

Supplementary Materials

for

Lazy, not biased: Susceptibility to partisan fake news is better explained by lack of reasoning than by motivated reasoning

Gordon Pennycook & David G. Rand

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1. Study 1

Preregistration explanation

Hypotheses

We preregistered our primary hypothesis (along with some secondary hypotheses, see full preregistration, <https://osf.io/tuw89/>):

- 1) Analytic thinking makes people less susceptible to fake news.
- 2) People who are more receptive to bullshit are more susceptible to fake news.
- 5) Do the correlations with analytic thinking (1) ... depend on disagreement with the fake news? In other words, will more analytic liberals [conservatives] be more or less likely to think Pro-Trump [Anti-Trump] fake news is accurate? This is exploratory in the sense that any pattern of results is revealing.

Results – Primary Analyses

The primary correlational analyses were preregistered along with the separation of Clinton/Trump supporters (which always refers to preference for one over the other when forced to choose between them):

- 1) Correlate CRT with mean accuracy rating for both fake and real news. Should correlate negatively with fake news (more analytic -> more likely to say fake news is inaccurate) and positively with real news (more analytic -> more likely to say real news is accurate). More analytic individuals should also be less likely to share fake news on social media.
- 6) Analyses described in (1) ... will be completed separately for Trump/Clinton supporters.

We also preregistered the comparison of accuracy judgments for real and fake news as a function of political valence and (between subject) political ideology:

- 5) Three-way interaction between actual news accuracy (real, fake), news type (Pro-Democrat, Pro-Republican, Neutral), and political ideology (Trump supporter, Clinton supporter) using a mixed design ANOVA.

Table S1.

Descriptive statistics for Study 1. Responses for which participants selected the option indicating that they were unwillingness to ever share political news on social media were removed from the social media sharing analysis. Perceived accuracy: $N = 802$. Social media sharing: $N = 667$.

Measure	Scale	<i>Mean</i>	<i>SD</i>	Skew ¹	Kurtosis ²
Cognitive Reflection Test (accuracy)	0-1	.53	.29	-.23	-1.01
Fake news (perceived accuracy)	1-4	1.83	.42	.47	.22
Real news (perceived accuracy)	1-4	2.76	.43	-.70	1.50
Fake news (social media sharing)	1-3	1.24	.32	1.77	3.23
Real news (social media sharing)	1-3	1.40	.39	.92	.18

¹ SE = .08 (social media = .10)

² SE = .17 (social media = .19)

Table S2.

Perceived accuracy means (standard deviations) for comparison between those with a Clinton versus Trump preference as a function of news type and political valence. Clinton preference: $N = 483$; Trump preference: $N = 317$.

	Democrat-consistent		Republican-consistent		Neutral	
	Fake	Real	Fake	Real	Fake	Real
Clinton preference	1.73 (.51)	2.97 (.54)	1.69 (.44)	2.58 (.50)	1.99 (.49)	2.93 (.51)
Trump preference	1.58 (.53)	2.38 (.53)	1.93 (.54)	2.75 (.55)	2.07 (.52)	2.86 (.51)

Table S3.

Social media sharing means (standard deviations) for comparison between those with a Clinton versus Trump preference as a function of news type and political valence. Clinton preference: $N = 400$; Trump preference: $N = 265$.

	Democrat-consistent		Republican-consistent		Neutral	
	Fake	Real	Fake	Real	Fake	Real
Clinton preference	1.18 (.32)	1.42 (.53)	1.14 (.29)	1.24 (.35)	1.33 (.43)	1.50 (.49)
Trump preference	1.17 (.34)	1.22 (.34)	1.25 (.38)	1.45 (.46)	1.41 (.47)	1.55 (.49)

Additional analyses

In the main text, it was noted that the following was preregistered: “Accuracy ratings will be scored 0 if ‘not at all accurate’ or ‘not very accurate’ are selected and 1 if ‘somewhat accurate’ or ‘very accurate’ are selected. Social media ratings will be scored 0 if ‘no’ is selected and 1 if ‘maybe’ or ‘yes’ is selected”. The following is a re-analysis of the key results using the preregistered coding.

As is evident from Table S4, the results are very similar using dichotomous coding. The following are the only correlations between CRT and accuracy judgments that are significant in one case and not the other: 1) Fake news accuracy among Trump supporters for Democrat-consistent items: $r_{continuous} = -.12, p = .038$ v. $r_{dichotomous} = -.11, p = .055$. 2) Fake news accuracy among Trump supporters for Neutral items: $r_{continuous} = -.09, p = .131$ v. $r_{dichotomous} = -.11, p = .046$.

Table S5 indicates that the results are very similar if the CRT is scored based on the proportion of intuitive (as opposed to correct) responses, although obviously in the opposite direction.

Table S6 indicates that the results are essentially identical if participants are broken up based on party affiliation (Democrat v. Republican) instead of support for Hillary Clinton v. Donald Trump.

Table S4.

Correlation (Pearson r) between Cognitive Reflection Test performance and primary variables (dichotomized) in Study 1 as a function of Hillary Clinton versus Donald Trump preference (based on a forced choice). Participants indicated perceived accuracy (a) and willingness to share (b) for both fake and real news stories of three types: Democrat-consistent political news, Republican-consistent political news, and Neutral (non-political) news. ‘Discernment’ refers to Media Truth Discernment (d'), which was computed by subtracting z-scores for fake news (false alarms) from z-scores for real news (hits). Responses for which participants selected the option indicating that they were unwilling to ever share political news on social media were removed from the social media sharing analysis. Clinton supporters: $N = 483$ for perceived accuracy; $N = 400$ for social media sharing. Trump supporters: $N = 317$ for perceived accuracy; $N = 265$ for social media sharing.

a) Perceived accuracy	Democrat-consistent			Republican-consistent			Neutral		
	Fake	Real	Discernment	Fake	Real	Discernment	Fake	Real	Discernment
Clinton preference	-.25***	.11**	.28***	-.15**	-.02	.10*	-.19***	.07	.21***
Trump preference	-.11	.14**	.20***	-.09	.18**	.22***	-.11*	.16**	.23***

b) Social media sharing	Democrat-consistent			Republican-consistent			Neutral		
	Fake	Real	Discernment	Fake	Real	Discernment	Fake	Real	Discernment
Clinton preference	-.22***	-.13**	.10	-.24***	-.21***	.01	-.22***	-.12*	.11*
Trump preference	-.18**	-.10	.11	-.14*	-.13*	.04	-.17**	-.12*	.08

*** $p < .001$, ** $p < .01$, * $p < .05$

Table S5.

Correlation (Pearson r) between proportion of intuitive answers on the Cognitive Reflection Test and primary variables in Study 1 as a function of Hillary Clinton versus Donald Trump preference (based on a forced choice). Participants indicated perceived accuracy (a) and willingness to share (b) for both fake and real news stories of three types: Democrat-consistent political news, Republican-consistent political news, and Neutral (non-political) news. ‘Discernment’ refers to Media Truth Discernment (d’), which was computed by subtracting z-scores for fake news (false alarms) from z-scores for real news (hits). Responses for which participants selected the option indicating that they were unwillingness to ever share political news on social media were removed from the social media sharing analysis. Clinton supporters: $N = 483$ for perceived accuracy; $N = 400$ for social media sharing. Trump supporters: $N = 317$ for perceived accuracy; $N = 265$ for social media sharing.

a) Perceived accuracy	Democrat-consistent			Republican-consistent			Neutral		
	Fake	Real	Discernment	Fake	Real	Discernment	Fake	Real	Discernment
Clinton preference	.20***	-.08	-.20***	.15**	.06	-.06	.12**	-.02	-.12*
Trump preference	.13*	-.09	-.19**	.08	-.16**	.19**	.10	-.15**	-.21***

b) Social media sharing	Democrat-consistent			Republican-consistent			Neutral		
	Fake	Real	Discernment	Fake	Real	Discernment	Fake	Real	Discernment
Clinton preference	.20***	.10*	-.07	.21***	.20***	-.02	.20***	.10	-.10*
Trump preference	.17**	.11	-.11	.13*	.15*	.01	.17**	.13*	-.06

*** $p < .001$, ** $p < .01$, * $p < .05$

Table S6.

Correlation (Pearson r) between Cognitive Reflection Test performance and primary variables (continuous) in Study 1 as a function of Democrat versus Republican party affiliation. Participants indicated perceived accuracy (a) and willingness to share (b) for both fake and real news stories of three types: Democrat-consistent political news, Republican-consistent political news, and Neutral (non-political) news. ‘Discernment’ refers to perceptions of real news subtracted by perceptions of fake news (i.e., ability to discern fake from real news). Responses for which participants selected the option indicating that they were unwillingness to ever share political news on social media were removed from the social media sharing analysis. Democrats: $N = 340$ for perceived accuracy; $N = 294$ for social media sharing. Republicans: $N = 193$ for perceived accuracy; $N = 161$ for social media sharing.

a) Perceived accuracy	Democrat-consistent			Republican-consistent			Neutral		
	Fake	Real	Discernment	Fake	Real	Discernment	Fake	Real	Discernment
Democrats	-.30***	.15**	.32***	-.25**	-.08	.12*	-.19***	.08	.22***
Republicans	-.14	.13	.21**	-.11	.13	.20**	-.08	.16*	.21**

b) Social media sharing	Democrat-consistent			Republican-consistent			Neutral		
	Fake	Real	Discernment	Fake	Real	Discernment	Fake	Real	Discernment
Democrats	-.24***	-.11	.04	-.28***	-.29***	-.09	-.28***	-.17**	.09
Republicans	-.21**	-.13	.06	-.11	-.15	-.08	-.19*	-.12	.06

*** $p < .001$, ** $p < .01$, * $p < .05$

2. Study 2

Table S7.

Descriptive statistics for Study 1. Participants who indicated an unwillingness to ever share political news on social media were removed from the social media sharing analysis. Perceived accuracy: $N = 802$. Social media sharing: $N = 667$.

Measure	Scale	<i>Mean</i>	<i>SD</i>	Skew ¹	Kurtosis ²
Cognitive Reflection Test (accuracy)	0-1	0.51	0.29	-0.04	-1.08
Fake news (perceived accuracy)	1-4	1.66	0.45	0.83	0.83
Real news (perceived accuracy)	1-4	2.59	0.44	-0.34	0.62
Fake news (social media sharing)	1-3	1.49	0.41	0.77	0.12
Real news (social media sharing)	1-3	1.23	0.30	1.82	3.64

¹ SE = .05 (social media = .07)

² SE = .10 (social media = .13)

Table S8.

Perceived accuracy means (standard deviations) for comparison between those with a Clinton versus Trump preference as a function of news type and political valence. Clinton preference: $N = 1461$; Trump preference: $N = 1168$.

	Democrat-consistent		Republican-consistent	
	Fake	Real	Fake	Real
Clinton preference	1.77 (.53)	2.75 (.52)	1.55 (.47)	2.47 (.51)
Trump preference	1.58 (.49)	2.38 (.52)	1.75 (.52)	2.75 (.51)

Table S9.

Social media sharing means (standard deviations) for comparison between those with a Clinton versus Trump preference as a function of news type and political valence. Clinton preference: $N = 786$. Trump preference: $N = 594$.

	Democrat-consistent		Republican-consistent	
	Fake	Real	Fake	Real
Clinton preference	1.26 (.35)	1.58 (.48)	1.15 (.28)	1.35 (.40)
Trump preference	1.18 (.32)	1.36 (.42)	1.31 (.37)	1.67 (.53)

3. News Items – Study 1

Fake – Democrat-Consistent



Sarah Palin Calls To Boycott Mall Of America Because “Santa Was Always White In The Bible”

“Next thing we know, we’re going to be having Arab Santa Clauses that are going to be teaching our kids how to make IEDs out of Christmas lights”

POLITICONO.COM



Mike Pence: Gay Conversion Therapy Saved My Marriage

Vice President-elect Mike Pence claims that a 1983 conversion therapy saved him.

NCSCOOPER.COM | BY RANDALL FINKELSTEIN



Pennsylvania Federal Court Grants Legal Authority To REMOVE TRUMP After Russian Meddling

The Russian government's interference in the Presidential election could provide legal...

BIPARTISANREPORT.COM | BY GEORGIA BRISTOW



Trump to Ban All TV Shows that Promote Gay Activity Starting with Empire as President – The #1 Empowering Conscious Website In The World

COLOSSILL.COM



Trump on Revamping the Military: We're Bringing Back the Draft

Trump unveiled his plan to 'make the military great again,' saying he intends to reinstate....

REALNEWSRIGHTNOW.COM | BY R. HOBBS, JD

Fake – Republican-Consistent



BLM Thug Protests President Trump With Selfie...Accidentally Shoots Himself In The Face ★ Freedom Daily

Cant fix Stupid...

FREEDOMDAILY.COM



NYT David Brooks: "Trump Needs To Decide If He Prefers To Resign, Be Impeached Or Get Assassinated" - US Politics

In his Friday column, New York Times columnist David Brooks speculates about a new political dichotomy and writes that President-elect Donald Trump will "resign or be..."

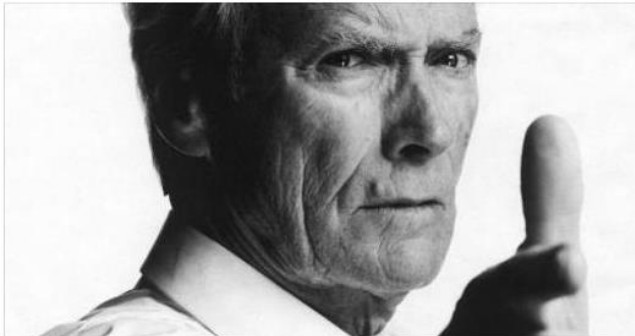
UNITEDSTATES-POLITICS.COM



Election Night: Hillary Was Drunk, Got Physical With Mook and Podesta

According to Todd Kincannon of the Kincannon Show, he spoke to a CNN reporter about...

DAILYHEADLINES.NET



Clint Eastwood Refuses to Accept Presidential Medal of Freedom From Obama, Says "He is not my president" - Usa News

INCREDIBLEUSANEWS.COM



Obama Was Going To Castro's Funeral—Until Trump Told Him This...

Obama just had the rug pulled out from under him.

THELASTLINEOFDEFENSE.ORG

Fake – Politically Neutral



Billionaire founder of Corona beer brewery makes EVERYONE in his village a MILLIONAIRE in his will

THE billionaire founder of Corona beer has reportedly made his entire home village...

THESUN.CO.UK



The Controversial Files: Fake Cigarettes are Being Sold and Killing People, Here's how to Spot Counterfeit Packs

Scammers have recently been targeting those who have the already expensive habit by placing cheap cigarettes in name-brand cartridges, and gas stations are selling them at a...

THECONTROVERSIALFILES.NET



Because Of The Lack Of Men, Iceland Gives \$5,000 Per Month To Immigrants Who Marry Icelandic Women!

Breaking news about Iceland country incredible but true if you are interested read the full story Iceland team was able to achieve an unprecedented achievement in the European...

HOWAFRICA.COM



Man Kicked Out Golden Corral After Eating 50LBS Of Food; Sues For \$2-Million

A man from Massachusetts is suing Golden Corral Corporation for 2 million dollars, for false advertising, after being literally thrown out of one of the chain's restaurants by the...

DEMCMEDIA.COM

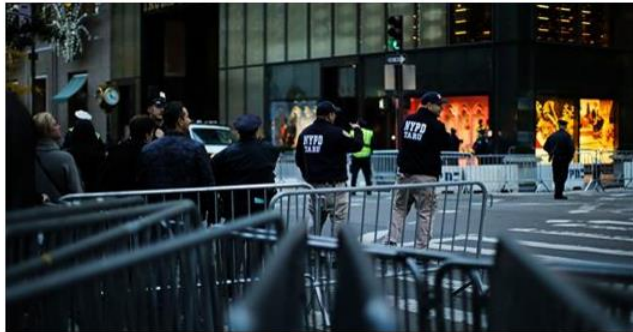


Yellowstone Evacuated: Experts Claim 'Super Volcano' Could Erupt Within Weeks

Yellowstone National Park has been hastily evacuated as fear of the Yellowstone...

GLOBALNETWORK.INFO

Real – Democrat-Consistent



The Small Businesses Near Trump Tower Are Experiencing a Miniature Recession

Tina's Cuban Cuisine, a small deli and diner on West 56th Street between Fifth and Sixth avenues in Manhattan, is one of those easy-to-overlook restaur ...

SLATE.COM



North Carolina Republicans Push Legislation To Hobble Incoming Democratic Governor

The bills are "petty," one Democratic state lawmaker said.

HUFFINGTONPOST.COM | BY JULIA CRAVEN



Vladimir Putin 'personally involved' in US hack, report claims

Russian president made key decisions in operation seen as revenge for past criticisms by Hillary Clinton, says NBC

THEGUARDIAN.COM



Trump Questions Russia's Election Meddling on Twitter — Inaccurately

President-elect Donald J. Trump was back on Twitter, questioning Russian hacking, lashing out at Vanity Fair and cryptically defending his business interests.

NYTIMES.COM | BY MAGGIE HABERMAN, THOMAS KAPLAN AND JEREMY W. PETERS



Trump Lashes Out At Vanity Fair, One Day After It Lambastes His Restaurant

Trump has had a long-running feud with the magazine's editor, who once termed him a "short-fingered vulgarian."

NPR.ORG

Real – Republican-Consistent



Companies are already canceling plans to move U.S. jobs abroad

President-elect Donald Trump's threat of retribution against companies that move jobs out of the U.S. is already having the effect he probably intended: some business leaders are...

MSN.COM



Dems scramble to prevent their own from defecting to Trump

Senate Democrats have been scrambling to prevent two of their members from taking a post in the Trump administration, trying to prevent any...

FOXNEWS.COM



Majority of Americans Say Trump Can Keep Businesses, Poll Shows

Two-thirds of U.S. adults think Donald Trump needs to choose between being president or a businessman, but slightly more -- 69 percent -- believe it goes too far to force him and his...

BLOOMBERG.COM



Donald Trump Strikes Conciliatory Tone in Meeting With Tech Executives

Prominent tech executives began arriving at Trump Tower in New York for a summit with...

WSJ.COM | BY JACK NICAS



She claimed she was attacked by men who yelled 'Trump' and grabbed her hijab. Police say she lied.

Yasmin Seweid claimed three drunk men attacked her because of her faith. Police investigated and people rallied to support her. But it may have all been a fabrication.

WASHINGTONPOST.COM

Real – Politically Neutral



Depression symptoms are common among active airline pilots, international survey reveals

Behind the self-confident gait, the friendly greeting and the air of superb competence, as many as 13% of the nation's commercial airline pilots may be suffering from depression,...

LATIMES.COM | BY MELISSA HEALY



Woman who had ovary frozen in childhood gives birth

She is believed to be the first woman in the world to have a baby after having ovarian tissue frozen before the onset of puberty

CBSNEWS.COM



Hitler's Austrian birthplace will be home for disability charity - BBC News

The house where Adolf Hitler was born will remain standing, Austrian MPs have decided.

BBC.COM



Gnarly! 6-story wave is revealed as biggest ever recorded

Scientists attributed the enormous surge to combination of a "very strong cold front" in the North Atlantic Ocean.

NBCNEWS.COM | BY NBC NEWS



Yahoo Suffers World's Biggest Hack Affecting 1 Billion Users

Yahoo has discovered a 3-year-old security breach that enabled a hacker to compromise more than 1 billion user accounts, breaking the company's own humiliating record for the biggest security breach in history. The digital heist disclosed Wednesday occurred in...

ABCNEWS.GO.COM | BY ABC NEWS

4. News Items – Study 2

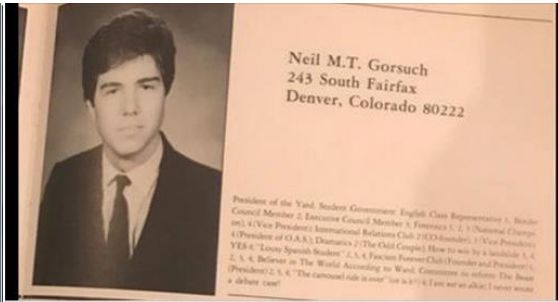
Fake – Democrat-Consistent



Chris Collins Says John Lewis Is “Like A Spoiled Chimp That Got Too Many Bananas And Rights”

Rep. Chris Collins (R-NY), a member of the Trump transition team, on Monday accused Rep. John Lewis (D-GA) of acting like a “spoiled child” after the civil rights icon suggested that...

POLITICOPS.COM



SCOTUS Nominee Gorsuch Started 'Fascism Forever' Club at Elite Prep School

The club was reportedly founded in opposition to “the increasingly ‘left-wing’ tendencies of the faculty” at Georgetown Prep

COMMONDREAMS.ORG



Sarah Palin Calls To Boycott Mall Of America Because “Santa Was Always White In The Bible”

“Next thing we know, we’re going to be having Arab Santa Clauses that are going to be teaching our kids how to make IEDs out of Christmas lights”

POLITICONO.COM



Mike Pence: Gay Conversion Therapy Saved My Marriage

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BLM Thug Protests President Trump With Selfie...Accidentally Shoots Himself In The Face ★ Freedom Daily

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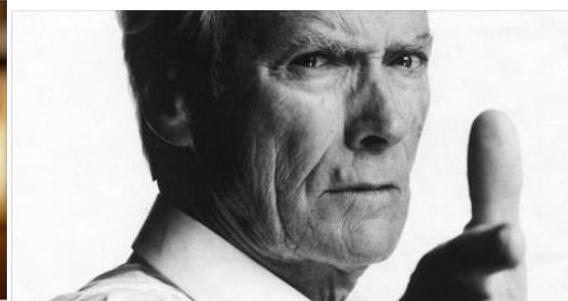
FREEDOMDAILY.COM



BREAKING NEWS: Hillary Clinton Filed For Divorce In New York Courts - The USA-NEWS

Bill Clinton just got served — by his own wife. At approximately 9:18 a.m. on Thursday, attorneys for Hillary Rodham Clinton filed an Action For Divorce with the Supreme Court of...

THEUSA-NEWS.COM



Clint Eastwood Refuses to Accept Presidential Medal of Freedom From Obama, Says “He is not my president” - Usa News

INCREDIBLEUSANEWS.COM



BREAKING: Ruth Bader Ginsburg Taken To Hospital Unresponsive—Here's What We Know

President Trump is said to be getting his short list ready as he prepares to address the nation.

THELASTLINEOFDEFENSE.ORG



Obama Was Going To Castro's Funeral—Until Trump Told Him This...

Obama just had the rug pulled out from under him.

DAILYHEADLINES.NET



Obama Crushed After Trump Orders White House To Stop His Sickest Tradition

This has been a long time coming.

ENABON.COM

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Clinton PAC aims to boost left-wing, anti-Trump groups – will she still have clout?

Hillary Clinton is returning to politics far from the national stage she exited in November 2016 but close to the issues she left behind – backing grassroots groups intent on thwarting...

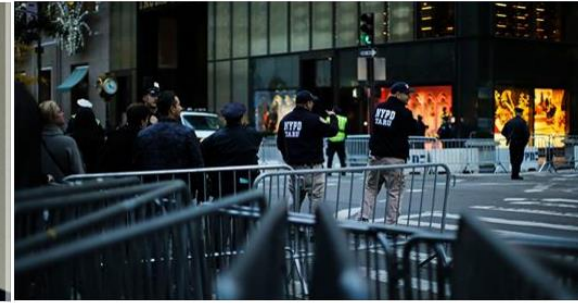
FOXNEWS.COM



Comey's handling of Clinton probe was influenced by a strange Russian document

Russian spies may have planted a document to make the Clinton email investigation look like a conspiracy

SALON.COM



The Small Businesses Near Trump Tower Are Experiencing a Miniature Recession

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SLATE.COM



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Vladimir Putin 'personally involved' in US hack, report claims

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NPR.ORG

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President-elect Donald Trump's threat of retribution against companies that move jobs out of the U.S. is already having the effect he probably intended: some business leaders are...

MSN.COM



Rudy Giuliani calls Hillary Clinton 'too stupid to be President'

Giuliani brought up the Monica Lewinsky scandal when talking to reporters after the debate about whether Trump is a feminist.

NYDAILYNEWS.COM



Navy leaders defend Trump's lackluster ship budget

Lawmakers on Wednesday questioned President Trump's promise to build the Navy to a 350-ship-plus fleet, grilling service officials on the administration's fiscal 2018 budget and its lack of capital for such a feat.

THEHILL.COM



Spike Lee: Hillary Clinton thought she was 'entitled' to presidency

Spike Lee said Hillary Clinton's "entitlement" was her undoing in the 2016 presidential campaign, adding that the Democratic nominee got too comfortable assuming she was...

WASHINGTONTIMES.COM



Majority of Americans Say Trump Can Keep Businesses, Poll Shows

Two-thirds of U.S. adults think Donald Trump needs to choose between being president or a businessman, but slightly more – 69 percent – believe it goes too far to force him and his...

BLOOMBERG.COM



At GOP Convention Finale, Donald Trump Vows to Protect LGBTQ Community

Four years ago, Mitt Romney never uttered the word "gay," much less the full acronym...

FORTUNE.COM