What Counts as Terrorism? Racial heuristics and media portrayals of mass shooters

Emily Kalah Gade[1]

Dallas Card[2]

Sarah K. Dreier[3]

Noah A. Smith[4]

[1] Acting Assistant Professor or Political Science and Moore/Sloan Innovations in Data Science Postdoctoral Fellow, *University of Washington*

[2] Ph.C., Machine Learning Department, *Carnegie Mellon University*

[3] Postdoctoral Research Fellow, Department of Political Science, *University of Washington*

[4] Professor, Computer Science and Engineering, *University of Washington*

Abstract

Under what conditions do news sources describe a violent event as terrorism? We hypothesize that a perpetrator's race, religion, or other racialized characteristics (which should have no impact on whether an event is considered terrorism) shape whether media characterize or associate an event as terrorism. We develop an original corpus of news coverage of U.S. mass shootings to test our hypotheses against other factors associated with media's terrorism designations. We use statistical regression, qualitative analysis, and unsupervised natural language processing to evaluate relationships between mass shooters' characteristics and terrorism designations. These analyses suggest that Muslim and Middle Eastern perpetrators may be more likely to be considered terrorists and covered unsympathetically, relative to white perpetrators. With mass shootings on the rise and media treatment of terrorism shaping event data and policymaker perceptions, understanding racial biases in media coverage is crucial to urgently identify and immediately rectify.

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Introduction

Under what conditions do news media describe a violent event as terrorism? Do perpetrator characteristics—like race or religion, which should have no bearing on how an event is characterized—make that designation more likely? Labelling a violent event as terrorism carries considerable political ramifications and legal gravity (Baele et al., 2017). However, terrorism is difficult to distinguish from other forms of civilian violence (Crenshaw, 2000; Horgan, 2003; Kydd and Walter, 2006). Furthermore, no general guidelines (e.g., the Associated Press's Stylebook) dictate how U.S. media should operationalize terrorism in the news. This lack of conceptual clarity introduces the potential for racial heuristics to influence which violent events are designated as terrorism. Racial biases shape the *amount* of U.S. media coverage of terrorist events (Kearns, Betus and Lemieux, 2018; Powell, 2011) and the public's identification of event as terrorism (Huff and Kertzer, 2018). Do similar biases shape which violent events media *designate* as terrorism and which they do not?

This article develops and empirically tests a theoretical framework for how racial heuristics might shape media designations of terrorism. We hypothesize that perpetrators treated as "racialized foreigners" will be more likely than "white Americans" to be treated as terrorists who threaten national security. Even before the attacks on September 11, 2001 (9/11), Arab, Middle-Eastern, and Muslim Americans had been racialized, framed as foreign, and increasingly associated with terrorism (Elver, 2012; Nacos and Torres-Reyna, 2007). We therefore expect perpetrators with these identities will be particularly likely to receive terrorist designations.

To test this hypothesis, we examine media designations among U.S. mass shootings, which are relatively common and fatal.[5] Political objectives, personal grievances, mental instabilities, or an unclear combination of these can all motivate shootings. These events can thus provide valuable insights about whether racial biases drive designations of terrorism.

We generated an original corpus of newspaper coverage of each mass-shooting event that occurred in the United States between 1990 and mid-2016 (catalogued by the Stanford Mass Shootings in America project) and conducted three analyses on this corpus. First, we hand-coded variables related to each event and constructed a statistical model to evaluate what factors

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[5]In 2015 alone, U.S. mass shootings killed 475 people and wounded 1,870.

make the media more likely to designate an event terrorism. Second, we qualitatively analyze two emblematic mass-shooting events to evaluate contextual links between racial frames and terrorist designations. Third, we apply unsupervised natural language processing (NLP) techniques to identify archetypal "personas" the media attach to violent perpetrators and evaluate whether these are based on their racial identities.

This research has an important limitation. We find a small universe of positive cases for our outcome variable; only 8.5% of mass shootings in our data qualify as terrorism (definition detailed in Section 1). The same is true of our explanatory variable; "racialized foreigners" composed only 2-10% of shooters. (Most mass shooters are white American men.)

Nevertheless, evidence from our statistical and qualitative analyses suggest that Muslim and/or Middle Eastern perpetrators are more likely than other perpetrators to receive designations of terrorism. Our unsupervised narrative analysis additionally suggests that media treatment of white perpetrators is more likely to contain sympathetic elements, while non-white perpetrators appear to receive more unambiguously negative frames.

This study makes five specific contributions. First, we compare different existing definitions of terrorism and analyze terrorism's social meaning over time (Background). Second, we develop a theoretical framework for how racial heuristics might contaminate media, official, and academic designations of terrorism (Theory). Third, we collect and hand code data of U.S. mass shooting events (Data generation). Fourth, we develop an approach for applying unsupervised NLP tools to model "personas" among mass shooters (Methodological approach). Fifth, we advance knowledge about U.S. mass shooters' racial identities, motivations, and designations as terrorists (Results). To our knowledge, we are the first to systematically evaluate the relationships between racial heuristics and media's terrorism designations.

Media coverage is central to the practice and study of terrorism. Expert event data about terrorism is generated directly from news coverage. Any biases in the news likely yield biases in official databases, scholarly knowledge, and terrorism-focused government policy. Furthermore, terrorists themselves strategically pursue media coverage and may also "copycat" previous widely-covered attacks (Chenoweth, 2015). With mass shootings on the rise and media treatment of terrorism shaping official designations used by government policymakers, understanding whether terrorism designations contain bias is of central social and policy relevance

to this political moment.

1 Background: Defining Terrorism

Terrorism is a nebulous concept that is challenging to define or identify (Ruby, 2002; Schmid, 2004). It commonly refers to politically motivated violence conducted by non-state perpetrators (Hoffman, 1986; Rich, 2013). U.S. government agencies use definitions that are inconsistent with one another (Table 1). The only common theme across their definitions is that terrorists have political motivations. Meanwhile, the extensive Associated Press Stylebook provides U.S. journalists and editors no guideline for using the term "terrorism" (Associated Press, N.d.).

Some definitions limit terrorism to "radical" or "extremist" motivations. However, these designations are subjective,[6] can shift over a political movement's lifespan, and are potentially biased against actors lacking power in more "mainstream" arenas. Furthermore, identifying motives is often challenging, particularly when a perpetrator is unidentified, when violence is conducted by an isolated ("lone-wolf") perpetrator, when perpetrators appear to have multiple motives or political affiliations, or when it is unclear whether a motive is political. Experts disagree, for example, on the boundaries and overlaps between terrorist attacks and hate crimes. In this study, we define "terrorism" as: **a violent event perpetrated to advance a political agenda broader than the event itself** (Phillips, 2015).

Without common parameters and guidelines, however, subjective demographic stereotypes can influence what experts or media consider a political motivation, or the relevance of a perpetrator's identity in motivating that political act (Hodgson and Tadros, 2013; Lakoff, 2000). Furthermore, this opens space for experts and media to expand or contract the concept of terrorism to advance their own agenda or to comply with their own stereotypes. Indeed, government actors have strategically mobilized concerns of terrorism to advance their partisan or policy objectives.

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[6]For example, the word "extremist" only appears in AP guidelines for discussing concepts or political ideologies that claim association with Islam (e.g., *jihad*, Taliban, and Islamist).

Table 1: Definitions of Terrorism from U.S. Government Agencies and Security Think Tanks

Source	Text	Themes					
		Use of Violence	Threat of Violence	Political Motivation	Noncombatant Targets	Extreme Ideologies	Fear
Title 22 of the US Code	Premeditated, politically motivated violence perpetrated in a clandestine manner against noncombatants	▓		▓	▓		
Central Intelligence Agency/ State Dept.	Title 22 of the US Code (no alterations)	▓		▓	▓		
Federal Bureau of Investigation	Domestic terrorism: Perpetrated by individuals and/or groups inspired by or associated with primarily U.S.-based movements that espouse extremist ideologies of a political, religious, social, racial, or environmental nature.	*implied*				▓	
Dept. of Homeland Security	Any activity that—(A) involves an act that is dangerous to human life or potentially destructive of critical infrastructure or key resources; and (B) appears to be intended to intimidate or coerce a civilian population; to influence the policy of a government by intimidation or coercion; or to affect the conduct of a government by mass destruction, assassination, or kidnapping.	▓		▓			▓
Global Terrorism Database	Threatened or actual use of illegal force and violence by a non-state actor to attain a political, economic, religious, or social goal through fear, coercion, or intimidation.	*illegal force*	*illegal force*	▓			▓
RAND Incidents of Terrorism Database	Terrorism is defined by the nature of the act...: Violence or the threat of violence; Calculated to create fear and alarm; Intended to coerce certain actions; Motive must include a political objective; Generally directed against civilian targets; Can be a group or an individual.	▓	▓	▓	▓		▓

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1.1 Has the meaning of terrorism changed over time?

The meaning of a word is determined by both its definition and how it is used. We therefore investigate whether the implicit meaning of terrorism has remained stable over time. The 9/11 terrorist attacks represented a salient critical juncture which plausibly shifted terrorism's prominence and social meaning. We use the *New York Times* annotated corpus—considered indicative of patterns in the U.S. news media (Sandhaus, 2008)—to explore whether there was a detectable change in the usage of the word "terrorism" between 1987 and 2007.

Figure 1 demonstrates the frequency with which "terrorism" appears in the *Times* corpus (i.e., the proportion of articles which include the word "terrorism"). Usage was approximately constant for more than a decade before the 9/11 attacks. Unsurprisingly, those attacks facilitated an exceptional spike of usage and a gradual decline to a new, higher baseline, relative to pre-9/11 levels. This suggests that terrorism is a more prominent concept today than it was prior to 9/11.
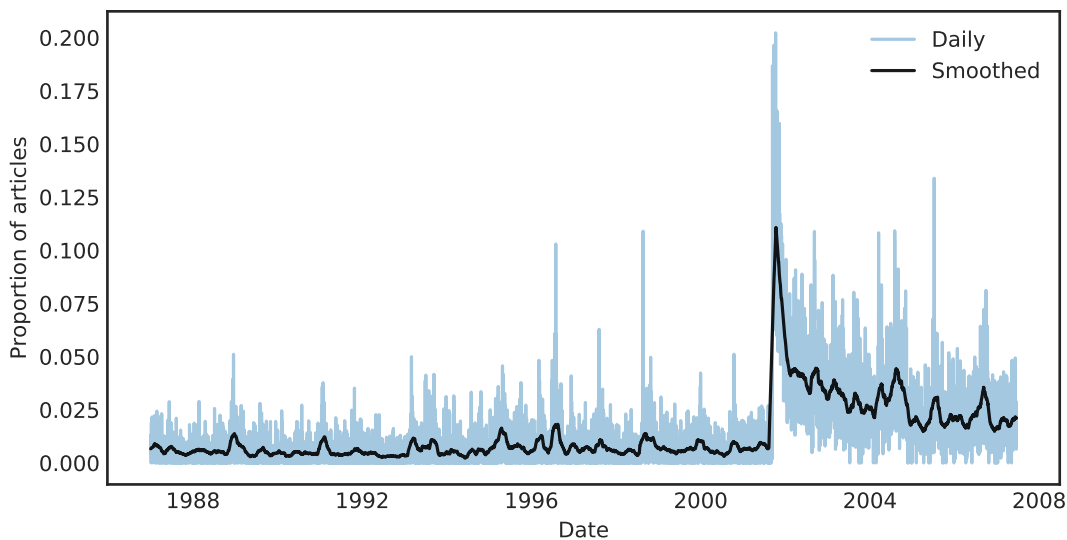

Figure 1: Proportion of articles mentioning "terrorism" in the *Times* corpus.

A change in frequency does not necessarily imply a change in meaning. We therefore analyze the contexts in which the word "terrorism" occurs. We estimated *word vectors*, learned in an unsupervised manner from the *Times* corpus,[7] which assign to each word a multi-dimensional vector that encodes the contexts in which the word tends to occur. Words which occur in sim-

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[7]We used a standard package, `https://bitbucket.org/omerlevy/hyperwords`.

ilar contexts will be associated with similar vectors (Mikolov et al., 2013; Pennington, Socher and Manning, 2014).

To compare media use of "terrorism" before and after 9/11, we treated pre- and post-9/11 mentions of "terrorism" as different word types. This analysis suggests considerable proximity between media treatment of terrorism before and after 9/11: Pre- and post-9/11 "terrorism" vectors are closer to one another than either is to any other word in the corpus. Furthermore, although the salience of specific terrorist groups have changed (e.g., al Qaeda emerged as a most-proximate term to terrorism after 9/11), terrorism itself is used in very similar contexts before and after 9/11.[8]

We also used the normalized pointwise mutual information (NPMI) to examine the co-occurrence between "terrorism" and each other word in the *Times* corpus.[9] Figure 2 plots the yearly NPMI for each of the thirty terms with the highest overall article co-occurrence with terrorism. The relative prominence of certain context-specific terms increased (e.g., al Qaeda, [President] Bush) or decreased (e.g., Palestine, Israel) after 9/11. Beyond that, however, most words retain approximately the same yearly-NPMI with terrorism over the entire twenty-year period of our analysis. As above, this suggests that the broader context in which media discuss terrorism has generally remained consistent over time. In sum, the 9/11 terrorist attacks appear to have facilitated an increase in terrorism's media prominence but do not appear to have altered terrorism's implicit social meaning in a manner that would confound the analysis that follows.

2 Theory: Race, Media, and Terrorism

2.1 Media Coverage of Terrorism

Since the definition of terrorism is nebulous, media and experts could inconsistently apply it to violent events in racially biased ways. Individuals commonly use heuristic shortcuts, based on social predispositions, to understand events or make expedited decisions (Ferree,

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[8]To verify the reliability of this method, we replicate this approach for insecurity-related concepts not commonly associated with 9/11 (e.g., "murder" or "earthquake"). These tokens produce results comparable to the terrorism tokens, but exhibit greater cosine similarity before and after 9/11.

[9]For two words, x and y, the formula for NPMI is $\left(\log \frac{p(x,y)}{p(x)p(y)} \right) / \left(- \log p(x,y) \right)$. See Bouma (2009) for details.
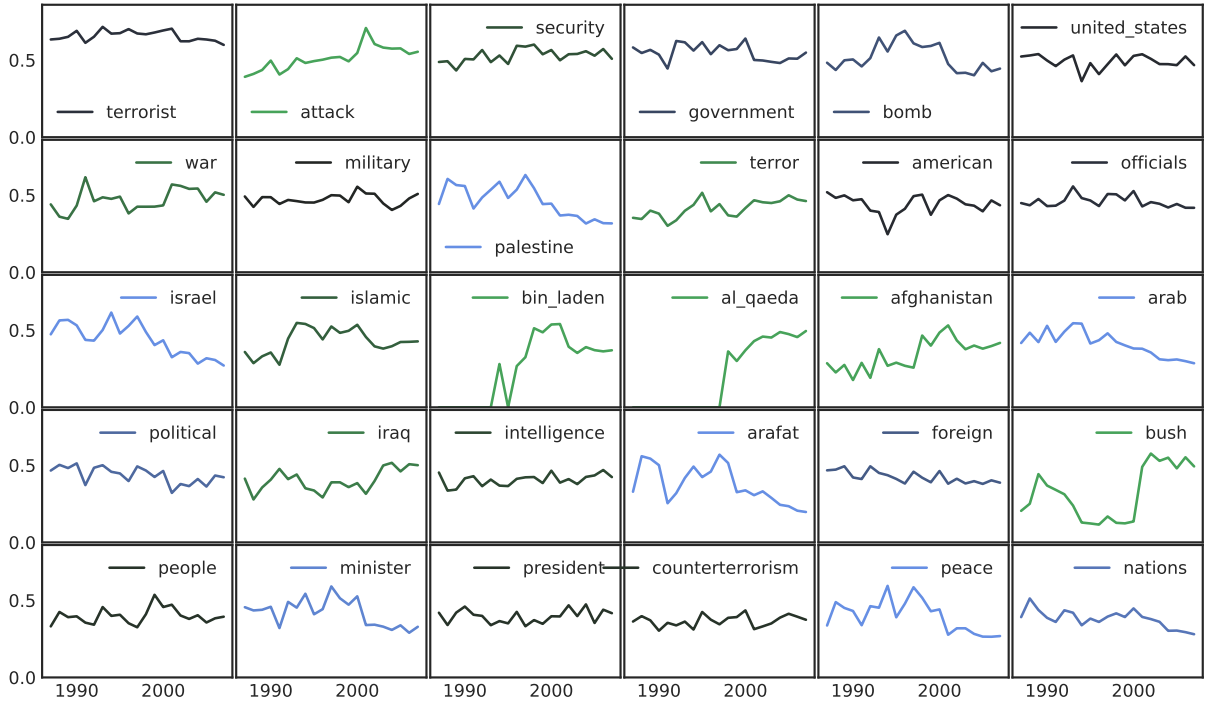
Figure 2: NPMI per year for the 30 terms with the highest overall NPMI with "terrorism" in the *Times* annotated corpus.

2006; Kahneman and Egan, 2011; Sniderman, Brody and Tetlock, 1991). Heuristics also enable people to make inaccurate and/or negative assumptions about others based on racial biases or other social stereotypes (Lau and Redlawsk, 2001).

Negative attitudes against racial minorities are central drivers of political behavior (Banks, 2014; Hutchings and Valentino, 2004; Jardina, 2019; Tesler, 2016) and media coverage (Graham and Lowery, 2004). For example, news sources continually over-portray whites as victims rather than perpetrators of crime and give white perpetrators more sympathetic treatment, relative to non-white perpetrators (Dixon, 2017; Dixon and Linz, 2000a,b).

Media coverage of terrorist events—how much coverage different events receive, given that they are understood as terrorism—is similarly shaped by racial heuristics, particularly those that link Arab, Middle-Eastern, or Muslim identities to terrorism. Perpetrator identities contribute to the amount of media coverage a terrorist attack receives (Chermak and Gruenewald, 2006; Weimann and Brosius, 1991). Controlling for incident severity, target type, and other factors that should dictate media coverage, U.S.-based terrorist incidents perpetrated by Muslims (between 2006–2015) received 357 percent more news coverage than other terrorist

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attacks (Kearns, Betus and Lemieux, 2018). How an event is covered also changes according to perpetrator identity. Media treat terrorist attacks by Muslim or Arab perpetrators as part of a foreign, organized offensive against "Christian America" but do not adopt similar fear-based frames when covering non-racialized American terrorists (Powell, 2011; see also: Chermak and Gruenewald, 2006).

2.2 Media Designations of Terrorism

Building on this knowledge of media *coverage* of terrorist events, we predict that racial heuristics also shape which violent events the media and experts *designate* as terrorism. Members of the U.S. public are more likely to designate an event as terrorism if it is conducted by a Muslim perpetrator (Huff and Kertzer, 2018). We evaluate whether experts and journalists exhibit similar biases. These biases can be consequential. Racial cues or biases in campaigns or media coverage can activate negative racial attitudes (Domke, McCoy and Torres, 1999; Gilliam Jr, Valentino and Beckmann, 2002; Hutchings and Jardina, 2009; Valentino, Hutchings and White, 2002; Zaller et al., 1992); reinforce racial heuristics' links to terrorism; and shape policies that impede individual liberty, security, and social well-being (Merolla and Zechmeister, 2009).

We identify two interrelated dimensions of socially imposed racial identities that likely shape whether U.S. media and experts treat a violent perpetrator as a terrorist: perceptions of the perpetrator's race (white/non-white) and perceptions of the perpetrator's nationality (American/foreign). Drawing on studies of racial positioning (Zou and Cheryan, 2017), we expect that perpetrators considered non-white, foreign, or both, will be more likely than their white, American counterparts to be designated as terrorists (Figure 3).

H1: Perpetrator Race

First, we expect that a perpetrator's race will shape media terrorism designations. Racial categories are subjective social and legal constructions that shift over time (Lopez, 1997; Mingus and Zopf, 2010; Nagel, 1994; Omi and Winant, 1994). Historically, U.S. law classified residents of Arab or Middle-Eastern descent as white (*Dow v. United States*, 4th Cir., 1915). Over time, however, U.S. policies, media coverage, and public attitudes increasingly racialized these groups as non-white (Considine, 2017; Elver, 2012). This often-dehumanizing racialization increased

after 9/11 (Dana et al., 2018; Lajevardi and Oskooii, 2018; Naber, N.d.; Sayyid, 2014; Wilkins, 2008). Despite being an ethnically heterogeneous group (Mohamed, 2018), Muslims are now often lumped together with Arab and Middle-Eastern identities and heuristically linked to terrorism.[10] They are "cast as a potentially threatening Other based on racial characteristics" (Considine, 2017, 165).Of course, the race-based contours of terrorism are not limited to any specific racial group.[11]

> *H1: Perpetrators who are perceived as Arab, Middle-Eastern, or Muslim are more*
> *likely to be described by media sources as terrorists, relative to white perpetrators.*

H2: Perpetrator "Foreignness"

We additionally expect that foreign perpetrators will be more likely understood as threatening American institutions or identities and therefore more likely designated as terrorists. "Foreignness" can take multiple forms but often has racial contours. U.S. public opinion about immigration policy, for example, is shaped by group-specified attitudes (Valentino, Brader and Jardina, 2013). For example, Latino immigrants in the United States trigger far more opposition to immigration among white Americans than do European immigrants (Brader, Valentino and Suhay, 2008; see also Newman, Shah and Collingwood, 2018). Meanwhile, post-9/11 federal U.S. policies routinely treated immigrants as foreigners, criminals, and/or terrorists (Kanstroom, 2003; Miller, 2005).

Presumptions of foreignness are not limited to those who are born outside of the United States. Public attitudes and discourses elevate white, European, and Christian identities as quintessentially "American" (Lakoff, 2000). Muslims and other identities which deviate from those categories are racialized as foreign (Said, 2008; Selod, 2015). Indeed, contemporary resentments against Muslims retain similarities to "old-fashioned" American racism but are also "unique in their focus on Muslims as foreign outsiders," regardless of whether a Muslim is

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[10]Racism and anti-Muslim sentiments ("Islamophobia") are analytically distinct but empirically interrelated (Hussain and Bagguley, 2012).

[11]The occasionally violent Black Panther movement against U.S. racial discrimination and longstanding institutional inequalities was designated as terrorism. Politically motivated efforts to retain (rather than challenge) existing racial hierarchies—such as white nationalist movements—appear less directly associated with terrorism.

American or a foreign national (Lajevardi and Oskooii, 2018, 117).

In short, racial heuristics sideline foreign nationals, immigrants, and Muslims as outsiders who deviate from the "typical" American and threaten American identities. We therefore expect that racialized perceptions of foreignness will activate heuristic linkages between political violence and anti-American terrorism and make terrorism designations more likely:

> *H2: Perpetrators who are perceived as "foreign" —including immigrants or Muslims— are more likely to be described by media sources as terrorists, relative to perpetrators perceived as "American."*

Figure 3: Dimensions of racial heuristics and theorized likelihood of terrorist designations (see also Zou and Cheryan, 2017)
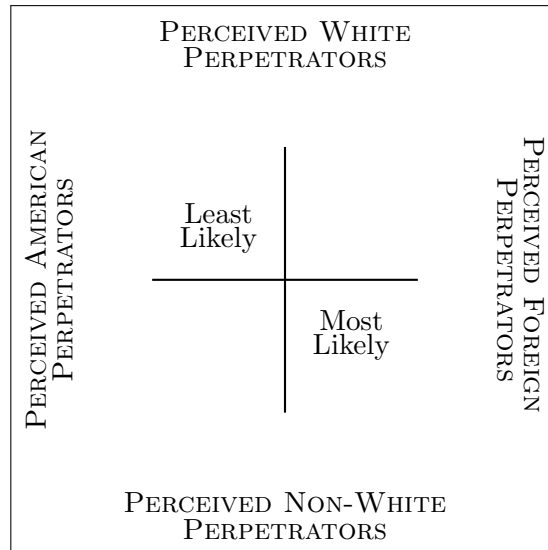
3   Data Generation and Research Design

3.1   Case Selection: U.S Mass Shootings

To test these hypotheses, we examine media's terrorist designations among U.S. mass shootings. According to Stanford's Mass Shootings in America Database (MSA), a mass shooting is an event in which perpetrator(s) use firearm(s) to kill or injure three or more people.[12]   MSA

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[12]https://library.stanford.edu/projects/mass-shootings-america.   See Appendix B for descriptive data.

events exclude organized crimes (e.g., gang or drug-related violence) but include terrorism. Given terrorism's nebulous definition, there is often ambiguity about whether a particular mass shooting should be considered terrorism. The MSA database catalogued more than 330 mass shootings between 1960 and mid-2016. Given our interest in how perpetrator characteristics shape terrorism designations, we exclude from our analysis the 34 cases with no identified perpetrator, as well as the 32 events that occurred before our news data began in 1990 (n=265).

3.2   Outcome of Interest: Terrorism Designations

We use three distinct measures for terrorism designation. First, we coded each incident using a rigorous coding ontology that distinguishes among various political motives (Appendix C provides coding details). This measure categorizes twenty-five mass shootings in the MSA database (post-1990) as terrorism under a broad definition, and the remaining events as not terrorism.

For our second measure, we examined whether and to what extent U.S. newspapers treated each mass shooting event as terrorism. Using Lexis-Nexis Academic, we compiled a corpus of news articles relevant to each mass-shooting event in our dataset. We limited our analysis to articles published by select nationally or regionally circulating newspapers within one week of the event's occurrence, along with additional filters (see Appendix B), to establish a reliable corpus of 4,146 news articles. News coverage is skewed toward high-profile events.[13]

For each article, we use dictionary methods to identify whether the word "terrorism" or "terrorist" appears in a sentence that does not include a negation (e.g., "no evidence" or "no solid evidence"). Figure 4 shows the proportion of articles in our corpus which associated a given mass shooting with terrorism. All but one of the five incidents most strongly associated with terrorism in the news involved Muslim perpetrators.[14] While all five of those high-profile events qualified as terrorism, these four Muslim-perpetrated events represent only a fraction (about 15%) of the twenty-five incidents in these data that could be considered terrorism under a broad definition. Muslim-perpetrated events also received notably more coverage than other

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[13]The 2016 Pulse Nightclub shooting (Orlando, FL) and the 2012 Sandy Hook Elementary School shooting (Newtown, CT) each received approximately 400 news articles within a week of the event.

[14]The exception is the 2015 attack on a Planned Parenthood clinic (Colorado Springs, CO).
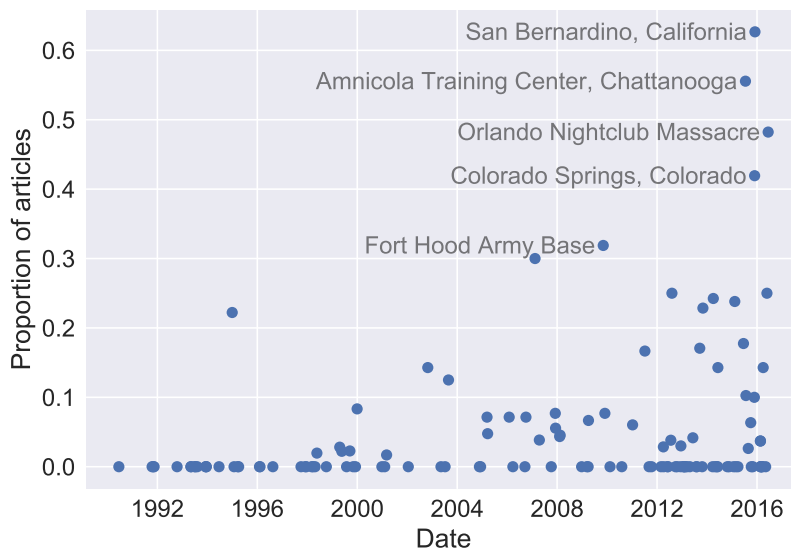
terrorism-related incidents.

Figure 4: Proportion of articles about each event which mention "terrorism" or "terrorist".

For our third measure, we evaluated disagreement between expert coders' designation of a given event (using an expansive definition of terrorism) and media treatment of that event. Any such disconnect indicates that either the media considered the event terrorism when it should not have, or the event could be considered terrorism but the media did not talk about it that way. Each event was coded between 0 (perfect agreement) and 5 (perfect disagreement). See Appendix C for coding strategy. We use the second and third measures as dependent variables in regression analyses.

4 Methodological Approach and Results

We evaluate the relationships between the explanatory and outcome variables using three approaches: a statistical analysis among the universe of mass shootings, a qualitative examination of typologically relevant mass shooting incidents, and an unsupervised methods to uncover relationships and narrative linkages: natural language processing methods to identify the archetypal character narratives (of victims or villains) journalists use to represent individual perpetrators (Schneider and Ingram, 1993; Van Gorp, 2010), where we attempt to discover broader patterns

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of characterization that may be relevant to framing (Bamman, O'Connor and Smith, 2013; Card et al., 2016).

4.1 Regression Analysis: Mentions of Terrorism in Media Coverage of Mass Shootings

We evaluate our hypotheses (that perpetrators racialized as foreigners will be more likely to be talked about as terrorists than their white counterparts) against relevant alternative explanations (Huff and Kertzer, 2018; Kearns, Betus and Lemieux, 2018). These include severity of the incident, perpetrator links to violent or extremist groups, the amount of news coverage received, whether it was an attack against a government target, whether the target was a school, whether the incident was a domestic or social dispute, and whether the event could have been considered terrorism. We used an OLS regression analysis.[15] Regression tables are available in Appendix A.

4.1.1 Regression Results

Figure 5 and 6 present regression results of our two dependent variables of interest: coverage of an event as terrorism in the news (a count of affirmative mentions of "terrorism" in reference to a given event) and mis-categorization of the event (the extent to which news and expert coding disagree). Our primary models (1–4, Figure 5) suggest a large, positive, statistically significant association between a Muslim shooter or a Middle Eastern shooter and an event being talked about as terrorism, even when controlling for whether an event could be considered terrorism under a broad definition. We also find a small, negative, statistically significant association between a white shooter and the event being considered terrorism in the news. In the cases observed here, Middle Eastern and Muslim shooters are more likely to be talked about as terrorists than are their white counterparts, even when controlling for whether the event was terrorism, links to existing violent groups, the number of causalities, the amount of news coverage an event received, and the target type.

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[15]We use an OLS model, rather than a negative binomial, for example, due bias-variance trade-off concerns (Shalizi, 2013).

The models presented here do not demonstrate a statistically significant association between being an immigrant shooter and being considered a terrorist. Due to small sample sizes, however, this should not be interpreted as suggesting that no relationship exists. In fact, our qualitative analysis (below) suggests that media treat shooters' familial immigration patterns relevant to their violence. Corresponding to previous studies, we find both the number of victims and the amount of news attention are positively related to the news considering an event terrorism.
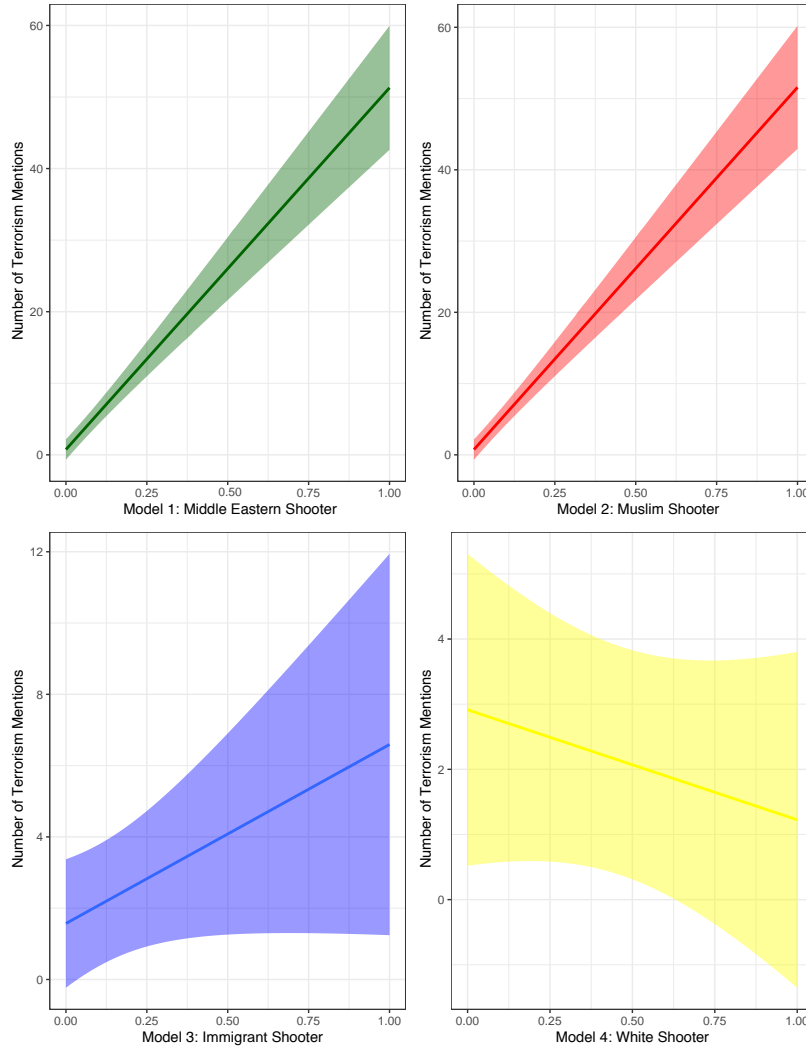

Figure 5: Models 1–4: Racalized Perpetrators and Terrorism mentions in the news. See Appendix A for Regression Tables.

Figure 6 presents results for our mis-categorization (disagreement) measure. We find a strong, negative, statically significant relationship between Middle-Eastern shooters and the

event being mis-categorized. When news sources cover an incident that could be considered terrorism and is perpetrated by someone who is of Middle Eastern descent, media reliability identify that event as terrorism. However, attacks that *target* minority groups are positively, statistically significantly related to mis-classification: when minority groups are attacked, there is more confusion about how to classify this event and whether to consider it terrorism. Similarly, when the target is governmental or political, it is more likely to be mis-classified. Indeed, while the 2011 shooting of U.S. Congresswoman Gabrielle Giffords could be considered terrorism under a broad definition, many news sources did not talk about it this way. Domestic or social disputes, as well as school shootings, generate higher rates of agreement between the news and expert coding that these events do not constitute terrorism; they are unlikely to be mis-classified. Being an immigrant shooter has no discernible impact on agreement/disagreement in these models.

In sum, a racialized perpetrator has a strong, positive, statistically significant association with being considered a terrorist. Meanwhile, being a white perpetrator has a small, negative, statistically significant relationship with being considered a terrorist. Terrorism incidents perpetrated by Muslim or Middle-Eastern shooters are unlikely to be mis-categorized. However, the small number of perpetrators for these given demographic traits still makes a conclusive analyses impossible at this time. We have greater confidence in the mis-characterization analysis, however. There are 61 cases with some level of mis-categorization out of 265 incidents; this provides a larger number of "affirmative" observations of the concept "mis-classification." Given these general data limitations, however, we explored two alternative specifications: qualitative analysis of two emblematic incidents and unsupervised approaches to evaluating the character "personas" media attach to mass-shooting perpetrators based on their racial identities.

Figure 6: Coefficient Plot for Models 5-7: Racalized Perpetrators and Mis-categorization in the news. See Appendix A for regression tables.

4.2 Qualitative Analysis

On November 5, 2009, Nidal Hasan—a Muslim U.S. military psychiatrist—opened gunfire at his military base in Fort Hood, Texas, killing thirteen people and injuring thirty. Experts think Hasan was motivated by political ideologies (including opposing U.S. military priorities), interpersonal workplace conflicts, wartime trauma, and mental instability. Six years later (June 17, 2015), Dylann Roof—a white man with white supremacist and neo-Nazi sympathies—shot and killed nine Black Americans at Mother Emanuel African Methodist Episcopal Church in Charleston, South Carolina. Like Hasan, it appears Roof was motivated by political ideologies

and mental instability. Roof told friends he intended to incite a race war and accused his black victims of "taking over our country."

Both attacks can be considered terrorism. Each perpetrator demonstrated sympathies, and maintained contact, with extreme political ideologues that likely inspired or encouraged their violence. Yet Hasan and Roof received notably distinct designations by media and officials. U.S. Senators called Hasan's the deadliest U.S. terrorist attack since 9/11 (Lieberman and Collins, 2011) and forty percent of articles about Hasan's attack include a mention of terrorism. Meanwhile, only eighteen percent of articles about Roof's attack included this term.

4.2.1 Qualitative Results

We qualitatively analyze media coverage of each attack to understand divergent terrorism designations. We coded all *New York Times* articles about each attack published in the first two days after the incident and any within the first week that mentioned terrorism. We find evidence that perpetrators' racial identities, and how those identities are understood and described, shaped how media covered and designated their attacks. Appendix D details our coding ontology, results, and quoted articles.

Perpetrator race: Both perpetrators' identities shaped grievances that likely motivated their actions. Being Muslim made Hasan the target of workplace discrimination, engendered his concern for harming fellow Muslims overseas, shaped his political objections to U.S. military's priorities (which he believed constituted a war on Islam), and fostered dialogues with radical elements abroad. Roof's identity as a white man—and his radicalized commitments to maintaining white dominance—explicitly motivated his violence. However, media coverage disproportionately emphasized several racialized aspects of Hasan's identity, relative to Roof's.

First, media discussed Hasan's identity as a Muslim with Middle-Eastern heritage[16] (which we distinguish from discussion of extremist ideologies) with much higher frequency than it discussed Roof's identity as a white man (distinguished from supremacist ideologies). Second, we identified at least nineteen references to Hasan's family members as foreign-born immigrants or currently living abroad. Roof's family lineage is never discussed. Third, media covered the

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[16]References include Hasan's Mosque attendance, daily prayers, general piousness, "Arab" clothing, family's immigration, and charitable support.

perpetrators' religious expressions in racially divergent ways. Each shooter allegedly engaged his religious background in the minutes before opening gunfire. Hasan prayed silently and aloud and Roof debated Christian scripture with those he would attack. However, Hassan's religious behavior became central to his coverage while Roof's Lutheran background was almost entirely ignored.

Fourth, media featured mainstream Muslim actors accounting for Hasan's actions, suggesting a heurstic association between Islam and terrorism. Muslim religious leaders, military personnel, and Hasan's community members were featured to condemn Hasan's actions and to clarify that such violence violates the principles of Islam. This occurred even before Hasan's religious affiliation was known. Media later reported on a Muslim anti-terrorism campaign ("Not in the Name of Islam") and quoted a leader critiquing the burden placed on Muslim Americans to disavow violence: "I don't understand why the Muslim-American community has to take responsibility for [Hasan]. The Army has had at least as much time and opportunity to form and shape this person as the Muslim community." Media spotlighted no such clarifications from mainstream Lutheran or other Christian institutions or congregations with whom Roof was affiliated. In fact, *Fox News* framed Roof's massacre as an attack *against* Christians. Senator Lindsey Graham demonstrated this heuristic affiliation between Islam and terrorism when he referred to the white, Lutheran Roof as a "racial jihadist."[17]

Perpetrator race and terrorism: A comparable proportion of *Times* articles covering each attack mentions terrorism (Hasan, 36 percent; Roof, 30.6 percent). Yet these references appear more frequently and objectively when covering Hasan. We coded 61 references to terrorism (mentioned, implied, designated, or negated) among Hasan articles and 41 in reference to Roof.

For Hasan, media generally avoided asserting unconfirmed designations of terrorism. Instead, they tended to report law enforcement investigating whether Hasan maintained ties to foreign-based Muslim-affiliated terrorist cells. This coverage of "objective" investigations alongside highlighting Hasan's religion reflects heuristic associations between Muslims and foreign-cultivated terrorism. Meanwhile, prominent opinion pieces critiqued media for not making more

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[17] *Jihad* is an Arabic noun that refers to the Islamic struggle to do good. It can include holy war and is therefore often associated with Muslim-identifying extremists (Associated Press, N.d.).

direct linkages between Islam and terrorism:

> [A] narrative has emerged on the fringes of the Muslim world...that sees human
> history as a war between Islam on the one side and Christianity and Judaism on
> the other... [T]his narrative can be embraced by a self-radicalizing individual in the
> U.S. as much as by groups in Tehran, Gaza or Kandahar.

Coverage of Roof's attack made far fewer references to ongoing law-enforcement investigations into Roof's terrorism status. Instead, references to terrorism disproportionately occurred among opinion pieces, many of which situated Roof's attack within the United States' extensive history of white-perpetrated terror and violence against black communities:[18]

> For 198 years, angry whites have attacked Emanuel A.M.E. and its congregation,
> and when its leaders have fused faith with political activism, white vigilantes have
> used terror to silence its ministers and mute its message of progress and hope.

Others identified hypocrisies in the media's minimal news coverage of Roof as a terrorist, particularly in light of this "long legacy of [white-perpetrated] racial terrorism":

> [C]ivil rights advocates are asking why the attack has not officially been called
> terrorism. Against the backdrop of rising worries about violent Muslim extremism
> in the United States, advocates see hypocrisy in the way the attack and the man
> under arrest in the shooting have been described by law-enforcement officials and
> the news media.

This qualitative analysis provides additional support for hypotheses and quantitative findings. It also suggests that the race-based variation in treatment of perpetrators may be even greater than the dictionary methods analyzed quantitatively captured.

4.3 Unsupervised Learning about Perpetrator Characters

Finally, we use unsupervised machine-learning methods to identify whether racialized characteristics inspire media portrayals of perpetrators according to archetypal characters. We

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[18]Twitter data similarly suggests that political ideology drives terrorism distinctions in the United States. Democrats are more likely than Republicans to designate a white shooter as a terrorist (Demszky et al., 2019).

expect that media will characterize un-racialized (e.g., white) perpetrators primarily in a sympathetic frame, perhaps minimizing their culpability by emphasizing perpetrator mental instability. Meanwhile, media characterizations of racialized perpetrators will emphasize their ethnic, national, or religious traits and mirror villainous archetypes.

We build on previous work on unsupervised discovery of "personas" in film summaries (Bamman, O'Connor and Smith, 2013). We expect news articles to make use of similar archetypal characterizations to describe individual perpetrators (Van Gorp, 2010). This approach can discover common ways of framing perpetrators, which may capture more subtle negative and positive associations than explicit mentions of terrorism generated. However, Bamman, O'Connor and Smith (2013) assumed one text per character (whereas we have many articles per perpetrator) and developed models to identify archetypes among fictional characters (e.g., dark hero, romantic lead, comedic sidekick, etc.). The similarity among shooters (all are archetypal "villains") make it more difficult to find differentiated personas. Thus, we apply unsupervised natural language processing (NLP) approaches in novel ways to discover media characterizations of "personas" among villain-perpetrators.

4.3.1 Preprocessing

Past NLP work developed effective methods for recognizing entities in text (e.g., people, organizations; Lample et al., 2016; Nadeau and Sekine, 2007) and extracting relations between entities (Singh et al., 2013). We first use Stanford CoreNLP[19] to preprocess all articles and identify entity mentions of type PERSON, along with co-referring expressions. We then extract the mentions which refer to the perpetrator, identified either by name or by the construction "XX-year-old" (with the known age of the perpetrator).[20] In addition, we consider all occurrences of the words "gunman" and "shooter" to be references to the perpetrator.

Next, we use dependency parsing to obtain a tree-structured grammatical parse of each sentence in each article. We restrict what we consider as context to *adjectives* which refer to the perpetrator of interest.[21] This limits the evidence we analyze to descriptive terms that are

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[19]http://corenlp.run

[20]Media commonly use age as an identifier when perpetrator name is not identified

[21]We obtained dependency parses from Stanford CoreNLP.

directly about the perpetrator.

4.3.2 Framing of Individuals: Persona Model

We use the Scholar framework (Card, Tan and Smith, 2018) to learn representations of each perpetrator in each article. Scholar provides an approach to unsupervised learning, similar to topic modeling, which allows for flexible incorporation of metadata and other side information. In this case, each "document" is the set of context words extracted from one article. We treat each news article as a separate document, allowing for the possibility that different sources or articles may represent the same perpetrator in different ways.

Certain events receive vastly more news coverage than others. Ignoring this would give rise to topics exclusive to those events. To account for this disparity, we incorporate covariates indicating if an article refers to one of the most common events (any event which has at least 35 articles that include usable mentions of the perpetrator). In addition to the topics (which are shared across documents), this allows us to identify the words which are most strongly associated with high-coverage events and produces more broadly applicable topics.

By restricting ourselves to adjectives referring to the shooter, we ignore much of the information in each article. The specific results are also somewhat dependent upon the randomness involved in the optimization and initialization. However, the patterns discovered are highly interpretable. As with all unsupervised models, evaluation is difficult. There are inevitably preprocessing errors that occur when using tools for named entity recognition and coreference resolution. We rely primarily on the face validity of this analysis, and interpret significance with caution.

Results: Scholar

To learn dimensions which are shared across events, we include covariate terms for the most covered events. There are five events that fall into this category. Table 2 shows the most strongly positive deviations associated with these perpetrators (representing terms that are much more frequent in coverage of these events than overall).

Fort Hood, Orlando, and Tucson are all at least sometimes categorized as terrorism. However, Fort Hood and Orlando were perpetrated by non-white Muslim shooters, while Aurora,

Event	Terms
Fort Hood (2009)	major muslim devout military outspoken cleric stable
Movie Theater in Aurora	booby-trapped alleged due doctoral black-clad graduate
Orlando Nightclub Massacre	gay abusive terrorist cool religious elementary muslim
Sandy Hook Elementary School	nervous new smart awkward boisterous regular prone
Tucson, Arizona	violent jittery suspect mental able disturbed polite

Table 2: Adjectives found to be most strongly associated with the most covered events (model includes controls for these events).

Sandy Hook and Tuscon were perpetrated by white shooters. While far from systematic, Table 2 displays important differences between adjectives used to describe the Tuscon shooter and the adjectives used to describe the Fort Hood and Orlando shooters. The Tuscon shooter received a clear mental health frame, while the Fort Hood and Orlando shooter frames emphasised their religion and indeed described them as terrorists. Second, the frame for all three white shooters seems to emphasize sympathetic attributes—describing the shooter as `smart`, `nervous`, `polite`, or a graduate student.

Table 3 displays the most probable words in the set of topics learned by one instantiation of the model. These topics appear to fall into three types. Some are *procedural*, referring to details of the events, such as whether the shooter was killed or captured, or whether the motive was clear or unclear. Others have to do with the perpetrator's *mental, behavioural, or emotional state*. The last has to do with the perpetrator's *identity*, including race, religion, and citizenship. Individual perpetrators may be framed differently in different articles, but closer inspection suggests that a dominant framing tends to emerge.

We are interested in whether the framing of perpetrators differs along racialized lines. For example, if we compare the two shootings that took place at Fort Hood (2009 and 2014), both resulted in articles using a multitude of different dominant framing (as identified by our model). Coverage of the latter event, perpetrated by a Puerto Rican American shooter, was clearly dominated by a mental health frame (`able mental young much little intelligent likely psychiatric bright afraid`). Coverage of the earlier event, in contrast, emphasized the perpetrator's racialized, Arab/Muslim identity (`muslim american immigrant religious multiple gay fifth possible naturalized`).

Terms	Type
first second next former last lone prime high unknown recent final senior	procedural
active unclear alleged former potential small confident suspected	procedural
dead pronounced relative nearby loose armed civilian open former adult	procedural
clear able deranged bizarre unable self-inflicted murderous innocent	mental / behavioural
good different strange late bad difficult nice last odd unclear dangerous	mental / behavioural
able mental young much little intelligent likely psychiatric bright afraid	mental / behavioural
quiet calm sorry former polite smart shy respectful guilty reserved real	mental / behavioural
white black young male suspect unemployed stocky recent crucial racist	identity
muslim american immigrant religious multiple gay fifth possible naturalized	identity

Table 3: Set of example dimensions (ways of characterizing perpetrators) learned using the Scholar framework. Note that "black" here more often refers to clothing rather than race.

Next, we include race (whether or not an individual could be characterized as "white") as a label to be predicted (y_i in equation (4), Appendix E). This encourages the model to learn topics that are useful in predicting this attribute. Figure 7 shows an updated set of dimensions, along with the predicted probability of a perpetrator being white.

first second next recent prime unclear last previous
able intelligent sorry bright quiet shy smart little
white black racist clear unclear gay unemployed male
dead pronounced loose armed nearby unclear relative presumed
angry mad upset frustrated threatening bitter distraught sick
good calm quiet strange cool bad short meticulous
alleged guilty responsible innocent self-inflicted
mental former troubled depressed hard major psychiatric severe
active deranged potential normal suicidal hostile disruptive
immigrant muslim american multiple religious naturalized
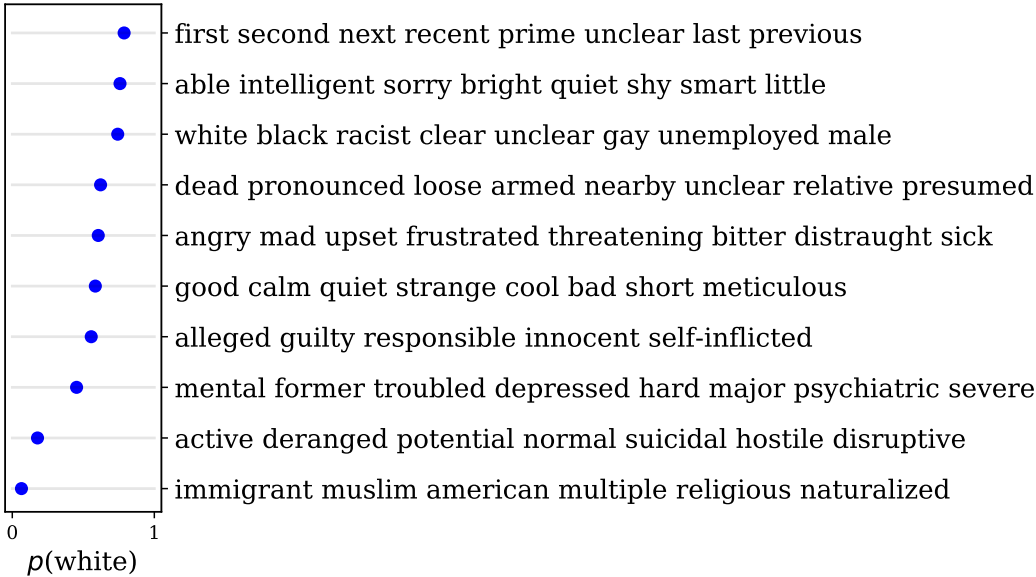
0   1
p(white)

Figure 7: Latent dimension learned by the Scholar framework when using white/non-white as a label to be predicted, along with predicted probability of a perpetrator being white per dimension.

If we examine the two topics most associated with "whiteness," we find a procedural topic

and a topic that has a notable sympathetic slant—`able intelligent sorry bright quite shy smart little`. However, if we examine the two topics most likely to be associated with being *non*white, we see a more nefarious frame: one racialized topic about Islam and immigrant status and one with a decidedly *un*sympathetic frame: `active deranged potential normal suicidal hostile disruptive`.

Noise in the process at various stages (data collection, identifying entity mentions, and coreference), and relative lack of data (which means that the results of the unsupervised model are not completely stable) make these findings preliminary. Nevertheless, these broader patterns align with our hypotheses and preceding analyses. They are highly suggestive of a relationship between a perpetrator's racialization and the language used to describe that perpetrator.

5 Conclusion and Implications

The above results suggest a relationship between perpetrators' racialized identities and their likelihood of being considered a terrorist in the news. Regression analysis and results from the Scholar model suggest that racalized dynamics shape how the media determine who "counts" as a terrorist: (a) Middle Eastern or Muslim perpetrator identities correlate with events being considered terrorism and are unlikely to be mis-categorized; (b) media exhibit greater confusion in classifying minority-targeted attacks as terrorism; and (c) negative persona frames may be more likely associated with racialized perpetrators while sympathetic frames more likely associated with white perpetrators. Qualitative analysis support these results; media scrutinized several racialized aspects of Nidal Hasan's identity which they left unaddressed for Dylann Roof.

The relatively small universe of positive observations among our dependent and independent variables limit the certainty of these results. Furthermore, the unsupervised methods and lexical matching presented here can yield false positives and negatives. However, the triangulation of three different methods increases our confidence that the findings observed here may reflect broader patterns. To further address these limitations, additional studies should analyze terrorism designations among other types of violent events (e.g., bombings), events in other countries, and events among groups rather than isolated perpetrators.

If these findings continue to hold across additional case studies, it is likely that racial heuristics encoded on perpetrator identities shape not only media treatment but also expert terrorism designations, which are coded directly from the news. This may mean that the almost 400 studies on Google Scholar which reference the Global Terrorism Database (LaFree and Dugan, 2007) or other terrorism databases coded from the news may also—unintentionally—contain and reinforce racial, religious and anti-immigrant biases. Policies informed by those expert databases and academic studies may likewise disproportionately frame and target racialized populations as terrorists while overlooking terrorism conducted by white nationalists or other white perpetrators.

We propose two changes to begin rectifying the racialized treatment we observed in our analysis. First, the Associated Press Stylebook should add a guideline to direct how media use the term "terrorism." A de-racialized AP guideline would leave less room for heuristic biases to shape when and how media mention terrorism in covering violent events. Meanwhile, event databases—and the policymakers and scholars who use them—should consider whether their coding standards and resulting information adequately address these potential latent biases.

We close by identifying three troubling policy implications of these results. First, biased media coverage of violent events can buttress white privilege (Omi and Winant, 1994), construct non-whites (including Arab Americans) as "forever foreigners" (Mingus and Zopf, 2010), and reinforce social perceptions that link terrorism to certain identities (Domke, 2001; Domke, McCoy and Torres, 1999).

Second, terrorism designations can justify policies that encourage national security profiling, punitive approaches to law enforcement, and racially discriminatory criminal justice policies. If designated based on race, terrorism designations can produce disproportionately severe penalties for non-white perpetrators.[22] Furthermore, policymakers use terrorism designations to justify policies—"states of exemption" (Agamben, 2005)—which disproportionately target minorities and immigrants. Politicians mobilize terrorism as national security threats to bolster state security apparatus (Hodges, 2011), often despite dubious evidence of real-life

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[22]Because terrorism is a federal charge (thus more severe), terrorism carries particular policy weight. However, federal charges can be harder to prosecute, which can dissuade police from treating an an event as terrorism (Reilly, 2018).

threats (Barrett, 2018).[23] Meanwhile, white-perpetrated violence generates advocacy for mental health reforms (Steinberg, 2012; Turndorf, 2012), which induce sympathy for white perpetrators (Dixon and Linz, 2000*b*; Mingus and Zopf, 2010), reinforce existing racial and gender stereotypes (Metzl and MacLeish, 2015) that link criminality to racialized perpetrators (Gilliam Jr et al., 1996; Paulsen, 2003), and stigmatize people who face mental illness as predisposed to violence (Fox and Fridel, 2016).

Third, state emphases on terrorism disproportionately elevate terrorist threats and redirect federal funds to fight terrorism rather than addressing U.S. quotidian violence, which kills far more Americans every year, especially among minority communities (BBC, 2016; Ferdman, 2014; Fingerhut, Ingram and Feldman, 1998).[24]

This study therefore serves as a framework for considering how racial heuristics can insidiously permeate policy making and research practices at the national and international levels. These racial biases, and the social heuristics and government policies they reinforce, can have real, directly experienced implications for the lives of historically marginalized communities.

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[23]This has life-and-death consequences for immigrants and refugees fleeing violence in their home countries (Powell, 2011). Indeed, the Trump Administration (like others before it) has rallied perceptions of "Muslim terrorists" to justify harsh immigration policy (Davis and Nixon, 2018; Valverde, 2018).

[24]The U.S. homicide rate is significantly higher than that of any other industrialized democracy, and roughly 60 percent of those are gun deaths. There were approximately 1.4 million firearm deaths between 1968 and 2011, compared with 1.2 million U.S. casualties in all wars the U.S. has fought since its independence from Britain.

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