL. BULL. 1073, 1073 (2010).

13. *See generally* W. V. Quine, *In Praise of Observation Sentences*, 90 J. PHIL. 107, 107–10 (1993) (describing the theory-ladenness debate and taking something like an intermediate position).

14. *See* W. V. Quine, *On Empirically Equivalent Systems of the World*, 9 ERKENNTNIS 313, 313–14 (1975) (describing Duhem-Quine holism).

15. "May" and "will" statements, with respect to racial ascriptions, ought to be read as probabilistic. The sentence in the text, for example, should more precisely read "it would be reasonable, when considering a person who subscribes to a theory of race according to which it is primarily composed of skin color and who interacts with a person whose skin color she perceives as dark, to assign a higher subjective probability to that observer's ascribing blackness to the one whom she or he observes than we would otherwise assign, all else being equal." But such writing inflicts far too much pain on the reader.

ancestry, and if she accepts the notion that a single identifiably black ancestor makes the descendant black, then she will ascribe blackness to the son as well.[16]

Now suppose she also subscribes to a theory according to which race is partly a function of behavior, either implicitly—because her mind has been captured by implicit stereotypes and ascribes races in part based on behavior consistent with those stereotypes—or explicitly—as with those trials at least through the early twentieth century which adjudicated the race of litigants in part based on their behavior.[17] And suppose the observed acts in a "white" kind of way. Then our observer has a problem much like that of the chemist: should she allow that observation to undermine her belief in the one-drop rule, or should she allow it to undermine her belief in the relationship between race and behavior?

Of course, she might just decide to accommodate the pull offered by both her theories of race and categorize the one whom she is observing as "multiracial." And that works fine, until we turn her into a survey-taker and give her a form to fill out which was written by a principal investigator whose theories of race or research goals do not accommodate multiraciality. Then she is forced to choose, or perhaps to check multiple boxes and wonder whether the PI will throw out the respondent's data as miscoded.

The penultimate twist in that last example hints at a second dimension of theory-ladenness in social research: the interpretation of observed behavior (in the example, whether the behavior is white-like or black-like) is also theory-laden. A textbook on survey methodology gives a trivial example: the question "do you like football" can be interpreted as referring to liking to watch football, liking to play football, or both.[18] The divergence between the two interpretations—and the possibility of the respondent answering a different question from the one that the researcher meant to ask—arises from the researcher's implicit and understated theory of what the linguistic behavior "yes, I like football" means. This is a quintessential problem of what survey methodologists call "operationalization," or how the concepts of interest in the researcher's head translate into questions on the page.

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    16. Or, in principle, she could ascribe whiteness to the mother. However, for some odd reason, it is hard (for me) to imagine that happening. I cannot say whether this difficulty of imagination represents a fact of the matter about how we apply racial ascriptions in our culture or merely a way in which that culture and/or idiosyncratic effects that apply to me only have distorted my own thinking about the matter. (This difficulty itself should be a lesson: the influence of background ideas about race in the wider culture not only affects our empirical research but also the way we think about that research in an abstracted mode of analysis.).

    17. *See, e.g.*, ANGELA ONWUACHI-WILLIG, ACCORDING TO OUR HEARTS: *RHINELANDER V. RHINELANDER* AND THE LAW OF THE MULTIRACIAL FAMILY 108–16 (2013) (describing a case in which the defendant's behavior was relevant for determining her race); *see also* ARIELA J. GROSS, WHAT BLOOD WON'T TELL: A HISTORY OF RACE ON TRIAL IN AMERICA 48–72 (2008) (giving further cases of race being established in American courts in part by the behavior of the person whose race was at issue).

    18. WILLEM E. SARIS & IRMTRAUD N. GALLHOFER, DESIGN, EVALUATION, AND ANALYSIS OF QUESTIONNAIRES FOR SURVEY RESEARCH 6 (2007).

Moreover, a key insight from feminist philosophy of science is that the theories with which observations are laden are not independent of our social positions.[19] I summarize the point by example. Men and women have access to different knowledge based on their different roles in the world. For example, women know what it is like to be subject to the pervasive threat of gender-based violence in a different way than do men, and for that reason are likely to be more capable of framing research questions to understand the phenomenon. More generally, existing research in male-dominated science is likely to reflect a neglect of the interests and experiences of women, in view of male researchers' lack of access to the first-person experience of those interests and experiences. When women in general, or feminists in particular (those who are motivated in their scientific research by the goal of promoting the equality of women), enter the scientific enterprise, that enterprise improves with respect to the (presumptively neutral) goals of science itself, because the knowledge held by those in the social position of women and the research aims of feminists refocus the inquiry on previously neglected questions as well as reveal previously unnoticed scientific errors.[20] The same points obviously apply to race, suggesting that the research produced by scientists of color ("as ascribed by whom" is an open question) and/or with the aim of advancing racial equality may focus on questions and use approaches heretofore neglected by white scientists (once again, with the source of the ascription left hanging) and those without such an aim.

Broader still, social hierarchies themselves interfere, in a researcher-independent way, in the process of scientific inquiry. For example, some of the socially constructed hierarchical categories with which we operate and into which we contextualize knowledge are themselves distorting influences on the scientific process, because of the way they shape the research questions we ask and the answers we look for.[21]

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19. *See* Alison Wylie, *Why Standpoint Matters*, *in* SCIENCE AND OTHER CULTURES: ISSUES IN PHILOSOPHIES OF SCIENCE AND TECHNOLOGY (Robert Figueroa & Sandra Harding eds., 2003). *See generally* Elizabeth Anderson, *Feminist Epistemology and Philosophy of Science*, STAN. ENCYCLOPEDIA PHIL. §§ 1–2, 9, *available at* http://plato.stanford.edu/archives/fall2012/entries/feminism-epistemology/ (last updated Mar. 16, 2011) (explaining the ideas of situated knowledge and standpoint theory). Note that Wylie distinguishes "locations" and "standpoints," where the former are social positions (being ascribed female gender or black race, for example) and the latter is an enterprise of critical inquiry into social hierarchy (being a feminist or a critical race theorist). *Id.* Both are important.

20. Wylie, *supra* note 19, at 33 ("[S]uch a standpoint may fruitfully raise standards of empirical adequacy for hitherto unexamined presuppositions, expand the range of hypotheses under consideration in ways that ultimately improve explanatory power, and open up new lines of inquiry.").

21. *See, e.g.*, Donna J. Haraway, *In the Beginning Was the Word: The Genesis of Biological Theory*, 6 SIGNS 469, 477–78 (1981) (recounting feminist critique of sociobiological account of sex difference, according to which part of the problem was the hierarchical gender categories into which the research was constructed in the first place); *see* Helen Longino & Ruth Doell, *Body, Bias and Behavior: A Comparative Analysis of Reasoning in Two Areas of Biological Science*, 9 SIGNS 206, 208–10 (1983) (explaining that the selection of facts on which to attend and the conceptual categories into which we organize them are influenced by the wider culture).

Something like the just world fallacy[22] can also operate in science, leading to a bias in favor of the study and confirmation of scientific explanations that support the existing social order, including its unjust hierarchies.[23]   An empirical scientist in a lab or with a dataset and a statistics program cannot simply work aimlessly at crunching numbers and generate knowledge at the end of it.[24]   Rather, scientists start with a hypothesis to be tested, and social science as it is currently constructed has well-known biases toward publishing only research that confirms previously framed hypotheses.[25]   But in a social world constructed in part by unjust hierarchies and driven by just-world biases, researchers—especially those from the socially dominant groups which also dominate the academy—are likely to be consciously or unconsciously motivated to test hypotheses that justify social hierarchies (such as hypotheses that confirm stereotypes about subordinated groups); publication bias is more likely to generate evidence in favor of those hypotheses, all else being equal, because those empirical results which support researchers' hypotheses will be published while disconfirmatory results will not.

The impact of theory-ladenness in racial observation is likely to be broad and substantial. There is substantial evidence that facts about social status are linked to the very act of making racial ascriptions in the first place.[26] The evidence I am about to describe ought to be understood as an instance of theory-ladenness, as it reflects the implicit background theory of what race is in the broader culture. Moreover, it introduces an important form of observer-contingency (that is, bias) to empirical research with racial variables. An observer who is more susceptible to the status contingency of racial classification will, for example, be more likely to blacken a low-status subject and whiten a high-status subject than an observer who is less susceptible.

Sociologists have shown that the same person can be coded by an observer as black or white depending on long-term status cues such as whether that person is incarcerated or free, whether she or he is employed

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22. *See generally* MELVIN LERNER, THE BELIEF IN A JUST WORLD: A FUNDAMENTAL DELUSION (1980).

23. *See* Longino & Doell, *supra* note 21, at 207–08 (1983) (explaining how scientific theories have been driven in part by male motive "to justify their social dominance by appealing to ostensibly natural differences between males and females").

24. Such "data-mining"—essentially running a bunch of regressions at random and taking those that produce results as knowledge—falls prey to problems inherent in the enterprise of significance testing. A conventional significance level of .05 suggests that fully five percent of the correlations such a method turns up will be nothing more than random noise.   As for most of the rest, such correlations will be without any recognizable significance for causal analysis (does X cause Y, Y cause X, or something else cause both?), and mostly useless. *See* Aris Spanos, *Revisiting Data Mining: "Hunting" With or Without a License*, 7 J. ECON. METHODOLOGY 231, 244–46 (2000) (discussing these issues).

25. *See generally* Kay Dickersin, *The Existence of Publication Bias and Risk Factors for Its Occurrence*, 263 J. AM. MED. ASS'N 1385 (1990) (explaining publication bias).

26. For a more detailed presentation of this evidence, see Paul Gowder, *Racial Classification and Ascriptive Injury*, WASH. U. L. REV. (forthcoming 2015).

or unemployed, and whether she or he is on public assistance or not.[27] Within these broad categories, racial observation also conditions on more narrow status differences, such as the status of the observed's employment.[28] Even more broadly, experimental subjects seem to have difficulty making or maintaining racial ascriptions that conflict with status information. For example, it is more difficult for (unknown-ascribed) whites to remember that people who are (according to the researchers, generally ascribed) black in fact have that classification when they are admired and famous.[29]

Not only do observed racial identities vary on chronic status cues, such as employment status, they also vary on acute stimuli like the invocation of status-linked racial stereotypes.[30] When experimental subjects are primed with words like "violent" and "loud," they more readily identify faces as black; when primed with words like "honest" and "smart" they more readily identify faces as white, and the "response conflict" which generated slower identifications with incongruent stereotype priming was measurable at the neurological level.[31] Subjects exposed to hostile or angry faces are more likely to later remember those faces as black, in accordance with violent stereotypes assigned to that racial classification.[32]

It is easy to see how these biases could distort practical research in social science. Consider, for example, a hypothetical "aggression experiment," in which an observer is asked to decide whether the behavior of an experimental subject is hostile or violent: such a decision is likely to be distorted by implicit racial stereotypes associating blacks with violence.

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27. *See* Aliya Saperstein & Andrew M. Penner, *Racial Fluidity and Inequality in the United States*, 118 AM. J. SOC. 676 (2012).

28*. See* Jonathan B. Freeman et al., *Looking the Part: Social Status Cues Shape Race Perception*, 6 PLOS ONE 1, 2 (2011) (varying clothing between janitorial and corporate wear associated with change in other-reported racial ascription); Aliya Saperstein & Aaron Gullickson, *A Mulatto Escape Hatch in the United States? Examining Evidence of U.S. Racial and Social Mobility in the Jim Crow Era*, 50 DEMOGRAPHY 1921, 1935 (2013) (finding that improvements in occupational status were associated with higher probability of being classified as mulatto rather than black in repeat census-taking during the late nineteenth century); Aliya Saperstein et al., *The Criminal Justice System and the Racialization of Perceptions*, 651 ANNALS AM. ACAD. OF POL. & SOC. SCI. 104, 112–16 (2014) (single arrest between two waves of a survey associated with increasing probability of being ascribed blackness by survey interviewers, lower probability of being ascribed Asianness; multiple arrests associated with lower probability of being ascribed whiteness).

29. Jennifer A. Richeson & Sophie Trawalter, *On the Categorization of Admired and Disliked Exemplars of Admired and Disliked Racial Groups*, 89 J. PERSONALITY & SOC. PSYCHOL. 517, 520 (2005).

30. Bruce D. Bartholow & Cheryl L. Dickter, *A Response Conflict Account of the Effects of Stereotypes on Racial Categorization*, 26 SOC. COGNITION 314, 325–29 (2008).

31. *Id.*

32. Joshua M. Ackerman et al., *They All Look the Same to Me (Unless They're Angry): From Out-Group Homogeneity to Out-Group Heterogeneity*, 17 PSYCHOL. SCI. 836 (2006); Kurt Hugenberg & Galen V. Bodenhausen, *Ambiguity in Social Categorization: The Rule of Prejudice and Facial Affect in Race Categorization*, 15 PSYCHOL. SCI. 342, 344–45 (2004); Paul B. Hutchings & Geoffrey Haddock, *Look Black in Anger: The Role of Implicit Prejudice in the Categorization and Perceived Emotional Intensity of Racially Ambiguous Faces*, 44 J. EXPERIMENTAL SOC. PSYCHOL. 1418, 1418 (2008).

Such an observer, for example, may be more likely to ascribe blackness to those whom he sees as aggressive.

Even directly attending to physical characteristics associated with race can be disrupted by status information. Evidence suggests that stereotypes are perceived in clusters: if Alter is observed in association with stereotypical criminal behaviors, or stereotypical lack of education, Ego may perceive or remember her as having more "black" physical features than she otherwise would.[33]

That last example highlights another effect of theory-ladenness in the context of racial observation: observations about properties that are socially associated with race—like physical features—can also be affected by a racial ascription. Return to our hypodescent example. An observer who subscribes to the theory of hypodescent will apply the ascription "black" to lighter-skinned people than will an observer who does not subscribe to hypodescent. Even if she consciously tries to ascribe racial categories purely on skin hue for experimental purposes (e.g., pursuant to the training given to a group of survey-takers by a researcher who is purely concerned with the effect of skin color), the fact that she subscribes (consciously or unconsciously) to the theory of hypodescent might color (as it were) her subsequent hue attribution. Given the evidence that skin color perceptions depend on social status information and other racially associated traits, it is reasonable to worry that, having ascribed black race to a given subject for the purposes of her own intuitions, she may perceive that subject's skin as darker for the purposes of survey reporting.[34]

One might ask whether this makes a difference. To what extent are enough people's races generally ascribed that all these sources of variation are likely to amount to a small degree of random error? Arguably, the same general social forces are operating on all observers—if both the phenotypic and status information available to all observers about a given person are the same, and all observers live in a society with a more or less common folk theory of race, then we might expect those observers to come up with fairly consistent racial ascriptions about the person. However, there is evidence for a substantial amount of inconsistency, at least between self-ascribed race and other-ascribed race.[35] There is some reason to believe

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33. Danny Osborne & Paul G. Davies, *Eyewitness Identifications Are Affected by Stereotypes About a Suspect's Level of Perceived Stereotypicality*, 16 GROUP PROCESSES & INTERGROUP RELS. 1, 2 (2012) (crimes); Avi Ben-Zeev et al., *When an "Educated" Black Man Becomes Lighter in the Mind's Eye: Evidence for a Skin Tone Memory Bias*, SAGE OPEN, Jan.–Mar. 2014, at 1, 3–5, 7, *available at* http://sgo.sagepub.com/content/4/1/2158244013516770.full-text.pdf+html.

34. *Cf.* Ben-Zeev et al., *supra* note 33 (social contingency of observed skin coloration); Osborne & Davies, *supra* note 33 (same); *see also* Otto H. MacLin & Roy S. Malpass, *The Ambiguous Race Face Illusion*, 32 PERCEPTION 249, 250 (2003) (reporting subjects seeing darker skin when exposed to otherwise identical subjects with stereotypically black hairstyles).

35. *See* Melissa R. Herman, *Do You See What I Am? How Observers' Backgrounds Affect Their Perceptions of Multiracial Faces*, 73 SOC. PSYCHOL. Q. 58, 66 (2010) (noting that 45 percent of over 5000 photo views in an experiment showed incongruence between race as ascribed by the viewer and race as ascribed by the one photographed; only 29 percent

that such inconsistency has serious social consequences. For example, Roth argues that there is strong reason to worry about under-identification of discrimination against Latinos, because (1) many people who are ascribed a Latino identity by others on the basis of phenotypic characteristics ascribe white identity to themselves, and (2) there is evidence of discrimination on the basis of those phenotypic characteristics, such as dark skin, that drive this ascriptive incongruity, such that (3) census surveys that rely on self-identification will not identify the observer-contingent racial ascription that may lead to their being the victims of discrimination.[36]

Matters are worse than that, for there is also reason to believe that observers' implicit and culturally generated theories of race may bias the observations of other variables in an empirical research project after the observer generates a racial ascription. Racial stereotypes have been shown to influence interpretive behavior such as the evaluation of evidence in a courtroom.[37] This is yet another reason to worry about the hypothetical "aggression experiment" in the example I gave earlier: our researcher is not only more likely to ascribe blackness to those who behave aggressively but also more likely to interpret the behavior of those whom he or she has identified as black as aggressive.

In one respect, the problem of theory-ladenness in the study of race is worse than that in the natural sciences, for in the latter, there are explicit, shared theories that structure observation. In the empirical study of race, the theories of race that make a difference tend to be implicit and may differ depending on the individual involved. This is likely to make it much harder for consumers and producers of research to take them into account.

In addition to creating *systemic* bias (a general tendency to come up with spurious results, e.g., in which black people are classified as hostile), this can create *local* bias rooted in the variability of observers. Suppose two ethnographers are studying two communities that contain racial conflict. The extent to which each ethnographer interprets the actions of black

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of those photographed were always ascribed a race consistent with their own self-ascription); *see also* Mary E. Campbell & Lisa Troyer, *The Implications of Racial Misclassification by Observers*, 72 AM. SOC. REV. 750, 756–57 (2007) (finding high rate of incongruity between self- and other-ascribed races among self-ascribed Native Americans and, as I read their data, self-ascribed Latinos and multiracial ascriptions, although low rates of incongruity among other classifications). *But see* Simon Cheng & Brian Powell, *Misclassification by Whom? A Comment on Campbell and Troyer (2007)*, 76 AM. SOC. REV. 347, 352–54 (2011) (suggesting that previous result is an artifact of *respondent*-ascriptive inconsistency across multiple survey waves); *see also* Wendy D. Roth, *Racial Mismatch: The Divergence Between Form and Function in Data for Monitoring Racial Discrimination of Hispanics*, 91 SOC. SCI. Q. 1288, 1304–06 (2010) (describing a large amount of inconsistency between subjects' free-form racial self-ascriptions and all of (1) the boxes they checked on the census form, (2) the racial ascription that the observed believed most others attached to them, and (3) the racial ascription initially applied to them by the researcher).

36. Roth, *supra* note 35, at 1290–91, 1299 (white self-identification by other-ascribed Latinos), 1300–02 (skin tone discrimination), 1307 (result that discrimination against Latinos is missed).

37. Galen V. Bodenhausen & Jennifer A. Richeson, *Prejudice, Stereotyping and Discrimination*, *in* ADVANCED SOCIAL PSYCHOLOGY: THE STATE OF THE SCIENCE 360 (Roy F. Baumeister & Eli J. Finkel eds., 2010).

members of that community as hostile or aggressive will depend not only on her shared cultural background theories of race but also on her own susceptibility to implicit stereotypes, including that stereotype which attributes hostility and violence to blacks. An observer who is more susceptible may be more likely, all else being equal, to interpret the behavior of black people as hostile.[38]

Now consider that there are a multitude of observers in any empirical project. There are, of course, the principal investigator and any coauthors, as well as research assistants who carry out the formal interpretation. But there are also those who gather the data, such as survey-takers; those who select subjects based on observation of desired subject characteristics, such as lab assistants in experimental research; those who design sampling strategies in survey research; and those "coders" who ultimately reduce the observations into data sets that can be subjected to statistical analysis. The biases introduced by each step of observation may distort the final result of an empirical study.[39] Even pre-observational steps may introduce bias, for example, through the theories of race held by the designers of experiments and survey instruments, which may not match those held by those who are to carry out the experiments or ask the questions.

So far, the discussion in this Essay has been limited to the ways in which observers may distort both racial ascriptions and observations of other variables that may be linked to racial ascriptions. But we have not yet put the observer and the observed into the same room. Doing so introduces a variety of additional distortions into the research enterprise.

II. OBSERVERS AND OTHER SUBJECT-DISTORTERS

People behave differently when they are observed. All lab experiments in the social sciences come with an implicit caveat with respect to external validity: how people behave under the microscope of an experimenter need not be the same as how they behave in the external world. Similar points apply to survey research, ethnographic research, and all other research in which the researcher and the act of observation are detectable by the subjects of research.[40] Indeed, survey-takers on particularly sensitive issues have developed a toolkit of techniques by which they attempt to ameliorate

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38. As standpoint theorists might suggest, racial observations are also potentially dependent on the racial categories to which observers themselves have been assigned, perhaps even independent of the theories of race which they hold. For example, one study found that self-ascribed white and self-ascribed black interviewers perceived the skin colors of respondents differently. Mark E. Hill, *Race of the Interviewer and Perception of Skin Color: Evidence from the Multi-City Study of Urban Inequality*, 67 AM. SOC. REV. 99 (2002).

39*. Cf.* Longino & Doell, *supra* note 21, at 220 (criticizing research into sex-linked behavior for unquestioningly relying on observations from subjects and parents/teachers of subjects).

40*. See, e.g.*, Margaret D. LeCompte & Judith Preissle Goetz, *Problems of Reliability and Validity in Ethnographic Research*, 52 REV. EDUC. RES. 31, 37 (1982) (explaining that ethnographic research may be distorted "by the investigator's social role within the research site").

the effect of the inhibition respondents can be expected to experience when being asked by a stranger to talk about them.[41]

This partially explains the popularity of things like the measurement of implicit racial attitudes. It is not just because people may not be aware of their own racial attitudes (though that is also true). It is also because measuring explicit racism is quite hard, because people may not to be willing to admit it even when they are aware of it.[42]

But the problem is not limited just to getting people to admit to socially unacceptable things. Sometimes people also change or make up answers to please researchers. In political science, for example, researchers have engaged in much tearing of hair and rending of clothing about the problem of "nonattitudes"—of survey respondents who utter a political belief just because some survey-taker asked them about it, without actually knowing or thinking anything about the topic—and sometimes respondents even can be induced to state opinions on totally fictitious subjects.[43]

Versions of this problem already have been discovered in race research. Roth, after interviewing a number of people who self-identify as multiracial but checked a single race on a form replicating the U.S. Census questionnaire, reports that many expressed the belief that they were being asked to reduce their racial identity to a single dimension, and that the single dimensions expressed were the acceptable monoracial categories in the United States.[44] There is additional evidence consistent with the worry that in a study the self-ascribed race of the observed depends in part on the other-ascribed race of a specific observer, such as a survey-taker.[45]

There are also observer-observed interactions likely to occur as a result of the racial ascription that the observed applies to the observer. The behavior that the observed are willing to exhibit may vary depending on

41. *See generally* Anton J. Nederhof, *Methods of Coping with Social Desirability Bias: A Review*, 15 EUR. J. SOC. PSYCHOL. 263 (1985) (describing techniques used to ameliorate the effect of research subjects' tendencies to tell survey-takers only things that reflect well on the subjects).

42. *See* Anthony G. Greenwald et al., *Understanding and Using the Implicit Association Test: III. Meta-Analysis of Predictive Validity*, 97 J. PERSONALITY & SOC. PSYCHOL. 17, 29–30 (2009) (explaining that "social sensitivity" makes "self-report measures" of racism less reliable than implicit measures because of "impression management"—i.e., because people do not want to look racist, even when they are).

43. *See* Patrick Sturgis & Patten Smith, *Fictitious Issues Revisited: Political Interest, Knowledge, and the Generation of Nonattitudes*, 58 POL. STUD. 66, 66–68 (2010) (reviewing literature).

44. Roth, *supra* note 35, at 1299–1300.

45. Aliya Saperstein & Andrew M. Penner, *Beyond the Looking Glass: Exploring Fluidity in Racial Self-Identification and Interviewer Classification*, 57 SOC. PERSP. 1, 9–13 (2014) (giving results of analysis of multi-wave survey data in which respondents sometimes appear to change their racial self-ascriptions to track other-ascriptions from survey-takers). Although Saperstein and Penner suggest that this is because the survey-takers were capturing the general perception of the community (and it is that community ascription that the respondents were following), it seems equally plausible that at least sometimes the survey-takers signaled the race they ascribed to the respondents, and the respondents tracked that directly.

their perception of the observer's race.[46]   For a trivial example, self-identified whites may be less likely to make explicitly racist remarks in the presence of an experimenter whom they identify as black. In turn, self-ascribed blacks may be less willing to engage in behavior that they believe subject-ascribed white researchers will misinterpret, especially when race is salient.

There are also likely to be unconscious effects rooted in the social significance of race. For example, one study provided evidence that (self-ascribed) black respondents did better on a survey test of political knowledge when interviewed by (respondent-ascribed) blacks, consistent with the standard theory of stereotype threat according to which it is driven by fear of confirming pernicious stereotypes.[47]   Importantly, there was no statistically significant difference in that study in correct answer rates conditional on the self-ascribed races of interviewers, just on the races the respondents ascribed to them.[48]   This emphasizes the fact, stressed throughout this Essay, that changing the agent whose racial ascriptions count for purposes of scientific observation can change the results of a study (the researchers would not have seen any effect had they just relied on interviewers' self-ascriptions), and underlines the urgency of identifying the source of all racial ascriptions in reported research.

One of the most prominent manifestations of this problem is the oft-discussed "race of interviewer effect" in survey research. One study found that subjects of unknown-ascribed blackness were more deferential to interviewers of unknown-ascribed whiteness, and hence more willing to assert both internally inconsistent beliefs and beliefs consistent with a white-advantaging view of the world, a phenomenon which the researcher attributes to a fear of the political and social power of whites.[49]   Similarly, there is evidence that (unknown-ascribed) whites express more "liberal or pro-black opinions" when faced with (unknown-ascribed) black interviewers.[50]   Another study, in the epidemiological context, has found that those solicited for study participation were more likely to participate when interviewed by a person of the same (unknown-ascribed) race.[51]

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46. In the survey literature, this is known as the "race of interviewer effect." *See generally* Darren W. Davis, *The Direction of Race of Interviewer Effects Among African-Americans: Donning the Black Mask*, 41 AM. J. POL. SCI. 309 (1997) (observing change in behavior of unknown-ascribed black subjects to unknown-ascribed white interviewers relative to unknown-ascribed black interviewers).

47. *See* Darren W. Davis & Brian D. Silver, *Stereotype Threat and Race of Interviewer Effects in a Survey on Political Knowledge,* 47 AM. J. POL. SCI. 33, 34 (2003).

48. *Id.* at 40.

49. *See* Davis, *supra* note 46, at 312.

50. Shirley Hatchett & Howard Schuman, *White Respondents and Race-of-Interviewer Effects*, 39 PUB. OPINION Q. 523, 525 (1975).

51. Patricia G Moorman et al., *Participation Rates in a Case-Control Study: The Impact of Age, Race, and Race of Interviewer*, 9 ANNALS EPIDEMIOLOGY 188, 191 (1999).

We also have good reason to worry that implicit attitudes might distort race research due to the interaction between observer and observed.[52] For example, a researcher may unconsciously avoid interacting with a nonwhite subject relative to her interactions with a white subject,[53] or to attend more to seemingly threatening black subjects than to seemingly nonthreatening black subjects.[54] This raises the danger that researcher-ascribed whites and researcher-ascribed blacks may be subject to different experimental treatments due to the effects of implicit attitudes on experimenter behavior.

We can see the dynamics of racially distorted observation particularly vividly by looking under the surface of one particular study. The study in question purported to provide evidence for a race of interviewer effect even in telephone surveys.[55] Such a result seems puzzling: How did the respondent managed to ascribe races to the interviewers without being able to see them? We see our answer when we notice that the writers found a much stronger effect among (unknown-ascribed) white respondents than (unknown-ascribed) black respondents, and that both political scientists and participants were in Alabama in 1982. It seems quite likely that both the ascribed-white respondents and the political scientists shared a common dominant-white-culture theory of race according to which races could be identified in part by verbal cues (read: stereotypes). Accordingly, subjects were able to "correctly" (from the researchers' standpoints) identify the races of those who were interviewing them from their voices alone. The theory-ladenness of racial observation shows up in a study that supports observer/observed effects on the contents of race-linked opinions.

So what are we to do with this mess? I cannot offer any definite prescriptions, but I can offer some opening thoughts.

III. METHODS FOR AND FROM CRITICAL RACE RESEARCH

There are things that researchers can do to attempt to carry out race research responsibly, although none are without costs. Perhaps the most obvious technique to ameliorate many of these problems is the brute force method: statistical controls. Suppose the principal investigator in any empirical project in which race is a variable of interest also administers a demographic questionnaire, plus whatever the current state of the art happens to be for measuring implicit stereotypes and attitudinal biases, to all research staff including herself, before carrying out the project. If psychologists could create such a thing, it also may be advisable to administer an instrument designed to measure the extent to which each member of the research staff subscribes to the various common beliefs

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52. Sixty percent of members of all nonblack racial groups display an implicit preference for whites over blacks. Anthony G. Greenwald & Linda Hamilton Krieger, *Implicit Bias: Scientific Foundations*, 94 CALIF. L. REV. 945, 958 (2006).

53. Bodenhausen & Richeson, *supra* note 37, at 363–64.

54. Jennifer A. Richeson & Sophie Trawalter, *The Threat of Appearing Prejudiced and Race-Based Attentional Biases*, 19 PSYCHOL. SCI. 98, 101 (2008).

55. Patrick R. Cotter et al., *Race-of-Interviewer Effects in Telephone Interviews,* 46 PUB. OPINION Q. 278 (1982).

about what makes someone a member of one race or another (e.g., descent, skin color, behavior). Such a technique would at least make explicit some of the implicit theories of race present in the project, but also may allow them to be statistically reduced. For example, the race and level of implicit bias of survey-takers can be matched to the respondents met by each survey-taker, and then included in a regression to control for the effect of such variables. In effect, this technique would treat the biases of, and ascriptions applied to, participants in the research project as a garden-variety problem of omitted variable bias.

Unfortunately, not all observers can be varied. We cannot control for the biases of a principal investigator, for example, except by replicating that investigator's study with a different investigator, or maybe imperfectly through meta-analysis (which we might imagine as roughly approximating the random assignment of principal investigators to a question). Moreover, the brute force technique carries with it the standard statistical problems attendant on proliferating variables, such as eating up degrees of freedom, and hence imposing more expensive demands on sample sizes.

A third problem with the brute force method is that it requires identifying the race(s) of the observer(s). But I have just spent an entire essay exploring the difficulties of racial observation, difficulties which this method would replicate. Consider that an observer has potentially at least three relevant races: a self-identified and generally externally identified race (or group of races), both of which may consciously or unconsciously affect her behavior toward and perception of the observed, and an observed-attributed race, which may affect the behavior that the observed displays to her. A properly constructed observer-investigation would require obtaining and controlling for all of this information.

The observed-ascribed race would be particularly difficult to track, first because different subjects may ascribe different races to the same observer, and second because doing so is problematic as a survey or experimental question because of the extent to which making racial identification salient in the minds of subjects might distort their behavior in the actual study.[56] In experimental research, asking subjects about the race they ascribe to observers only after the treatment is applied and observations are made is no panacea, because those racial ascriptions may be affected by the experience of the experiment. (Going back to the running "aggression study" hypothetical, experimenters instructed to show hostility toward subjects would be more likely to be identified after the fact as black.)

This would not be so bad if it were possible to truly randomly assign observers to pools of survey respondents and experimental subjects, and that way suppose that any error attributable to such effects would be unbiased. However, the pool of observers is biased toward more high-status and whiter observers who are disproportionately represented on

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56. *See, e.g.,* B. Keith Payne et al., *Best Laid Plans: Effects of Goals on Accessibility Bias and Cognitive Control in Race-Based Misperceptions of Weapons*, 38 J. EXPERIMENTAL SOC. PSYCHOL. 384, 392–93 (2002) (asking experimental subjects to ignore race instead draws attention to race and increases race-based weapon perception bias).

university faculty.[57] Accordingly, it is doubtful that even meta-analysis can sufficiently ameliorate the biased impact of these observer effects.

Perhaps the best ultimate response to this cluster of problems is awareness. Even flawed science is better than no science. Existing studies, which have been subject to all of these effects, have nonetheless given us important empirical traction on and theoretical insights into the social problems surrounding racial hierarchy. By being aware of these effects, however, those on the science-consuming end of the intellectual enterprise can more appropriately determine the credence to be given to any individual study. Researchers also can offer, recognize, and attempt to respond to critiques of any individual study on these lines, explaining, for example, why a study that purports to show some racial difference may lack external validity because of the distorting effect of observer properties, and attempting to replicate that study with different observers.

Awareness, however, is no panacea. Particularly, the effects of implicit bias appear to be resilient to conscious effects to avoid them; accordingly, we cannot guarantee that even the research of those within the critical race theory research program will be free from the consequences of, for example, pernicious observer-observed interaction biases resulting from implicit affective bias. And scientific researchers outside the critical race theory project have shown a remarkable unawareness of the effects of the contingency of their own racial classifications even as they produce papers proving the existence of that contingency for other observers.[58] Accordingly, we must not suppose that we can consciously suppress the observational sequelae of our hierarchical racial culture.

Instead, awareness commands humility. Cognizant of our inability to remove all these sources of bias from our empirical enterprise, we are forced to take seriously the provisional and contingent nature of social-scientific knowledge claims.[59] But that is not a result to be feared, because this also allows critical race philosophy of science to highlight the provisional and contingent nature of the social-scientific knowledge claims

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57. The National Center for Education Statistics reports, as of 2011, that those whom the Center classified as monoracial white occupied almost three quarters of the American postsecondary professoriate. *Digest of Education Statistics, Table 315.20*, NAT'L CENTER FOR EDUC. STATS., http://nces.ed.gov/programs/digest/d13/tables/dt13_315.20.asp (last visited Apr. 23, 2015). However, according to the American Sociological Association, trends in the granting of Ph.D. degrees in the social sciences do show an increasing percentage of scientists of color (as classified by the National Science Foundation). *See Doctoral Recipients by Race/Ethnicity in Selected Disciplines*, AM. SOC. ASS'N, http://www.asanet.org/research/stats/race_ethnicity/doctorate_recipients_80_90_00_06.cfm (last visited Apr. 23, 2015).

58*. See, e.g.*, Bartholow & Dickter, *supra* note 30, at 319, 323 (describing the racial classifications of some of their experimental subjects as "incorrect"—and even excluding them from their data—in the seeming assumption that they had some kind of privileged epistemic access to the true race reflected in the faces they displayed in their experiments, despite the evidence their own research suggested about the contingency of racial observation).

59*. See* LONGINO, *supra* note 9, at 207–08 (explaining that scientific knowledge, understood appropriately in accordance with the recognition of the social nature of scientific inquiry, is "partial," "plural," and "provisional").

of others, and allows critical race scientists to develop alternative empirical conversations that highlight unexamined and ignored dimensions of the problem of racial hierarchy. The role of critical race science in the larger landscape of science is in part to promote a broader conversation which allows voices of color (under the relevant ascriptions) to shed light on truths missed by white (also under the relevant ascriptions) voices.[60]

IV. POSTSCRIPT: A MANIFESTO FOR CRITICAL RACE SCIENCE

When one proposes both to accept the epistemic claims of empirical science and to defend the use of research methods motivated by a political program, one is apt to be misunderstood. Accordingly, I end this Essay with some claims about what science as an enterprise does and some other claims about what scientists who are motivated by critical race theory should do. As a manifesto and a provocation, most of the claims below are not supported by evidence or by very much argument (the fifth is an important exception, for it answers a serious objection to the whole enterprise), but I hope they are appealing. We are duty-bound to pursue both truth and justice and cannot believe that the two are incompatible with one another. The six points that follow are my attempt to think about how our commitment to justice can inform our pursuit of truth, and vice versa.

1. *Empirical science (including social science) does produce real knowledge.*

Nothing in this Essay is meant to deny objective truth nor the ability of science to get us closer to it (although never all the way). Science, even social science, does produce knowledge, in that there are clearly better and worse claims to be made within its domain, based on the evidence it has produced—although, as Longino argues, this truth is "partial," "plural," and "provisional."[61] Scientific knowledge is conversation, not conclusion, but it is conversation that produces genuine progress over time.

2. *If done uncautiously, empirical science can produce error, and that error is likely to advantage the already advantaged.*

This Essay has given examples of the ways that uncautious empirical science can produce error with respect to race, as well as an account of the hierarchical status quo bias of scientific error.

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60. *See id.* at 131–34 (arguing for "a diversity of perspectives" in discourse about scientific propositions); Anderson, *supra* note 19, § 5 (explaining idea of "bias as resource": that science cannot be conducted without bias, so the aim ought to be the introduction of a healthy pluralism of biases to ensure that the research questions motivated by the interests of hierarchically subordinate groups are explored as well as those motivated by the interests of superordinate groups).

61. LONGINO, *supra* note 9, at 207–08.

3. *It is reasonable to think that many of the positive claims of critical race theory are true, and that science done right will be consistent with that.*

There is a wealth of evidence supporting the notion that, at least in American society, racial hierarchy is alive and well, and that those who are ascribed whiteness are advantaged by it relative to others.[62] Accordingly, it makes good sense from the perspective of a rational scientist to expect that future research will further support that notion, and to generate testable hypotheses in accordance with it.

4. *Sound scientific method includes science done by scientists who have been ascribed socially subordinated races, and also includes science motivated by the normative program of critical race theory; the inclusion of these voices will bring science closer to truth.*

I have argued in this Essay that neutral science, at least when it pertains to race, is impossible, and that if race science necessarily begins from a non-neutral epistemic standpoint, then consciously incorporating critical standpoints will at least have the salutary effect of balancing out the biases, making it possible for evidence and interpretation that support those critical standpoints to make it into the scientific discourse as well as evidence and interpretation that support the status quo.

5. *Sound scientific method always must retain the possibility of revealing to investigators that their prior positive beliefs were wrong.*

To defend the introduction of (additional) bias into the scientific process is not to reject the error-checking function of that process. Critical race science, while it will investigate hypotheses designed to support the normative program of critical race theory, must nonetheless honestly investigate those hypotheses, and hold open the possibility of revealing our mistakes. Otherwise, it ceases to be science and becomes propaganda.

To be clear, science cannot directly tell us that our normative views about what constitutes racial justice are false, for those normative views are not subject to empirical scrutiny.[63] But it can tell us that the facts (as best as we can see them) do not justify our evaluations of the world. For example, suppose the best available evidence indicates that people who are ascribed the identity "black" are not subject to employment discrimination. That cannot oblige us to change our view that employment discrimination is wrong, but it can oblige us to change our view that employment discrimination is happening.

This point answers the sharpest challenge to enterprises like critical race science. That challenge was expressed at the symposium that led to this volume by my co-panelist Aya Gruber, who worried that critical race

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62. *See generally* Gowder, *supra* note 26 (citing evidence for racial hierarchy).

63. This is a conventional philosophical claim about the impermissibility of inferring truth claims about morality from truth claims about the empirical world. *See generally* William K. Frankena, *The Naturalistic Fallacy*, 48 MIND 464, 466–67 (1939) (describing Humean view about facts and values).

science (as I conceive of it) is caught between the Scylla of endangering our commitments to justice and the Charybdis of "fiddling" so much with the science that it cannot give us reliable empirical traction on the world. And while I have argued in this Essay that the science comes to us pre-fiddled, that is not a complete answer to Gruber's objection, for critical race science might introduce biases that are more distorting to the truth-finding enterprise than the biases of existing science.

This fifth manifesto item is directed at sketching the bounds of permissible fiddling. The scientific enterprise in general ought to be capable of telling us when we are wrong: we ought not demand that evidence against our views hurdle high epistemic barriers before we conclude that we are mistaken, and science ought to contain research projects which have the potential to generate that evidence. Note that I speak of the scientific enterprise in general. This is important. Individual research studies do not need to be motivated by the goal of finding disconfirmatory evidence for our views. Likewise, critical race science as a whole need not contain studies that are motivated by the goal of finding disconfirmatory evidence. But science as a whole (critical race and otherwise) must carry out studies capable of finding such evidence, that evidence ought to be accessible to critical race theorists, and we ought to be open to believing it if we see it. Furthermore, as honest searchers for truth, we ought to not discount that evidence, and we ought to seek out and draw attention to that among the work of others that undermines our beliefs as readily as we do the work that supports it. The pursuit of social scientific knowledge is different from the briefing of a lawyer before a court.

Thus understood, critical race science—empirical research motivated by the normative program of critical race theory—actually helps the research enterprise as a whole signal to consumers of empirical research their errors, *including critical race theorists*. Return to the example of a moment ago. Suppose some researchers produce evidence suggesting that black folks are not the victims of employment discrimination. In a world in which there is no critical race science, we might have strong reason to be skeptical of such a claim: after all, we know that the scientific enterprise is biased. But in a world with a vibrant critical race science, we would have less reason to reject such evidence, because we would have more reason to know that if countervailing evidence of employment discrimination were out there, it would have been found by the people who think like us and were looking for it. Consequently, critical race science has the paradoxical power of actually making it *easier* for the scientific enterprise as a whole to convince us that we are wrong. This is quite a neat trick: critical race science can both help us prove to others that we are right when we are *in fact* right, *and* help others prove to us that we are wrong when we are *in fact* wrong. It is an unequivocal boon to the struggle to bring belief and reality closer together.

6. *Scientific results are not only the products (in part) of social phenomena but also causal factors for them.*

What people believe affects what they do, and scientific results affect (one likes to think) what people believe. This raises the stakes for scientific research into race, for its conclusions may directly affect the phenomena under study. The diagram below reflects the relationships of influence between social facts about race and scientific conclusions about it.
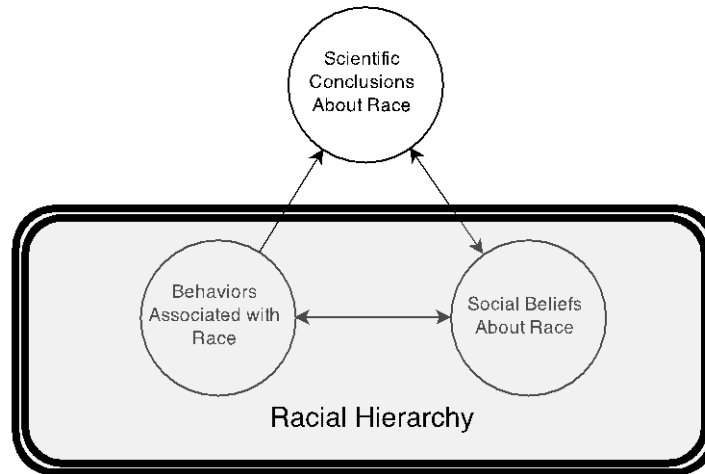
For example, psychologists have argued that one of the ways in which intergroup contact reduces bias is that it encourages people to see the groups in question as less distinct than they had previously thought.[64] If this mechanism can be generalized (and there is no obvious reason to think it cannot), then research that convinces people that there is less difference between people assigned to different racial categories can lead to less racially unjust behavior; to the extent those categories are in fact constructed in part out of hierarchical social facts, that may also undermine the stability of racial categories themselves.

Of course, researchers ought not to tamper with their results in order to achieve such salutary ends; in addition to being unethical, such practices would also be self-defeating, in view of the likelihood that they would undermine the credibility of the research enterprise as a whole. But this does suggest that if there are true facts for critical race social scientists to find, which also, if widely believed, would contribute to racial justice, then the enterprise ought to be preferentially set up to find them.[65]

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64. Natalie R. Hall et al., *Reducing Implicit Prejudice by Blurring Intergroup Boundaries,* 31 BASIC & APPLIED SOC. PSYCHOL. 244, 244 (2009).

65. Here an analogy may be drawn to the notion of statistical power. A scientific study may be flawed not just because it is likely to detect effects that are not there (type I errors), but also because it has insufficient "power" to detect effects that are there, and thus is subject to false negatives (type II errors). I assert that social scientific research on race ought to take

7. *Critical race science is critical of something (injustice), and it is not designed for a world in which there is nothing to be critical of.*

A critical view of any kind presupposes a world of which it is critical, which tends to incorporate the opposite of the thing the critical view proposes. Thus, critical race science is appropriate for a world in which there is racial injustice, and in which existing scientific practices are shaped by and support that injustice. In such a world, normal science has more than enough resources to reveal when we who are committed to racial justice are making mistakes (so long as we are listening) but not enough resources to reveal when those who are not so committed are making mistakes—that is the bias for which critical race science partially compensates. Accordingly, critical race science may not be an appropriate enterprise for a racially just world that naturally produces racially just science. Let us hope one day to reach such a world in which critical race theory, scientific and otherwise, has helped make itself obsolete.

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particular care to avoid type II errors with respect to hypotheses which, if true and believed, can advance the cause of justice.