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Verbal ability as a predictor of political preferences in the United States, 1974–2012

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ABSTRACT

The relationship between cognitive ability and stated political preferences in the United States is examined with data from the General Social Survey, which includes a brief vocabulary test (Wordsum) as a measure of verbal ability. Since the 1970s, liberal and conservative self-identification became increasingly identified with the Democratic and Republican parties, respectively. Liberal self-identification has increasingly been related to higher Wordsum scores since the 1970s, but liberal-conservative differences rarely exceed the equivalent of 3 IQ points. Among Whites, those identifying themselves as "moderate" or "independent" have lower average Wordsum scores than those with stated ideological or political party preferences, contrary to the hypothesis that higher intelligence is related to less extreme political positions. The relationship between Wordsum and Democratic Party affiliation has moved from negative to neutral since the 1970s. In presidential elections, the most consistent finding is that voters scored substantially higher than non-voters. Those voting for the Democratic candidate had higher average scores than those voting for his Republican opponent since 2000. In regression models that control for demographics, higher Wordsum scores are associated with liberal self-identification but not with political party preferences. In conclusion, higher vocabulary scores are associated with a greater likelihood that people place themselves on the ideological and political spectrum and that they vote in presidential elections, but have only small relationships with liberal-versus-conservative self-identification.

1. Introduction

A large literature has investigated relationships of intelligence with constructs such as social conservatism, right-wing authoritarianism or social dominance orientation, which are measured with specially designed scales. A frequent result of this research in the United States, Britain and Australia is a relationship of more conservative or authoritarian attitudes with lower cognitive ability. These studies used a variety of cognitive measures including vocabulary tests (Kanazawa, 2010), SAT scores (Stankov, 2009), the British Ability Scales (Deary, Batty, & Gale, 2008), general ability tests (Schoon, Cheng, Gale, Batty, & Deary, 2010), and curriculum-based tests of numeracy and verbal ability (Heaven, Ciarrochi, & Leeson, 2011). Reviews of earlier results are found in Harvey and Harvey (1970) and in Jost, Glaser, Kruglanski, and Sulloway (2003). Harvey and Harvey (1970, p. 569) conclude: "…the bulk of the findings indicating that radicals or left-wing individuals are more intelligent than right-wing, conservative individuals." They proceed to show that among adolescents from a high school in a working class neighborhood, those with lower intelligence score higher on anti-communism, militarism and "super-patriotism," have a lower sense of the relevance of government, and a lower sense of citizen duty. Also at the country level, correlations of conservative or authoritarian attitudes with intelligence (Meisenberg, 2004, 2008) and PISA scores (Stankov, 2009) are generally negative. The main source of inconsistency in these studies is not the choice of cognitive measures, but inconsistency in the measurement of

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conservatism and related constructs. With "intelligently" worded measures of conservatism or authoritarianism, these constructs can have positive associations with intelligence (e.g., Martin & Ray, 1972).

The usual explanation of these results — though rarely stated explicitly — is that liberalism is the product of high-level cognitive processing while conservatism is the default state in the absence of cognitive effort. The most recent incarnation of this view is Kanazawa's hypothesis that intelligence is required not only for the cognitive processing of situations that are *personally* novel for the individual, but that human intelligence evolved for the processing of situations that are *evolutionarily* novel for the species. In this view, conservative attitudes represent the use of evolved cognitive routines, especially those that enable humans to function in social dominance hierarchies. Liberal attitudes are antithetical to these evolved mechanisms and can be generated only through extensive cognitive processing (Kanazawa, 2010, 2012). However, this theory makes the implausible assumption that desires for freedom and equality, which are the defining features of liberalism, are not evolved preferences in the way that social dominance is.

Not all empiric studies find the expected association of higher intelligence with more liberal attitudes. Early survey research in the United States indicated an association of higher education and intelligence with social conservatism in the "traditional socially responsible personality" (Berkowitz & Lutterman, 1968). More recently, mild positive associations of intelligence with conservative social attitudes or political preferences were reported from "non-standard" samples such as Brazilians (Rindermann, Flores-Mendoza, & Woodley, 2012) and white South Africans (Katz, 1990). Much of the work reporting negative associations between intelligence and conservatism does not measure actual political preferences. It rather relies on rating scales of attitudinal constructs that reflect the preoccupations of the academics who designed the scales and who administer them, usually to psychology undergraduates who are unrepresentative of the general population (Henrich, Heine, & Norenzayan, 2010).

The reasons for predominantly positive associations of intelligence with liberalism in modern societies are debatable. A genuine effect of knowledge or reasoning ability on political attitudes is plausible. Another possibility is formulated in Woodley's (2010, 2011) cultural mediation hypothesis, which states that more intelligent people are better at recognizing and internalizing the values that prevail in their social environment. As a result, the more intelligent will endorse "liberal" choices on questionnaires if they believe that these represent the consensus of their social reference group. With liberals being a large majority among college and university professors (Gross & Fosse, 2012; Inbar & Lammers, 2012; Rothman, Lichter, & Nevitte, 2005), the cultural mediation hypothesis predicts positive associations between cognitive ability and liberalism in studies of university professors and their students, but not necessarily in general population samples.

Another hypothesis, originated by Eysenck (1999/1954), proposes that lower intelligence is associated with more radical political views because such views tend to be crude, simplified and one-sided. Consideration of multiple sides of an issue will, in most cases, lead to moderate rather than radical positions. Empiric support for this hypothesis is mixed. While Rindermann et al. (2012) find evidence for an association of intelligence (but not education) with centrist and center-right preferences in a Brazilian population sample, a positive association of intelligence with political radicalism has been reported by Kemmelmeier (2008) at a selective university in the United States. The latter observation conforms to a hypothesis by Sidanius (1985), who argued that greater cognitive effort is required to acquire and defend radical as opposed to mainstream opinions.

The main limitation of many earlier studies is the use of convenience samples that may or may not be representative of larger sections of the population. There is also a high probability that the important relationships are different in different countries and that they change over time. The present study addresses the time dimension by investigating the relationship of cognitive ability with political self-identification and voting behavior in a representative sample of the US population across four decades.

2. Methods

2.1. Data source

Data from the cumulative General Social Survey (GSS) data file for the years 1972–2012 were used, available at http://www.norc.org/Research/Projects/Pages/general-social-survey.aspx. This cross-sectional survey had been conducted either yearly or every two years, with sample sizes ranging between 1372 (1990) and 4510 (2006) in different years.

2.2. Cognitive tests

The most useful cognitive test in the GSS is Wordsum, a 10-item vocabulary test that was included in most waves of the GSS, starting in 1974. In some years it was administered to the entire sample, and in others to only part of the sample. Wordsum is a multiple choice test with 5 answer choices each. Internal scale reliability is satisfactory, with Cronbach's α of 0.71 in the GSS. Originally constructed by Robert Thorndike (Thorndike & Gallup, 1944), it is a subset of the original WAIS vocabulary test. It is a steeply graded test consisting of 6 easy words (78% to 95% correct answers) and 4 difficult words (25% to 37% correct answers). The average score (number of words correct) is 6.00 ± 2.14 (N = 26,916), with almost perfectly symmetric distribution (skewness −.215, kurtosis −.159). Ceiling effects are mild, with 5.6% obtaining the maximum score of 10. Females outscore males by 0.10 words (equivalent to 0.7 IQ points). All gender/ethnic subgroups showed a slightly rising trend which was stronger in the non-white than the non-Hispanic white groups (equivalent to 4.0 and 1.9 IQ points, respectively), confirming earlier observations by Huang and Hauser (1996). This trend occurred although, according to Google Ngram, average usage frequency of the Wordsum words in American English declined by an average of 1.6% from 1974 to 2008 (cf. Roivainen, 2014). However, the overall average score increased by only 0.11 words (equivalent to 0.8 IQ points) from 1974 to 2012 because lower-scoring groups formed a rising proportion of the surveyed population. These trends parallel those in the National Assessment of Educational Progress (NAEP) as described in Rindermann and Thompson (2013), and confirm earlier findings about the remarkable

stability of Wordsum scores over time (Beaujean & Sheng, 2010). Performance on Wordsum rises by approximately 0.33 standard deviations (equivalent to 5 IQ points) from age 18 to age 50–55, after which it declines slightly.

Wordsum has been used extensively as a measure of word knowledge, verbal ability and intelligence, as well as constructs such as cognitive sophistication and linguistic complexity (reviewed in Malhotra, Krosnick, & Haertel, 2007). Wolfle (1980) reported Wordsum correlations of .71 with IQ and of .51 with educational attainment. High correlations with measures of general mental ability are expected because, in IQ test batteries such as the Wechsler tests (Kan, Wicherts, Dolan, & van der Maas, 2013) and the Armed Services Vocational Aptitude Battery (Woodley & Meisenberg, 2013), vocabulary is one of the subtests with the highest *g* loading. The only other cognitive measure in the GSS (besides knowledge tests) is Alike, which consists of 8 items from the similarities test of the WAIS-R. It was included only in the 1994 survey. The correlation of Alike with Wordsum is .413 (N = 1403). The present work uses Wordsum as a measure of cognitive ability. For ease of presentation, the raw scores are converted to the familiar 100/15 IQ scale.

2.3. Measures of political orientation

Two measures were used for most analyses. The first (polviews), asks about liberal-conservative self-identification: Do you think of yourself as: extremely liberal–liberal–slightly liberal–moderate–slightly conservative–conservative–extremely conservative. The second measure (partyid) is about party identification: strong Democrat–not strong Democrat–independent, near Democrat–independent–independent, near Republican–not strong Republican–strong Republican. Information is also available about voting in presidential elections from 1972 to 2008.

2.4. Demographic measures

Education is a composite formed from the standardized values for years of schooling and highest educational degree. *Income* is family income (in constant dollars), log-transformed to obtain a near-normal distribution. According to this measure, average "real" family income rose from $38,355 in 1972 to $50,747 in 2012. *Socioeconomic status* (*SES*) was calculated from the standardized values of two variables: (1) average of parents' education (years in school and highest educational degree), and (2) family income when respondent was 16 years old.

2.5. Statistical analysis

Most analyses were performed separately for gender and/or ethnicity categories. SPSS 16.0 was used for all analyses.

3. Results

3.1. Relationship between ideology and party politics

The two main outcome measures are liberal versus conservative self-identification and Democratic versus Republican Party affiliation. Table 1 shows that these two variables are only moderately correlated in the white population and weakly in the non-white population of the United States. Democratic Party affiliation has declined over time in both population subgroups, and there may be a similar though weaker trend in liberal self-identification. Liberalism is associated with higher vocabulary scores, education and parental socio-economic status (SES) in both groups, while older age and higher income favor conservatism in the white group. As expected, Wordsum scores are most strongly associated with education and to a lesser extent with family income and with origin from a high-SES family. Liberalism has mild positive associations with Wordsum, education and SES, which are of comparable magnitude. Political party support shows a different pattern. Republicans are characterized mainly by greater wealth, higher SES and more education, and only to a lesser extent by higher test scores, at least in the white population.

Table 1 combines survey results collected from 1974 to 2012. Table 2 shows how the correlations among political ideology, party identification and test score have changed over four successive periods. The most striking result is a rising correlation between liberal-conservative self-description and political party identification, with generally higher correlations for non-Hispanic Whites than for Blacks and Hispanics. This result shows a massive rise in the importance of ideology for party politics.

3.2. Test scores, liberalism–conservatism, and political party support

Correlations between Wordsum scores and liberal self-description usually are positive for both black and white respondents, but inconsistent for Hispanics. Trends are weak,

Table 1
Correlations of political measures with other variables. SES = socioeconomic status of family of origin. Correlations for non-Hispanic Whites (N = 17,019) are shown below the diagonal, and correlations for all others combined (N = 4527) are shown above the diagonal. Correlations above .019 (Whites) or .038 (others) are significant at $p < .01$, and correlations above .025 (Whites) or .049 (others) are significant at $p < .001$ (two-tailed t test).

	Liberal	Democrat	Year	Age	Wordsum	Education	Income	SES
Liberal	1	.140	−.042	−.030	.076	.069	−.003	.040
Democrat	.379	1	−.103	.174	.040	−.028	−.030	−.074
Survey year	−.022	−.078	1	.038	.077	.162	.065	.148
Age	−.119	.021	.095	1	−.002	−.144	−.008	−.281
Wordsum	.054	−.039	.036	.020	1	.398	.257	.212
Education	.050	−.086	.206	−.139	.490	1	.437	.380
Income	−.055	−.115	.076	−.095	.264	.387	1	.205
SES	.071	−.098	.148	−.333	.249	.412	.185	1

Table 2
Correlations of liberal self-identification with support for the Democratic Party (Lib–Dem), Wordsum score with liberalism (IQ–Lib), and Wordsum score with Democratic Party support (IQ–Dem). *p < .05, **p < .01, ***p < .001, two-tailed t tests.

Group	Period	Lib–Dem	N	IQ–Lib	N	IQ–Dem	N
White male	1974–1981	.234***	3333	.018	1639	−.135***	1651
	1982–1991	.315***	5072	.010	2811	−.090***	2834
	1992–2001	.437***	4356	.009	2518	−.025	2522
	2002–2012	.547***	4056	.089***	1611	−.025	2063
White female	1974–1981	.168***	3991	.068**	2004	−.072**	2075
	1982–1991	.285***	6083	.086***	3597	−.051**	3698
	1992–2001	.404***	5304	.070***	3109	−.004	3180
	2002–2012	.543***	4837	.081***	1956	.030	2540
Black male	1974–1981	.008	340	.138	176	.045	182
	1982–1991	.084*	805	.179***	535	−.039	559
	1992–2001	.140**	577	.036	305	.032	315
	2002–2012	.169***	645	.152*	253	.035	347
Black female	1974–1981	−.066	477	−.080	210	.017	233
	1982–1991	.049	1257	.091**	820	.104**	904
	1992–2001	.078*	1030	.074	602	.060	636
	2002–2012	.153***	1055	.054	439	.084*	574
Hisp. male	1974–1981	.113	90	.129	50	−.269	50
	1982–1991	.185**	197	−.005	103	.030	111
	1992–2001	.201**	261	.158	139	.058	145
	2002–2012	.197***	651	−.174**	268	−.063	329
Hisp. female	1974–1981	.087	119	−.075	53	.458	60
	1982–1991	.076	278	−.123	148	−.026	165
	1992–2001	.191***	333	.254**	168	.098	179
	2002–2012	.220***	722	.070	314	.075	393

although a shift from a neutral to a positive relationship is observed for white males in the 2002–2012 period. The relationship between test scores and support for the Democrats, which had traditionally been negative for Whites, has moved towards zero in recent years. Thus the Democratic Party has become more attractive (or the Republican Party less attractive) for higher-scoring Whites since the 1970s. Among black respondents, the relationship between Wordsum score and support for the Democrats has been neutral or slightly positive in all time periods.

While Table 2 provides limited support for the hypothesis that higher test scores are associated with liberal rather than conservative self-identification, Tables 3 and 4 present results addressing Eysenck's (1999/1954) hypothesis that more intelligent people prefer moderate rather than extreme positions on social and political issues. Contrary to the hypothesis, Table 3 shows that those Whites (but not non-Whites) describing themselves as "moderate" score lower than those describing themselves as either conservative or liberal. However, this may be a survey artifact if this label attracts not

Table 3
Average Wordsum score (scaled to IQ metric) by strength of liberal or conservative self-identification in different time periods, shown separately for non-Hispanic Whites and all others. Sample sizes are in parentheses. Significance values (two-tailed) are given for the comparison between all liberals and all conservatives: *p < .05, **p < .01, ***p < .001. %. Liberal refers only to those with conservative or liberal identity, excluding those labeled "Moderate.".

	1972–1981		1982–1991		1992–2001		2002–2012	
	Whites	Others	Whites	Others	Whites	Others	Whites	Others
Extremely conservative	96.9	84.6	97.2	86.0	101.7	87.6	102.3	85.7
	(80)	(10)	(169)	(68)	(185)	(43)	(144)	(56)
Conservative	102.5	91.4	101.7	88.6	103.2	89.8	103.5	91.2
	(472)	(49)	(932)	(175)	(988)	(177)	(668)	(138)
Slightly conservative	104.2	90.4	104.3	90.6	103.4	93.9	103.1	95.0
	(653)	(46)	(1118)	(212)	93.9	(222)	(569)	(167)
Moderate	99.7	91.2	100.2	92.2	100.6	93.6	100.7	95.2
	(1439)	(190)	(2543)	(627)	(2094)	(560)	(1253)	(643)
Slightly liberal	104.7	91.0	104.1	92.3	105.0	94.5	105.0	94.0
	(530)	(94)	(866)	(282)	695	(186)	(412)	(182)
Liberal	103.4	89.6	104.5	93.3	105.6	95.8	107.2	92.0
	(410)	(112)	(661)	(305)	(607)	(207)	(404)	(219)
Extremely liberal	107.6	97.6	103.7	90.7	105.1	94.0	109.0	93.8
	(59)	(12)	(119)	(82)	(128)	(54)	(117)	(61)
All conservatives	103.0	90.3	102.7	89.1	103.2	91.6	103.2	92.1
	(1205)	(105)	(2219)	(455)	(2103)	(442)	(1381)	(361)
All liberals	104.3*	90.7	104.2**	92.5***	105.2***	95.1**	106.5***	93.0
	(999)	(218)	(1646)	(669)	(1430)	(447)	(933)	(462)
% Liberal	45.3	67.5	42.6	59.5	40.5	50.3	40.3	56.1

Table 4
Average Wordsum score (in IQ metric) by strength of political party affiliation in different time periods, shown separately for non-Hispanic Whites and all others. Sample sizes are in parentheses. Significance values (two-tailed) are given for the comparison between all Republicans and all Democrats: *p < .05, **p < .01, ***p < .001. % Democrat refers only to those with party identity, excluding those labeled "Independent.".

	1972–1981		1982–1991		1992–2001		2002–2012	
	Whites	Others	Whites	Others	Whites	Others	Whites	Others
Strong Republican	104.1	89.8	104.0	87.5	103.6	87.5	103.8	96.5
	(293)	(11)	(754)	(53)	(717)	(49)	(665)	(56)
Not strong Republican	102.7	88.6	102.4	87.8	102.5	93.1	103.4	93.9
	(620)	(27)	(1332)	(101)	(1153)	(120)	(855)	(114)
Independent, near Republican	105.1	87.0	102.2	88.8	103.1	91.3	103.6	92.2
	(323)	(14)	(735)	(81)	(614)	(71)	(467)	(93)
Independent	99.0	88.7	99.0	89.4	99.2	91.3	100.0	91.2
	(522)	(67)	(767)	(227)	(871)	(259)	(776)	(409)
Independent, near Democrat	104.2	93.7	103.5	92.7	103.9	93.0	104.7	93.4
	(538)	(71)	(789)	(230)	(705)	(177)	(531)	(251)
Not strong Democrat	100.7	90.0	100.8	92.1	102.3	94.1	101.7	94.9
	(924)	(205)	(1366)	(511)	(1063)	(409)	(684)	(449)
Strong Democrat	97.7	89.9	99.9	90.8	102.9	93.1	105.4	94.3
	(506)	(158)	(789)	(690)	(579)	(441)	(625)	(524)
All Republicans	103.7	88.4	102.8	88.1	103.0	91.4	103.6	93.8
	(1236)	(52)	(2821)	(235)	(2484)	(240)	(1987)	(263)
All Democrats	100.9***	90.6	101.3***	91.6**	103.0	93.5	103.8	94.3
	(1968)	(434)	(2944)	(1431)	(2347)	(1027)	(1840)	(1224)
% Democrat	61.4	89.3	51.1	85.9	48.6	81.1	48.1	82.3

only those with centrist positions but also those who have no coherent views about social and political issues at all, either for lack of interest or because of inability to conceptualize these issues in ideological terms.

Eysenck's theory seems to be supported for conservatives because in each group, slightly conservative respondents outscore the extreme conservatives. On the liberal wing, however, there is no consistent relationship of Wordsum scores with the strength of liberal convictions. The likely reason is that liberals in general score slightly higher than conservatives, and this trend continues to some extent into the extreme reaches of the liberal spectrum.

Nevertheless, non-Whites describe themselves as more liberal than Whites although they score lower on the cognitive test. We also see a long-term trend away from liberal and towards conservative self-identification within each group. The percentage of Whites considering themselves at least slightly liberal has declined from about 45% in the 1970s to 40% in more recent years, with a similar trend in the non-white population. However, the non-white proportion in the population has risen during this time, and this has kept the overall balance of liberalism and conservatism fairly constant in the population. Also, there is no evidence for a continuing trend towards greater conservatism after about 1990. It is important to keep in mind that these trends apply to liberal and conservative self-identification only. They do not indicate trends on substantive issues such as political tolerance, welfare programs, gay marriage or the legalization of recreational drugs. Indeed, positions on many of these issues have trended in a liberal direction even while conservative self-identification has increased (data not shown).

Table 4 shows that in the white population, Republicans scored higher than Democrats on the Wordsum test during the 1970s. This difference diminished during the 1980s and disappeared during the 1990s. Those labeled "Independent" score lower than those with party affiliation, similar to the "Moderates" in Table 3. Strength of Republican Party affiliation was unrelated to test score in all time periods, but more extreme Democrats scored lower than moderate Democrats until the 1980s. In the non-white population, Democrats scored at least as high as Republicans in all periods, although even here we see a tendency for those with strong Democratic Party identification to score lower than those with weaker Democratic leanings in the first two decades. Support for the Democrats among Whites has declined from roughly 60% to slightly less than 50% during these four decades while Democratic support among non-Whites has remained high at more than 80%.

Table 5
Prediction of liberal self-identification. SES, childhood socioeconomic status. Standardized β and t statistic are shown.

	White males		White females		Non-white males		Non-white females	
Predictor	st. β	t	st. β	t	st. β	t	st. β	t
Age	−.111	9.23	−.119	10.74	−.010	0.41	−.014	0.70
Survey year	−.043	3.77	.000	0.04	−.062	2.68	−.055	2.80
Wordsum	.056	4.21	.056	4.80	.076	3.03	.054	2.55
Education	.006	0.42	.080	6.08	.074	2.64	.063	2.61
Income	−.118	9.73	−.084	7.52	−.069	2.70	−.037	1.68
SES	.016	1.27	.023	1.92	−.014	0.54	.041	1.88
N	7852		9448		1904		2682	
Adj. R^2	.029		.030		.013		.011	

The correlations of Wordsum scores with education, family income and socioeconomic status suggest that relationships of Wordsum with political ideology and political party identification might be mediated by these other variables. This possibility is tested in the regression models of Tables 5 and 6. Table 5 shows that liberal self-description is associated with younger age in the white but not the non-white population. We also see that everyone, except white females, has become more conservative over time independent of changes in the other predictors; and both higher test score and more education predict greater liberalism. Higher income, however, favors conservatism.

Table 6 shows a pervasive decline of Democratic Party affiliation over time. For non-Whites, this is accompanied by lower Democratic Party affiliation among younger respondents. This suggests an important contribution of generational replacement, with an older, Democrat-leaning generation being supplanted by a younger, more Republican generation. Test scores and education have variable effects on party affiliation, but higher income and to some extent origin from a high-SES family favor the Republican Party, especially in the white population.

3.3. Voting in presidential elections, 1972–2008

To what extent do cognitive differences between self-declared liberals and conservatives, and between Democrats and Republicans, translate into voting behavior? Table 7 shows the results for voting in presidential elections. The most consistent finding is not a difference in the candidate or party that voters choose, but consistently higher Wordsum scores of voters compared to non-voters. The statistical significance of this difference (not included in Table 7) is $p < .001$ in all cases except for the non-white vote in the 1972 election, which had a p value (2-tailed) of only .014. On the IQ scale, the average difference between voters and non-voters across all presidential elections is 8.1 points for non-Hispanic Whites ($N = 19{,}020$), 5.1 points for all others ($N = 4864$), and 8.3 points ($N = 23{,}884$) for the entire sample. This excludes subjects who were interviewed about 2 elections and had voted in only one of them.

However, Table 8 shows that the strongest effect on voting is not cognitive ability, but age. This shows that political socialization in the United States continues well through adulthood. The negative signs for survey year do not indicate an absolute decline in voting. The zero-order correlation of voting with survey year is +.008 for the entire sample ($N = 53{,}145$, $p = .064$). Voter turnout has been rising slightly in both the white and non-white populations (r with survey year of + .024 and + .009, respectively), but has remained nearly constant overall because non-white groups with lower voter turnout have formed an increasing proportion of the population. The negative signs for survey year in Table 8 merely indicate that voter turnout has changed very little although average education and income have increased over time. Correlations with survey year (all groups combined) are $r = .208$ for education ($N = 56{,}803$) and $r = .059$ ($N = 51{,}232$) for income.

Otherwise, education is the strongest predictor of voting with substantial incremental effects of Wordsum score and income. This suggests that both cognitive and economic factors are important, in addition to non-cognitive effects of schooling. To the extent that voting can be attributed to socioeconomic status (SES), it clearly is current SES rather than SES of the family of origin that is the important predictor.

Differences between the candidates are less consistent. Those who voted for Jimmy Carter in the 1976 and 1980 elections had lower average test scores than those who voted for his Republican opponents. Otherwise, however, those voting for the Democratic candidate scored slightly higher than those voting for the Republican candidate in most elections. For non-Hispanic white voters, there may be a secular trend for high-IQ voters to increasingly favor Democratic over Republican candidates. In the 2000, 2004 and 2008 elections, Whites voting for the Democratic candidate had slightly higher test scores than those voting for the Republican candidate. Trends are less consistent for non-Whites, most likely because this group has grown more heterogeneous over time, with increasing numbers of Hispanics and Asians and a declining proportion of African Americans.

4. Discussion

4.1. Validity of the Wordsum test

Word knowledge itself is not a likely cause of political preferences and behaviors, nor does it capture the wide range of cognitive abilities that are tapped by more comprehensive cognitive tests. It can nevertheless be interpreted as an indicator of latent ability constructs with causal effects on both Wordsum scores and political behavior. The most relevant constructs are the verbal and general ability factors, which routinely emerge in hierarchical models of cognitive test results (Carroll, 1993).

Table 6
Prediction of Democratic Party affiliation. Standardized β and t statistic are shown.

	White males		White females		Non-white males		Non-white females	
Predictor	st. β	t	st. β	t	st. β	t	st. β	t
Age	.011	0.92	−.021	1.91	.162	7.23	.188	10.04
Survey year	−.084	7.50	−.043	4.10	−.115	5.33	−.114	6.28
Wordsum	.005	0.37	.009	0.75	.022	0.93	.095	4.83
Education	−.050	3.54	.031	2.38	−.019	0.72	.069	3.08
Income	−.104	8.86	−.082	7.55	−.017	0.73	−.050	2.48
SES	−.068	5.45	−.079	6.81	−.036	1.48	−.014	0.69
N	8262		10,131		2097		3028	
Adj. R^2	.037		.014		.045		.052	

Table 7
Average Wordsum IQ of voters for presidential candidates, numbers of surveyed voters and non-voters, and p values (2-tailed t tests) for IQ differences between those voting for alternative candidates.

	Candidate	Whites			Non-Whites		
Year		IQ	N	p	IQ	N	p
1972	McGovern	104.9	550	.342	93.1	156	.805
	Nixon	104.2	1045		92.3	33	
	Non-voters	96.4	635		88.7	142	
1976	Carter	102.3	801	<.001	92.4	327	<.001
	Ford	105.4	737		103.3	25	
	Non-voters	96.3	672		86.9	203	
1980	Carter	102.2	923	C–R: <.001	92.5	635	C–R: .025
	Reagan	104.4	1187	C–A: <.001	98.9	38	C–A: .006
	Anderson	110.7	176	R–A: <.001	99.0	14	R–A: .975
	Non-voters	96.8	851		87.53	389	
1984	Mondale	104.8	538	.035	94.0	340	.527
	Reagan	103.2	1201		92.8	70	
	Non-voters	96.3	658		89.2	298	
1988	Dukakis	106.1	656	.003	95.4	210	.050
	Bush	104.0	1380		91.4	89	
	Non-voters	96.5	878		88.7	244	
1992	Clinton	105.0	1326	C–B: .232	94.8	525	C–B: .438
	Bush	104.3	1385	C–P: .074	93.5	87	C–P: .142
	Perot	103.8	589	B–P: .402	99.5	30	B–P: .089
	Non-voters	97.3	1149		90.3	374	
1996	Clinton	105.4	609	C–D: .469	95.6	249	C–D: .168
	Dole	106.0	494	C–P: .006	99.0	30	C–P: .001
	Perot	102.6	200	D–P: .001	103.7	15	D–P: .126
	Non-voters	97.0	496		91.6	219	
2000	Gore	106.9	523	G–B: .006	97.5	251	G–B: .798
	Bush	104.9	818	G–N: .033	98.1	66	G–N: .825
	Nader	111.8	29	B–N: .003	94.7	4	B–N: .793
	Non-voters	99.1	486		92.2	264	
2004	Kerry	106.9	748	K–B: <.001	95.9	382	K–B: .314
	Bush	104.2	1122	K–N: .307	97.5	102	K–N: .139
	Nader	109.1	37	B–N: .025	104.9	10	B–N: .226
	Non-voters	97.5	617		92.0	381	
2008	Obama	106.1	646	.002	95.4	417	.007
	McCain	103.8	589		100.1	48	
	Non-voters	97.0	417		90.0	237	

In the various incarnations of the WAIS, vocabulary is not only an excellent indicator of the verbal comprehension index, but also one of the subtests with the highest *g* loadings: close to .90 in sufficiently diverse samples (Kan et al., 2013). The 10 multiple-choice Wordsum questions are expected to be a far less accurate measure of cognitive ability than the 66 open-ended questions in the WAIS-III. This is confirmed by the lower but still respectable correlation of .71 with the Army General Classification Test (Hauser & Huang, 1997, p. 13; Wolfle, 1980), and the average correlations with IQ of around .75 or .80 reported by Miner (1957, 1961) for Wordsum and related brief vocabulary tests. These earlier studies offer only a crude but nevertheless useful guide to the correlations that Wordsum might have with IQ or *g* if it had been administered in the GSS as part of a comprehensive IQ test.

Although Wordsum is a measure of cognitive ability, its inaccuracy as a cognitive measure does affect interpretation of the results. If an outcome such as liberalism or voting is affected directly only by general or verbal cognitive ability and not at all by non-cognitive effects of education, income and SES, we can

Table 8
Prediction of voting versus non-voting. Non-Whites are everyone except non-Hispanic (nh) Whites.

	nh white males		nh white females		Non-white males		Non-white females	
Predictor	st. β	t	st. β	t	st. β	t	st. β	t
Age	.298	27.01	.280	27.96	.329	14.81	.283	14.73
Survey year	−.076	7.17	−.045	4.64	−.114	5.24	−.035	1.86
Wordsum	.090	7.39	.119	11.11	.099	4.16	.091	4.55
Education	.169	12.63	.193	15.83	.161	5.95	.173	7.48
Income	.135	12.07	.150	14.76	.093	3.90	.039	1.91
SES as child	.068	5.72	.039	3.56	.033	1.38	.041	1.98
N	8009		9830		1866		2724	
Adj. R^2	.166		.171		.163		.114	

expect that in a multiple regression model the outcome is predicted most strongly by Wordsum but to a lesser degree also by education, income and SES. This assumes that measurement of these other constructs is more accurate than is the measurement of the latent cognitive traits by Wordsum. Conversely, when an outcome is determined only by non-cognitive effects of education, income and/or SES, we can expect no independent effect of Wordsum as long as the other variables are measured with high accuracy. Also, limited accuracy implies that the magnitude of the reported correlations and effect sizes underestimates the true relationships with the measured ability constructs.

4.2. Voter turnout and political interest

The most striking result of this study is an average difference in Wordsum scores between voters and non-voters which, for the combined sample, translates into approximately 8 points on the IQ scale (Table 8). Correction for attenuation raises this difference to 9.5 points. The lower scores of non-voters on the cognitive test should be interpreted together with the lower scores of those with doubtful political interests ("moderates" and "independents" in Tables 3 and 4), who score 3–4 points lower than those with stated ideological or party preferences, at least in the white population. These observations agree with those of Hauser (2000) in the United States, who describes positive relationships of political participation with both Wordsum and the Henmon–Nelson Test of Mental Ability, and Rindermann et al. (2012) in Brazil that higher scores on Raven's Standard Progressive Matrices are associated with having any opinion at all. The results in Table 8 confirm Hauser's (2000) observation that education and cognitive test scores have independent effects on voting. Considering the limited accuracy of Wordsum, the effects of the cognitive abilities that are tapped by the Wordsum test and (non–cognitive effects of) education appear to be of similar magnitude.

4.3. Ideology: Liberals and conservatives

The question of whether liberals or conservatives have higher average intelligence is contentious because of the most likely mistaken belief (Charlton, 2009; Woodley, 2010) that more intelligent people will generally adopt the "better" ideological value system. The results reported in Table 3 indicate that there is only a slight tendency for liberals to score higher than conservatives. Although this tendency appears to have grown stronger since the 1970s, the liberal-conservative differences have (so far) never exceeded the equivalent of 3.5 IQ points. Therefore factors other than verbal or general cognitive ability must be the more important determinants of liberal or conservative self-identification.

Table 5 shows that both verbal ability and education tend to make people more liberal. It is therefore likely that much and probably most of the liberalizing effect of education is due to acquired knowledge or cognitive skills. The exception are white males, for whom ability but not education appears to be liberalizing. The implied non-cognitive effects of education for females and their absence in males might be due to different choices of study program. In college, women are overrepresented in the social sciences and humanities including psychology, sociology, English and communication, and men are overrepresented in applied sciences such as engineering, physics, computer science and economics (England & Li, 2006). Most social sciences and humanities are associated with liberal political preferences in the United States, while conservative preferences are more typically represented in the applied sciences and vocational studies among both professors (Rothman et al., 2005) and students (Nilsson, Ekehammar, & Sidanius, 1985). One possibility is that general cognitive skills acquired in both kinds of program favor liberalism, although this tendency is canceled by the career-oriented nature of their education in white males.

A more specific mechanism, known as the cultural mediation hypothesis (Woodley, 2010, 2011), states that more intelligent persons, and especially those with greater verbal, communicative and interpersonal skills, are better at norm tracking. It assumes that most people are conformists, and those with greater mental powers are the more effective conformists. In a typical American university, where most people either are or pretend to be liberal, these norm trackers internalize and project the prevailing liberal norms. The cultural mediation hypothesis is the opposite of the conventional model, which assumes that higher intelligence makes people skeptical about received wisdom and prevailing opinions. Perhaps the more important individual-difference trait is not cognitive ability level, but the propensity to use one's cognitive skills either one way or the other.

Another possibility is that high intelligence enables people to construct beliefs that resonate not with the dominant cultural milieu, but with their personal preferences and emotional needs. Most people naturally prefer a belief in a just world (Lerner, 1980) where, for example, everyone has the same good genes, and problems are either not real or are caused by faulty attitudes that can be fixed by thinking them away. Intelligent people can find ways to convince themselves that this is how the world actually works, and the result is called liberalism. According to this wishful thinking hypothesis, academic liberalism prevails in the "soft" sciences and humanities because these academic disciplines tend to eschew the empiricism and continuous reality checks of the "hard" sciences. Again, however, the more important individual-difference trait is the propensity to use one's intelligence either in the service of wishful thinking, or for reality checks that achieve the opposite. Importantly, both the cultural mediation and wishful thinking hypotheses can explain only the prevalence of specific beliefs that are rather peripheral to a "liberal" worldview. They do not explain individual differences in preferences for freedom and equality versus stability and authority, which are the important defining feature of political ideologies.

The association of high income with conservatism is less mysterious than the cognitive ability effect. It is expected based on self-interest. The maintenance of the status quo is part of the conservative agenda, and the rich are more interested than the poor in maintaining the status quo. It is also evident that the greater conservatism of older individuals is not explained entirely by lower education or higher income, at least in the white population. It is most likely the result of a secular trend towards more liberalism, combined with a reluctance of aging individuals to jettison the beliefs and values with which they grew up.

4.4. Democrats and Republicans

Liberal-conservative self-identification and political party support were only mildly correlated in the 1970s, indicating that Democrats and Republicans were not uniformly perceived as liberal and conservative, respectively. Many European observers at that time marveled at the non-ideological nature of American politics. Table 2 shows that this has changed dramatically over the last four decades. The reasons for this change are mysterious, especially when contrasted with the vanishing role of political ideology in most European countries. In the United States, the congruence of party politics with ideology is stronger in the white than the non-white groups (Table 2).

On first sight, the relationships between political party support and Wordsum scores in Table 4 seem to be at odds with results reported by Carl (2014a,b), who analyzed the same GSS data but found an advantage of 2.47 to 5.48 points favoring Republicans on the Wordsum test, the exact size of the difference depending on the definition of party support. This relationship was observed with the total sample, including all survey years and all ethnic and racial groups. The separate analysis of subgroups in Table 4 shows that the Republican advantage reported by Carl (2014a,b) has two reasons. About two thirds stem from the fact that lower-scoring non-white minorities predominantly support the Democratic Party. The remaining third stems from the cognitive advantage that Republicans have had among non-Hispanic Whites during the 1970s and 1980s, but have lost since then.

Voting for presidential candidates is expected to be influenced not only by political party identification and ideology, but also by personal characteristics of the candidates. For example, the observation that those voting for Jimmy Carter and for G. W. Bush Jr. had lower Wordsum scores than those voting for their opponents may be related to the specific personalities or political profiles of these individuals. Intellectual brilliance of a presidential candidate (Simonton, 2006) is a possible influence on his attractiveness for voters with different levels of intellectual sophistication.

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