

Testing the Controversy

An Empirical Examination of Adaptationists' Attitudes Toward Politics and Science

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Abstract Critics of evolutionary psychology and sociobiology have advanced an adaptationists-as-right-wing-conspirators (ARC) hypothesis, suggesting that adaptationists use their research to support a right-wing political agenda. We report the first quantitative test of the ARC hypothesis based on an online survey of political and scientific attitudes among 168 US psychology Ph.D. students, 31 of whom self-identified as adaptationists and 137 others who identified with another non-adaptationist meta-theory. Results indicate that adaptationists are much less politically conservative than typical US citizens and no more politically conservative than non-adaptationist graduate students. Also, contrary to the “adaptationists-as-pseudo-scientists” stereotype, adaptationists endorse more rigorous, progressive, quantitative scientific methods in the study of human behavior than non-adaptationists.

Keywords Adaptationism · Political attitudes · Sociology of science

In the past few decades, the adaptationist perspective has grown increasingly common in the behavioral sciences. Ph.D. programs in evolutionary psychology and behavioral ecology have appeared at several universities across North America, Europe, and Asia, and many other psychology programs have incorporated adaptationist ideas into their course work, research orientation, and graduate student training. Adaptationism has become more mainstream as well, with popular science books on evolutionary psychology appearing on best-seller lists and articles appearing in high-impact journals such as *Science*, *Nature*, and *Behavioral and Brain Sciences*.

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Although applications of the adaptationist paradigm to the social sciences have grown and thrived, critics still find dire faults in adaptationism as a meta-theory and in adaptationists as legitimate scientists. Evolutionary psychology and human behavioral ecology, which have largely developed over the past two decades, have inherited many criticisms formerly lobbed at the sociobiology of the 1970s. The criticisms directed toward adaptationists have hence remained largely unchanged throughout the past three decades and can be divided into two broad categories: (1) Adaptationists' theories and results are strongly influenced by their right-wing political agendas, and (2) adaptationists use improper scientific methods to generate and test hypotheses and, in effect, practice pseudo-science by spinning “just-so stories” from a narrow, doctrinaire version of Darwinian theory. The first criticism could be called the adaptationists-as-right-wing-conspirators (ARC) hypothesis. Although the ARC hypothesis has been assumed to be true for 30 years by several anti-adaptationist critics and is central to academic and popular skepticism about evolutionary psychology, it has never before been tested empirically. Nor has the second charge, that adaptationists are committed to insufficiently rigorous scientific methods, ever been tested by surveying the scientific attitudes and values of adaptationists compared with those of non-adaptationists.

Political Attitudes

Immediately following the publication of Wilson's *Sociobiology: The New Synthesis* (1975), several academics denounced the author for perpetuating the legacies of, among others, social Darwinist Herbert Spencer, union-busting capitalist John D. Rockefeller, and eugenicist Nazis in providing “a genetic justification of the status quo and of existing privileges for certain groups according to class, race or sex” (Allen et al. 1975).¹ This was the first of many criticisms arguing that adaptationists were closet political activists working to scientifically justify a right-wing agenda (for an extensive review, see Segerstrale 2000). Though early sociobiologists vehemently denied that their ideas were politically motivated, their objections often fell upon deaf ears (Segerstrale 2000). The ARC hypothesis remained common despite evidence that several prominent adaptationists (e.g., E. O. Wilson, Robert Trivers, John Maynard Smith) had strong ties to left-wing, rather than right-wing, political agendas in their private lives (Segerstrale 2000:206).

Just as evolutionary psychology (EP) adopted many of sociobiology's theoretical tenets, it also inherited many of its criticisms. For example, Ted Benton argued that “what EP shares with previous Social Darwinisms is its mission to undermine the foundations of the existing social science disciplines. ... [T]his has important moral and political implications” (Benton 2000:216). Dorothy Nelkin claimed that “the appeal of evolutionary psychology is, in part, politically driven” (Nelkin 2000:22). Hilary and Steven Rose stated that often “the political agenda of EP is transparently part of a

¹Somewhat ironically, many members of the religious right object to adaptationism because they view it as a *liberal* conspiracy antithetical to their own worldview (Pinker 2002). In this sense, adaptationists are characterized as holding two sets of diametrically opposed political views, and are simultaneously ostracized by both the political right and left.

right-wing libertarian attack on collectivity, above all the welfare state” (Rose and Rose 2000a:8). Anne Innis Dagg questioned whether evolutionary psychology is “truly scientific if it so readily reflects political rather than academic precepts” (Dagg 2005:ix), and boldly declared that “Darwinian psychologists seem to have a right wing bias. ... They favor the status quo” (Dagg 2005:187).

If adaptationists (i.e., all researchers in the behavioral sciences who use an adaptationist perspective) as a group were homogeneously conservative, as advocates of the ARC hypothesis suggest, then the scientific quality and perceived legitimacy of adaptationist research would be severely undermined. However, the ARC hypothesis is often repeated without any supporting evidence (Kurzban 2001) beyond *ad hominem* insinuation or guilt by historical association (e.g., social Darwinists justified their right-wing political beliefs with evolutionary theory, so modern adaptationists must also be attempting to legitimate right-wing political beliefs because they too use evolutionary theory). Thus, the ARC hypothesis has significant scientific and social implications, but it has never before been tested in any empirical, systematic way.

Scientific Integrity

Although adaptationists’ hypothetical right-wing political agenda paralyzes their scientific integrity in the eyes of many critics, some have suggested that they commit other scientific sins as well. Stephen J. Gould long argued that sociobiologists and evolutionary psychologists ignore the roles of phylogenetic contingency and developmental complexity by identifying every human trait as a selection-optimized adaptation (Gould 1997a,b,c,d, 2000; Gould and Lewontin 1979). Gould and others have further claimed that the adaptationist paradigm is unfalsifiable and that we can never know the exact prehistoric conditions that shaped human evolution or the resulting changes in brain structure (e.g., Benton 2000; Gould and Lewontin 1979; Fausto-Sterling 2000; Rose and Rose 2000b). Some others (e.g., Lewontin et al. 1984; Rose 1997) have suggested that adaptationists are overly reductionist in applying methods from evolutionary biology to overly complex psychological and sociological processes. In essence, critics believe that adaptationists use crippling weak scientific methodology. As Segerstrale (2000) notes, many of these scientific criticisms come from the same individuals who criticize adaptationists for purported political biases.

Adaptationists have voiced strong disagreements with these claims in papers, book reviews, and letters (e.g., Alcock 2000; Dawkins 1985; Dennett 1997; Hagen 2005; Kurzban 2001; Pinker 1997; Wright 1997) and have proactively explored the theoretical and operational issues that adaptationists must deal with (e.g., Andrews et al. 2002; Buss et al. 1998; Conway and Schaller 2002; Holcomb 1998; Ketelaar and Ellis 2000; Tooby and Cosmides 1992). The copious literature debating the scientific integrity of adaptationism suggests that adaptationists and non-adaptationists may have fundamentally different perspectives on the nature and practice of science as applied to human behavior and psychology. Indeed, Segerstrale (2000) suggests that most of the debate between adaptationists and their critics is simply a disagreement about what constitutes “good science.” Yet, almost nothing is known

empirically about the basic scientific attitudes and values of adaptationist versus non-adaptationist behavioral scientists.

Although adaptationists and their critics have dedicated large amounts of time and energy to supporting and refuting the ARC hypothesis (Kurzban 2001), neither camp has progressed the debate beyond its current stagnant state by empirically testing any of the key assumptions or predictions of the ARC hypothesis. Testing the ARC hypothesis may not only decrease the necessity of continuous argument based on intuition rather than data, it may also reveal important facts about adaptationists. If adaptationists truly do favor the political right, it may be important to conduct further tests to see if this political preference affects their hypotheses and results. Alternatively, if adaptationists do not favor the political right, the combination of contradictory evidence and denial from adaptationists should encourage critics to hesitate advocating the ARC hypothesis in the future.

Methods

Adaptationists' political and scientific attitudes could be measured in several possible fields that study social behavior (e.g., psychology, biology, anthropology), at several different levels of academic experience and commitment (e.g., faculty, graduate students, undergraduates, lay people), and in several different countries. Because many contemporary advocates of the ARC hypothesis have specifically singled out evolutionary psychology rather than human behavioral ecology or evolutionary biology, we chose to survey psychologists. Although a survey of adaptationist psychology professors would optimally test the ARC hypothesis, the logistical difficulties in gathering a sufficiently large number of such participants willing to participate in such a study renders this method infeasible. We instead chose to focus on psychology graduate students because they are more numerous than faculty and more concentrated within a few Ph.D. programs that offer an adaptationist training, yet, more so than undergraduates and lay people, they have demonstrated knowledge of and commitment to the field. We also focused on psychology Ph.D. programs within the USA to avoid the potential difficulties in standardizing political attitude questions across several cultures and languages. Therefore, we surveyed psychology Ph.D. students at six US universities that have adaptationist training programs. We circulated a recruitment email through electronic graduate student listservs at the six universities in late April and early May of 2005. The email asked participants to complete an online survey aimed at measuring graduate students' attitudes toward political issues and scientific methods. To reduce the likelihood of the study being associated with adaptationism—and perhaps encourage adaptationists to self-present differently than non-adaptationists—the email did not mention evolutionary psychology, sociobiology, adaptationism, or the motivation behind the study. Also, Geoffrey Miller and Steven Gangestad (the second and third authors of this paper, and two psychologists whose research is known as adaptationist) were not mentioned in the recruitment email or the questionnaire. Rather, Joshua Tybur (the first author and an unpublished, first-year graduate student at the time) and Michael Dougher (a professor of clinical psychology at the University of New Mexico whose

research is not known as adaptationist and who agreed to assist in this way) were listed as the study's investigators.

Questionnaire

We constructed a 16-item instrument to measure attitudes toward politically relevant social and economic issues (see Table 1 for a list of the items). We were mindful of the possibility that item wording might bias responses toward either the liberal or conservative end of the scale. So as not to bias results against the ARC hypothesis, we designed the items to be slightly biased (if at all) toward encouraging responses that appear politically conservative (e.g., instead of asking participants their degree of agreement or disagreement with the statement “Women have the right to have an abortion,” we used “The government should have no say in when or if a woman can have an abortion”; instead of the statement “Marijuana should be decriminalized,” we used “It should be legal for adults to grow, smoke, and sell marijuana”). In addition, we asked participants which 2004 US presidential candidate they supported and which US political party they primarily identify with.

We also constructed a 16-item instrument to measure attitudes toward the use of scientific methods in the behavioral sciences. These items concerned general attitudes toward scientific methods, progress, bias, and honesty, and were designed to make sense to a diverse sample of psychology Ph.D. students. We did not include items concerning specific criticisms of adaptationist research (e.g., charges of Panglossianism, genetic determinism, just-so storytelling, unfalsifiability), because non-adaptationists are largely ignorant of such criticisms, and adaptationists are predictably skeptical of their validity. Also, asking such questions of adaptationists would have made their meta-theory especially salient and might have led them to self-present differently with regard to political and scientific attitudes. Items that addressed scientific bias and dishonesty were included to see if adaptationists, who often study controversial issues such as jealousy, rape, and infanticide, are less likely to infer personal motives and biases in research than non-adaptationists. Finally, we asked participants to report their age, sex, school of attendance, and primary meta-theoretical perspective within psychology (i.e., evolutionary, behaviorist, cognitive, developmental systems, psychoanalytic, social learning, or other).

Participants

A total of 180 participants completed at least part of the survey. After excluding 12 inappropriate participants (eleven who reported not being enrolled in graduate school, and one who reported not being enrolled in one of the six departments surveyed), we had 168 participants (69% female) with a mean age of 27.95 (SD=5.1). Participants were organized into two groups based on how they answered the question “What is your primary meta-theoretical approach?” The 31 participants who selected “evolutionary” were treated as adaptationists, and the remaining 137 participants who selected a different perspective were treated as non-adaptationists. The two groups did not differ in sex ratio, $\chi^2_{2, N=168}=0.406, p=0.524$ (adaptationists 64.5% female, non-adaptationists 70.4% female) or age, $t_{164}=1.16, p=0.248$ (adaptationist mean=26.97, non-adaptationist mean=28.17).

Table 1 Adaptationists' scores on political attitude items

Item	Mean	Con/ Lib	Factor	Factor loading
What best describes your position on social issues?	2.00***	0:31***	Individual rights	0.719
Homosexuals should have the same marriage rights as heterosexuals	2.55***	1:30***	Individual rights	0.852
It should be legal for adults to grow, sell, and smoke marijuana	0.94**	5:19**	Individual rights	0.415
The government should take steps to increase the separation of church and state	2.16***	2:28***	Individual rights	0.696
The government should have no say in when or if a woman can have an abortion	2.03***	3:26***	Individual rights	0.551
Religion is an important part of my life (reverse)	1.84***	6:23**	Individual rights	0.650
What best describes your position on economic issues?	0.55*	6:17*	Political compassion	0.584
People have a responsibility to act in environmentally friendly ways	2.13***	1:29***	Political compassion	0.574
The government has the right to engage in preemptive military action against another country if it feels the country poses a security threat (reverse)	0.74**	6:17*	Political compassion	0.478
The US government should provide universal health care to its citizens	1.52***	2:25***	Political compassion	0.830
The minimum wage should be raised significantly	0.68*	5:17*	Political compassion	0.710
I'm in favor of a flat tax in which everyone pays the same percentage of their income in taxes, regardless of how much money they make (reverse)	0.97**	8:19*	Wealth redistribution	0.513
I'd be in favor of significantly cutting the federal income tax (reverse)	1.10**	6:21**	Wealth redistribution	0.769
High taxes are okay because our society requires a large amount of government spending	0.29	9:15	Wealth redistribution	0.551
The federal government is unacceptably inefficient when it comes to finances (reverse)	-1.06***	19:5**	Wealth redistribution	0.421
I'm in favor of privatizing social security (reverse)	1.13***	3:18**	Wealth redistribution	0.351
Composite scores				
Individual rights	1.91***	1:30***		
Political compassion	1.13***	4:26***		
Wealth redistribution	0.48*	8:21*		

For items 1 and 7, 3 is "extremely liberal" and -3 is "extremely conservative." For all other items, 3 is "strongly agree" and -3 is "strongly disagree." Significance levels were calculated using two-tailed one-sample *t* tests with a test value of 0, the midpoint of the scale. Con/Lib (ratio of conservative responses to liberal ones) was derived by treating scores in the midpoint as missing data and computing the ratio of conservative scores to positive ones. Significance levels were calculated with one-sample χ^2 tests with a predicted proportion of $P=0.50$.

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

Methods of Comparison

Although we recruited non-adaptationists primarily as a comparison group for the attitudes toward science items (we also considered that solely recruiting adaptation-

ists may have made salient their meta-theoretical orientation and perhaps encouraged them to self-present differently), we can compare the two groups on their political attitudes and party/candidate preferences. The comparison between these adaptationist and non-adaptationist graduate students is not an optimal test of the ARC hypothesis because the ARC hypothesis does not specify that adaptationists are more politically conservative than their fellow academics—only that they are politically conservative in general. Academic psychologists—and presumably graduate students—tend to be quite liberal (Redding 2001), so finding that adaptationists are more conservative than their graduate student colleagues would lend weak support at best to the ARC hypothesis, as most groups in the USA would likely appear conservative in comparison. As intended, the non-adaptationist graduate students serve only as the comparison group on the attitudes toward science items.

A more appropriate test of the ARC hypothesis is a comparison of adaptationists' responses with those of the US public. We know the rates at which US voters selected candidates in the 2004 presidential election and the proportion of US citizens who identify with the major political parties, and we can compare these data with what adaptationists in our sample reported. Also, assuming our measures correspond sufficiently well with a liberal-conservative political spectrum, we can use one-sample *t* tests to compare adaptationists' responses with the midpoint of the item scales. This seems to be a reasonably valid method of comparing adaptationists' opinions on the individual items with those of the general US public, since most of the items on our scale are culturally divisive and generally supported by approximately half the population (see <http://www.pollingreport.com> for a list of public opinion polls on related issues).

Results

Political Party and Candidate Preference

Of the 168 participants, 17 identified with the Green party, 103 identified with the Democratic party, 10 identified with the Libertarian party, 13 identified with the Republican party, and 25 reported being politically independent or identified with another party. For the purposes of this analysis, we compared the proportions of adaptationists and non-adaptationists who identify with a conservative political party. Because Libertarians are strongly liberal on some issues and strongly conservative on others, we ran two analyses: one measuring the proportion of participants who are Republican and another measuring the proportion of participants who are Republican or Libertarian. Reported *p* values were derived from two-tailed Fisher's exact tests. None of the 31 adaptationists and 13 of the 137 non-adaptationists (11.2%) identified with the Republican party, $p=0.130$. Two of the 31 adaptationists (6.5%) and 21 of the 137 non-adaptationists (18.1%) identified with Republicans or Libertarians, $p=0.256$. Neither test revealed statistically significant group differences in party identification.

Of the 168 participants, 1 preferred Libertarian Michael Badnarik, 12 preferred Republican George W. Bush, 119 preferred Democrat John Kerry, 10 preferred Independent (and former Green party candidate) Ralph Nader, and 26 preferred another candidate or none of the candidates. We conducted the same Fisher's

exact tests on reported preference for conservatism in the 2004 US presidential candidate (i.e., one test grouping those who preferred Bush against all others and another test grouping those who preferred Bush or Badnarik against all others). None of the 31 adaptationists and 12 the 137 non-adaptationists (8.6%) preferred George Bush, $p=0.126$. One of the 31 adaptationists (3.2%) preferred Bush or Badnarik, compared with 12 of the 137 non-adaptationists (8.6%), $p=0.466$. Again, neither test revealed a statistically significant group difference between adaptationist and non-adaptationist psychology graduate students.

One-sample chi-square tests were conducted to assess whether adaptationists identified as Republican or Republican/Libertarian and supported Bush or Bush/Badnarik at a rate different than the American public in the 2004 presidential election. A random sample of 2,000 adults in the USA indicates that approximately 30% of citizens identify as Republicans (Pew Research Center for The People and The Press 2005). The survey did not report Libertarian identification, so we will use the 30% figure for both comparisons. Contrary to the ARC hypothesis's prediction, the proportion of adaptationists who identify as Republican ($P=0$) was significantly lower than that of the US public ($P=0.30$), $\chi^2_{1, N=31}=13.29$, $p<0.001$. Adaptationists also identified as Libertarian or Republican ($P=0.065$) less often than the US public identified as Republican alone ($P=0.30$), $\chi^2_{1, N=31}=8.19$, $p<0.01$. Also contrary to the ARC hypothesis's prediction, the proportion of adaptationists who favored Bush ($P=0$) was lower than the hypothesized proportion based on the popular vote ($P=0.507$), $\chi^2_{1, N=31}=31.88$, $p<0.000001$. The proportion of adaptationists who favored Bush/Badnarik ($P=0.032$) was also lower than the hypothesized proportion based on the popular vote ($P=0.511$), $\chi^2_{1, N=31}=28.43$, $p<0.000001$.

Political Attitude Items

Adaptationists' mean scores were significantly different from the midpoint on 15 of the 16 political attitude items (scored on a seven point, -3 to 3 Likert-type scale) and were in the liberal direction on 14 of those 15 items (See Table 1). The proportion of adaptationists who scored on any of the three conservative points (-1 , -2 , or -3) on the scale was also significantly different than $P=0.50$ on 15 of the 16 items and was more than $P=0.50$ on only one item: "The federal government is unacceptably inefficient when it comes to finances" (the same item in which the mean was significantly more "conservative" than the midpoint of the scale).

Half of the 16 political attitudes items concerned social policy, and the other half concerned economic policy. To identify clusters of covarying items, we conducted a principal axis factor analysis on item responses. The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.828, indicating that the individual items shared a large amount of common variance. The scree plot revealed three factors with eigenvalues of 5.4, 1.9, and 1.6, which accounted for 33.8, 11.9, and 10.0% of the total variance, respectively. These three factors were then rotated using Direct Oblimin criteria to allow for correlated factors. The resulting pattern matrix indicated that each of the 16 items loaded at least 0.3 on one of the three factors, which represented: (1) belief in individual rights (6 items; e.g., "The government should have no say in when or if a woman can have an abortion"), (2) political compassion (5 items; e.g., "The US government should provide universal health care to its citizens"), and (3) wealth

redistribution (5 items; e.g., “I’m in favor of a flat tax in which everyone pays the same percentage of their income” [reversed]). We averaged across items within each factor to create factor composite scores for each participant, which ranged from -3 (most conservative) to 3 (most liberal). The composite scores showed sufficient internal reliability: $\alpha=0.80, 0.79,$ and $0.72,$ respectively. Belief in individual rights correlated with political compassion, $r=0.368, p<0.001,$ and wealth redistribution, $r=0.421, p<0.001.$ Political compassion correlated with wealth redistribution, $r=0.391, p<0.001.$

The measures appear to possess reasonable construct validity. Participants who identify most with the Green party scored most liberal on all three factors (2.21, 1.77, and 0.91, respectively); Democrats scored the second most liberal on all three factors (1.77, 1.51, and 0.74, respectively); Libertarians scored as liberal on belief in individual rights (1.70) but more conservatively on the other two factors (0.40 on political compassion and -0.80 on wealth redistribution); Republicans scored conservatively on all three factors ($-0.75, -0.23,$ and $-0.75,$ respectively). Adaptationist means were above the midpoint on all three composites (1.91, 1.31, and 0.48, respectively). The proportion of adaptationists who scored on the conservative side of the seven-point scale was below a proportion of $P=0.50$ on all three (see Table 1).

Graduate Students’ Political Attitudes as a Function of Adaptationism

One-way ANOVA indicated that graduate students using non-adaptationist meta-theory did not differ from each other across political attitude factors, with F scores ranging from 0.14 to 1.36. Thus we grouped all non-adaptationists as the only comparison group instead of conducting several pairwise comparisons. Independent-samples t tests were conducted to evaluate differences between adaptationists and non-adaptationists. The groups differed on belief in individual rights,² $t_{67}=2.71, p<0.01;$ adaptationists ($M=1.92, SD=0.80$) reported more liberal attitudes than non-adaptationists ($M=1.44, SD=1.24$). The groups did not significantly differ on political compassion, $t_{165}=-0.98, p=0.331$ or wealth redistribution, $t_{165}=-0.08, p=0.934.$

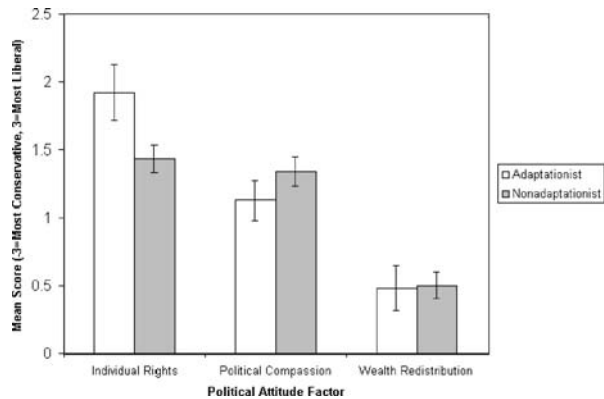
We note that although the item “Religion is an important part of my life” loaded on the belief-in-individual-rights factor, it may seem to have less to do with political attitudes than the other items loading on that factor. We recalculated the belief-in-individual-rights measure with that item removed and reran the analysis. Adaptationists ($M=1.94, SD=0.71$) still scored more liberally than non-adaptationists ($M=1.58, SD=1.24$), $t_{77}=2.14, p<0.05.$ Figure 1 illustrates these comparisons.

Scientific Methods Scales

We conducted an exploratory factor analysis on the 16-item scientific attitudes scale using principal axis factoring. The Kaiser-Meyer-Olkin measure of sampling

²Levene’s test for equality of variances indicated that the two groups violated homogeneity of variance assumptions, $F=4.18, p<0.05.$ We conducted the t test assuming heterogeneity of variance and used the appropriate adjusted degrees of freedom. The test was also significant if we assume homogeneous variance, $t_{166}=2.07, p<0.05.$

Fig. 1 Political attitude factor scores of adaptationist and non-adaptationist graduate students. Although scale responses range from -3 (most conservative) to $+3$ (most liberal), the group means are well above the midpoint of the scale and the figure is appropriately truncated



adequacy was sufficiently high (0.807). The scree plot indicated the presence of two factors with eigenvalues of 4.52 and 2.02, which accounted for 28.23 and 12.62% of the total variance, respectively. We extracted two factors and rotated them using Direct Oblimin criteria, allowing the two factors to correlate. The resulting pattern matrix indicated that 12 of the 16 items loaded at least 0.3 on one of the two factors. Seven items loaded onto the first factor, which represented the degree to which participants believe that strong scientific methods are essential for an accurate understanding of the world (e.g., “Scientific methods are the only legitimate tools for making reliable inferences about the world”). The remaining five items loaded onto the second factor, which represented the degree to which participants believe that scientists are inherently biased and dishonest (e.g., “Scientific researchers often manipulate their results to support their ideas”; see the [Appendix](#) for a list of the items on each factor). We averaged across items within each factor to create factor composite scores for each participant. Both scales ranged from -3 to 3 . For the first factor, -3 represented minimum belief in strong scientific methods as a means of knowing and 3 represented maximum belief. For the second factor, -3 represented minimum suspicion toward scientific integrity and 3 represented maximum suspicion. Both factors demonstrated sufficient internal reliability, both $\alpha=0.77$. The two factors were negatively correlated, $r=-0.366$, $p<0.001$. Endorsement of strong science correlated with liberal beliefs in individual rights, $r=0.370$, $p<0.001$, and with wealth redistribution, $r=0.210$, $p<0.001$. Skepticism toward scientific integrity was not significantly correlated with any political factor.

Independent-samples t tests were conducted to compare the scientific attitudes of adaptationists with those of non-adaptationists. The groups differed on endorsement of strong science, $t_{166}=5.73$, $p<0.0001$, and on skepticism toward the objectivity of scientists, $t_{166}=2.63$, $p<0.01$. Adaptationists ($M=1.72$, $SD=0.92$) endorsed strong science as a way of knowing more than non-adaptationists ($M=0.61$, $SD=0.99$), and adaptationists were less skeptical of the objectivity of scientists ($M=-0.65$, $SD=1.18$) than non-adaptationists ($M=-0.06$, $SD=1.12$).

Discussion

If adaptationists do in fact use their research as a proxy for their right-wing political beliefs, as the ARC hypothesis suggests, then we should find some evidence that their political beliefs differ from those of average US citizens. Contrary to the ARC hypothesis, our survey indicated that US evolutionary psychology Ph.D. students score much more *liberally* than average Americans on our political attitude measures, which included political party preference, presidential candidate preference, and views on diverse, controversial political issues ranging from individual rights issues through compassion issues and economic policy. On several items (i.e., political party identification, presidential candidate preference, self-identified general political ideology), none of the adaptationists in our sample scored conservatively, which stands in stark contrast to the ARC hypothesis prediction that virtually 100% should have.

Even within the same Ph.D. programs, adaptationists were at least as liberal as their non-adaptationist graduate student colleagues. There were no significant group differences between adaptationists and non-adaptationists with respect to political party identification, presidential candidate preference, or two of the three political attitudes factors. The only exception was that, contrary to the ARC hypothesis, adaptationists were more liberal than non-adaptationists on beliefs regarding individual rights, even after removing a potentially biasing religion item. Although we hesitate to invoke the null hypothesis on the tests that revealed no differences between the two groups, we believe we had enough power to detect such differences given the large effect sizes predicted by the ARC hypothesis. If adaptationists are actually a single standard deviation more conservative, as seems a reasonable prediction given psychologists' liberal reputation (Redding 2001) and ARC hypothesis proponents' certainty of adaptationists' extreme conservatism, our sample size would have given us an approximately 99% chance of detecting this effect. If our goal was to find that adaptationists are conservatively biased, then young liberal academics would seem to be an ideal comparison group. After all, of the *non-adaptationists* in our sample, less than 10% supported Bush in the 2004 election, which stands in stark contrast with the 51% of Americans who voted for him. Nevertheless, adaptationists were at least as liberal as comparable non-adaptationists on every measure. The manner in which we constructed the political attitude items and selected the comparison groups was very generous to the ARC hypothesis, and our results speak strongly to its inaccuracy.

Advocates of the ARC hypothesis often paint adaptationists as generally conservative and blindly supportive of the “status quo” with regard to relations between sexes, races, classes, and cultures. Our results suggest this is incorrect for two reasons. First, many of our items did concern support for existing sociopolitical arrangements. Most adaptationists supported gay marriage rights, drug legalization, stronger separation of church and state, socialized health care, and an increased minimum wage—all significant changes from current US laws and customs. Their antipathy to the status quo was apparent across all three of our political attitudes

factors. Second, it seems reasonable to generalize from responses to these specific items to other possible attitude items that would tap into the same viewpoints. We did not specifically ask adaptationists whether they sought to “attack. ... the welfare state” (as alleged by Rose and Rose 2000a), but it seems likely that most individuals who vote Democratic and support gay marriage, abortion rights, socialized medicine, environmentalism, and progressive taxation do not seek to dismantle the welfare state. Of course, we can’t rule out that adaptationists’ political attitudes are not conservative across *all* domains. Future research could address specific issues that were not included in our measures.

Charges that adaptationists are politically conservative are especially potent and daunting in the behavioral sciences because liberalism is the dominant culture norm in those sciences (Redding 2001). We have not demonstrated that adaptationist Ph.D. students are liberal on every possible political attitude item, but the general consistency of their responses suggests that their attitudes are in line with those of other members of the behavioral sciences community. This may be an important and relevant finding for non-adaptationist behavioral scientists who are hesitant to accept adaptationist meta-theory because of its alleged conservative biases.

With regard to scientific attitudes, compared with non-adaptationists, adaptationists showed greater interest in using strong scientific methods to try to understand how the world works and less suspicion of dishonesty in the scientific community. This confirms Segerstrale’s (2000) view that the two groups hold quite different views about the scope, progressiveness, objectivity, consilience, and policy-relevance of science. Although this does not necessarily indicate that adaptationists are better scientists than non-adaptationists—perhaps adaptationists are scientifically overzealous and naïve—it does suggest that they expect psychology to emulate the cumulative theoretical progress and methodological sophistication of “harder” sciences like evolutionary biology. We see confirmatory evidence in the writings of both adaptationists (e.g., Pinker 2002; Tooby and Cosmides 1992) and critics of adaptationists (e.g., Rose 1997).

Our data were collected with a non-random sampling technique, and therefore we must consider issues associated with self-selection biases. Conceivably, potential participants’ political attitudes may have influenced their decision to participate or not. Although this could have affected the observed differences between graduate students’ attitudes and those of the US populace, we doubt such effects have influenced our data much; indeed, the graduate students’ attitudes in this sample correspond with what one would expect from previous observations (see Redding 2001). One could also conceivably suggest that response rates of conservative graduate students varied across meta-theory. We have no theoretical or empirical reason to believe that this is the case, and we intentionally kept the intentions of the study vague to avoid this problem.

Perhaps more importantly, we must consider issues related to external validity. Our study is limited by the restricted sample of young academics in six major US universities with evolutionary psychology Ph.D. training programs, and we cannot say with certainty that graduate students at these programs are representative of all adaptationists. Although future research could investigate adaptationists’ political attitudes as a function of academic seniority (e.g., survey undergraduates, graduate students, and professors), we believe that these endeavors would produce similar

results. It seems unlikely that such a liberal group of graduate students would tolerate working with, being advised by, and publishing with professors characterized by the level of radical conservatism suggested by the ARC hypothesis. However, further research would be useful in studying whether undergraduate students' political attitudes shift as a result of taking evolutionary psychology classes—or whether such classes attract disproportionately conservative or liberal students.

Although the sample size of 31 adaptationists may seem somewhat small, it is important to consider it in relation to the modest total number of such students currently being trained in the USA. The Human Behavior and Evolution Society (HBES) annual conference—the main regular meeting for evolutionary psychology—typically attracts approximately 500 researchers, of which about one-quarter (ca. 125) are US graduate students, and about half of those (ca. 60) are from psychology. According to program websites as of March 2006, the numbers of graduate students currently enrolled at the leading US evolutionary psychology Ph.D. training programs, were approximately as follows: University of New Mexico (10), University of Texas at Austin (8), State University of New York at Albany (7), University of Pennsylvania (7), University of California at Santa Barbara (6), University of Arizona (6), Arizona State University (5), and Florida Atlantic University (5)—totaling 54. Graduate students working with more isolated faculty at other institutions might double this number, but our sample size nonetheless represents a reasonable proportion of all current evolutionary psychology Ph.D. students in the USA.

It's possible that, if we had surveyed all adaptationist graduate students in the USA, we would have found some right-wing individuals. Indeed, as Plotkin (2004:149–150) suggests, there are probably radical right-wing adaptationists in the world, just as there are radical right-wing academics who use other meta-theories. Herein lies a critical weakness behind the ARC hypothesis (e.g., Allen et al. 1975; Dagg 2005; Rose and Rose 2000b): the assumption that adaptationists can be homogenized into a single group that practices “bad” science or pushes a reactionary conservative political agenda. Adaptationists come in many different shapes and sizes; they have different research interests, perspectives on scientific methodology, political beliefs, and even ways of generating and testing adaptationist hypotheses.

The ARC hypothesis may have failed because it attempts to homogenize a diverse group based on perceived political conservatism in the works of a few. However, it is important to note that the ARC hypothesis may also be misguided in attributing political conservatism to those prominent adaptationists who are most often criticized. Our study cannot speak to the political or scientific attitudes of oft-criticized adaptationists, such as E. O. Wilson, David Buss, Richard Dawkins, Martin Daly, Margo Wilson, and Steven Pinker, but we could find no evidence from their books, papers, or talks suggesting that they are any more politically conservative than the graduate students in this sample. Moreover, our evidence suggests that, if we were forced to homogenize adaptationists into one political perspective, we would characterize them as homogeneously liberal rather than conservative. Of course, we avoid suggesting that *all* adaptationists are liberal, but our observations do suggest that adaptationists cluster at the left end of the political spectrum.

Naturally, adaptationists' research should not be viewed as biased toward liberalism simply because adaptationists seem to hold liberal political beliefs. If

we had found that adaptationists are politically conservative, we would still question the claim that their research is affected by political ideology until empirical investigation confirmed that. Similarly, we would need strong evidence that the integrity of adaptationists' research is compromised by potential liberal biases in their political views before invoking such a claim. We know of no such evidence; in fact, the very existence of the ARC hypothesis suggests that adaptationists have done a good job of conducting research without liberal overtones.

Several researchers (e.g., Hagen 2005; Kurzban 2001; Kurzban and Haselton 2005; Segerstrale 2000) have suggested that the scientific community has missed out on adaptationism's potentially valuable insights into the social sciences because of a perceived right-wing bias and scientific inadequacy in its practitioners. This study offers two findings that may potentially allay such concerns. The utter lack of empirical support for the ARC hypothesis in this study—indeed the multiple test results in the opposite direction—suggests that it should be abandoned, and that ARC-derived skepticism toward adaptationists should be relaxed. The ideological differences between adaptationists and non-adaptationists concern science rather than politics, as both groups appear equally, extremely liberal. Adaptationists appear to have different views on how scientific hypotheses should be constructed, tested, and evaluated; based on the theoretical tenets of the perspective, they want the human behavioral sciences to emulate the cumulative scientific progress and cross-disciplinary consilience of evolutionary biology. Perhaps a more accurate understanding of these differences can improve future communications between adaptationists and their critics.

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Appendix: Attitudes Toward Science Items

Factor 1

- Science is the best tool for understanding how the world works.
- Certain aspects of the human condition (e.g., love, hate, jealousy) will never be adequately understood with science alone (reverse).
- To understand human behavior accurately, quantitative methods are almost always better than qualitative ones.
- Scientific progress effectively weeds out bad theories and generates good ones.
- Scientific methods are the only legitimate tools for making reliable inferences about the world.
- Many aspects of human nature are irreducible and outside the scope of contemporary scientific inquiry (reverse).
- We must use strong scientific methods to truly understand social problems like racism, sexism, and sexual assault.

Factor 2

- Scientific researchers are inherently biased, and effects of their ideological motives should be critically considered.
- Scientists overestimate the degree to which they understand the world.
- Science is often used as an excuse to support the status quo.
- Scientific researchers often manipulate their results to support their ideas.
- Many academic papers reflect how the author wishes the world was rather than how it actually is.

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