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Cloudy with a Chance of Heat Balls:
The Portrayal of Global Warming on *The Daily Show*
and *The Colbert Report*

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See the companion work to this article
"Science: What's It Up to? The Daily Show and the Social Construction of Science"
by Paul Brewer in this Special Section

This study investigates how *The Daily Show* and *The Colbert Report* portray global warming in their satirical news segments and guest interviews. Quantitative content analysis is used to examine the explicit claims made regarding the reality, causes, and severity of global warming; the intended targets of the shows' satirical critiques about global warming; and how the issue is framed. Results show that a large majority of segments on both programs explicitly affirmed the reality of global warming, and the most frequent targets of global warming humor were climate skepticism, in general, as well as specific individuals and groups associated with skepticism. Although the programs were most likely to frame global warming in terms of political conflict, a majority of coverage simultaneously critiqued this frame.

The tumultuous changes to the news media landscape over the last decade have prompted scholars and journalists to take a critical look at the functions of the news media in a democracy, how well the media perform those functions, and which media are best positioned to serve the needs of a democratic citizenry (see, e.g., Overholser & Jamieson, 2005). One of the many ideas to emerge from this conversation concerns the role nonjournalistic media, including entertainment, can play in providing citizens with the information required to engage effectively in public life (e.g., Entman, 2005). In particular, a growing chorus of scholars argues that Comedy Central's satirical news programs *The Daily Show* (*TDS*) and *The Colbert Report* (*CR*) not only contribute meaningfully to political discourse, but also, at times, do a *better* job than the mainstream press in fulfilling the media's informational role (e.g., Baym, 2010; Jones, 2009). According to these scholars, because *TDS* and *CR* are unconstrained by traditional

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journalistic norms and conventions, they are able to speak truths and offer critical perspectives that are often missing from leading print and television news sources.

Global warming is one issue which has been poorly served by the news conventions of traditional journalists. Although scientists widely agree about the reality of global warming and its human causes (IPCC, 2007), mainstream U.S. news coverage—due, in part, to its reliance on norms of balance and objectivity—has historically downplayed the scientific consensus on manmade climate change by paying disproportionate attention to the small minority of voices who challenge this view (Boykoff & Boykoff, 2004), and by emphasizing the political conflict surrounding the issue (Boykoff, 2007). This helps to explains why, in the face of overwhelming scientific evidence, a sizable segment of the American public remains dismissive of global warming (Leiserowitz, Maibach, Roser-Renouf, & Hmielowski, 2012).

At the same time, research points to *TDS* and *CR* as important sources of information about global warming. The Project for Excellence in Journalism (2008) found that, in 2007, *TDS* devoted proportionally more coverage to global warming than mainstream news outlets; in fact, global warming ranked among the top five most-covered stories on *TDS*. Moreover, *TDS* and *CR* video clips that discuss global warming are circulated widely online, thereby increasing their reach and potential influence (Baym & Shah, 2011). As a likely result of global warming's relative prominence on *TDS* and *CR*, the programs' regular viewers report paying more attention to the issue than infrequent viewers (Feldman, Leiserowitz, & Maibach, 2011).

To date, however, there have been no systematic, quantitative analyses of *how* global warming—or, for that matter, any other political issue—is depicted on *TDS* and *CR*. In part, this is due to the inherent difficulty in using quantitative content analysis—a method typically employed to describe media's manifest content—to capture latent satirical meanings. Thus, in an advance over previous research, this study examines how *TDS* and *CR* portray global warming using a quantitative method that accounts for both explicit and implicit satiric content. Drawing from existing literature on news coverage and framing of climate change, the content analysis evaluates the explicit claims made relative to the reality, causes, and severity of global warming, as well as the prevalence of different climate change frames. Attention is also paid to how humor is used to portray global warming, in terms of the intended targets of humor and the potential ambiguity introduced by humorous devices like irony. The results provide important insights into the role *TDS* and *CR* play in the global warming debate, as well as the extent to which these programs function as critical alternatives to mainstream news.

Media Framing of Climate Change

In 2007, the Intergovernmental Panel on Climate Change (IPCC) issued its fourth, and most strongly worded, report. The report cites evidence that Earth's climate is warming, and humans, as a result of greenhouse gas emissions, are largely to blame (IPCC, 2007). The report outlines a range of large-scale human and ecological impacts of climate change, and it presses for immediate action in order to adapt to and mitigate these impacts. In the United States, however, the issue has been deeply disputed. As president, George W. Bush raised doubts about scientific reports on the causes and severity of global warming, and his administration was accused of censoring scientists' discussions of the dangers

of global warming (Eilperin, 2006). Bush also repudiated the Kyoto protocol and other international efforts to reduce carbon emissions on the grounds that mandatory emissions caps would damage the U.S. economy (BBC News, 2005). Although President Obama has promised to take significant steps to address climate change, he has failed to move any major legislation to curb carbon emissions through Congress. The issue also continues to polarize Democrats and Republicans, with the former more concerned about global warming and the latter more dismissive (McCright & Dunlap, 2011). The contentious nature of climate change in the United States is reflected in—and likely perpetuated by—news coverage of the issue and, in particular, how the issue has been framed (Nisbet, 2009).

Framing is the process by which a particular aspect of an issue is given special emphasis, relative to other aspects of that issue (Entman, 1993). For media audiences, frames serve as "schemata of interpretation" (Goffman, 1974, p. 21). Frames provide context that activates prior knowledge and beliefs, which, in turn, guide individuals' understandings of and responses to new information (Price & Tewksbury, 1997). Prior research has shown that the way the media frame a complex policy problem, such as climate change, has important consequences for how the public makes sense of that problem, how they process information, to whom or to what they attribute responsibility for the problem, and how they believe the problem should be remedied (e.g., Iyengar, 1991; Price, Tewksbury, & Powers, 1997).

When covering climate change, the U.S. news media have consistently relied on a frame of conflict or contention (Antilla, 2005; Boykoff, 2007). That is, rather than discuss the convergent scientific view on global warming, news presentations focus on claims of uncertainty about the science and highlight the conflict between the various stakeholders involved in the debate. This has been fueled by the prominence of climate change contrarians, who have emerged from conservative think tanks and effectively used the media to undermine concerns about climate change (McCright & Dunlap, 2000). According to Boykoff and Boykoff (2004), climate skeptics have been able to inject conflict into the debate by exploiting journalists' model of "balanced" reporting, which grants equal time to opposing views, regardless of whether the opposition is in the minority or not. The news media's over-reliance on conflict framing has also been attributed to structural biases in American journalism that favor personalization, dramatization, and novelty (Boykoff & Boykoff, 2007). Conflict framing is likely to foster public confusion and uncertainty about climate change by giving the false impression of widespread scientific disagreement (Corbett & Durfee, 2004). Also, by emphasizing the self-interest of rivaling political actors, conflict frames can create public cynicism toward government, politics, and policy formation (Cappella & Jamieson, 1997), and thereby threaten support for government actions to address global warming.

In contrast, those advocating for action on climate change have historically framed the issue as an environmental problem. Exemplified by Al Gore's 2006 film, *An Inconvenient Truth*, an environmental frame focuses on the catastrophic threats to ecosystems posed by global warming, such as melting ice caps and rising sea levels. However, this frame has been criticized for portraying climate change as a remote issue and, in so doing, failing to engage the public around adaptation and mitigation-related actions (Maibach, Nisbet, Baldwin, Akerlof, & Diao, 2010). A public health frame, which emphasizes the human health implications of climate change, may help to make it an issue of more immediate and personal concern to the general public (Maibach et al., 2010; Myers, Nisbet, Maibach, & Leiserowtiz, 2012). Nisbet (2009) outlines additional frames which have been invoked in media and political discourse

in order to draw attention to different dimensions of the issue, such as national security, economic consequences, morality and ethics, and public accountability.

Insofar as public understanding of global warming depends on the issue's framing in the media, it is important to evaluate how climate change is typically framed on *TDS* and *CR*. Given that *TDS* and *CR* are not constrained by the norms and values that govern traditional journalism—and, in fact, often openly mock these values (Baym, 2010)—of particular interest is the extent to which these programs adopt alternative frames to, or offer a critique of, the conflict frame that is rife in traditional news coverage of climate change. To better understand how *TDS* and *CR* are likely to cover global warming, we turn to a discussion of the programs' content and format.

Satirical News: The Daily Show *and* The Colbert Report

TDS and *CR* are emblematic of a new information environment in which politics and entertainment are inextricably entwined (Williams & Delli Carpini, 2011), and both have come to occupy distinctive places in the political media landscape. *TDS*, in particular, is unique among late-night comedy programs, in that its humor is heavily policy and issue-focused (Brewer & Marquardt, 2007; National Annenberg Election Survey, 2004). Moreover, *TDS* was found to include as much substance in its election coverage as traditional network news (Fox, Koloen, & Sahin, 2007). However, unlike traditional news, *TDS* is not bound by journalistic conventions, enabling it to function as a form of "oppositional news, one that uses humor to provide the kind of critical challenge that is all but absent in the so-called real news" (Baym, 2009, p. 127). Baym describes the show's primary satirical strategy as one of "juxtaposition, between official pronouncements and [Jon] Stewart's version of common sense" (2010, p. 108). In his monologues, Stewart confronts misinformation, exposes hypocrisy, and is transparently frustrated with the political status quo, ultimately demanding deeper accountability from political leaders. Moreover, Stewart's interviews allow for thoughtful, deliberative exchanges on such topics as war, the economy, science, and the environment (Baym, 2010; Jones, 2009).

While the *TDS* format hews closely to the traditional nightly newscast, complete with headline news updates and "correspondent" field reports, its spinoff, *CR*, is, according to Baym, more theatrical: "Colbert weaves his informational content into artfully staged scenarios . . . Colbert is fundamentally a character" (2010, p. 130). As Colbert explained in a recent interview with Oprah Winfrey, *CR* originated as "an attempt to do a pundit show like [Fox News'] Bill O'Reilly or Sean Hannity." When asked to describe the inspiration for his character, Colbert said, "O'Reilly would be the biggest example because O'Reilly's the king. O'Reilly's been number one in cable news for fifteen thousand weeks running . . . he's papa bear."[1] On the show, Colbert closely mimics O'Reilly's rhetoric, style, and techniques (Baym, 2010). Through this parodic imitation, O'Reilly—and the broader genre of conservative media which he exemplifies—becomes an object of ridicule and criticism. Colbert's parody, according to Jones, is of how "the host handles or interprets the news" (2009, p. 191), rather than of the news event itself, which is often the case on *TDS*.

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[1] See http://www.oprah.com/own-oprahs-next-chapter/Oprah-Meets-the-Real-Stephen-Colbert-Video

Because Colbert rarely breaks from character, he is "far less literal than Stewart, his performance continuously double-layered, his speech marked by the perpetual ironic juxtaposition between what he says and what he might actually mean" (Baym, 2010, p. 130). On the surface, Colbert adopts the typical targets of conservative critique (e.g., liberals, mainstream media, science, etc.), while his true, implied meaning runs counter to what his character says. As Jones explains, Colbert embodies two voices: "Colbert the fellow right wing talk show host and Colbert the comedian who is making fun of them" (2009, p. 192).

Thus, to understand Colbert, the character's, relationship with global warming, it is also necessary to understand conservative media's role in perpetuating doubt about climate change (Dunlap & McCright, 2011). According to McKnight (2010), Bill O'Reilly and his Fox News counterparts have been overwhelmingly skeptical of climate change. They typically frame it as a debate over politics, not science, and they portray the considerable scientific evidence in support of climate change as inadequate, incorrect, or politically motivated (see also Feldman, Maibach, Leiserowitz, & Roser-Renouf, 2012). Against this backdrop, the duality of Colbert's humor as manifest in the context of global warming is well-observed by Baym (2009). Baym explains how, in an interview with Michael Oppenheimer—one of the lead authors of the 2007 IPCC report—Colbert "mimics those who continue to insist that global warming is a myth . . . showing disregard for both scientific method and consensus," while using irony to "give Oppenheimer a public platform" and offer a "critique of the simultaneous suspicion toward and politicization of science common during the Bush presidency" (ibid., p. 136).

Of course, how audiences make sense of Colbert's performance is far from clear-cut. According to Jones, "the ambiguity introduced by the double-voiced utterances of parodic performance virtually guarantees enormous leeway in audience interpretations of the political critiques being made" (2009, p. 203). Even Colbert himself admits, "I'm called Stephen Colbert; I have a character named Stephen Colbert . . . and I don't mind if the audience can't tell who is who sometimes."[2] Audiences are thus able to read into Colbert what they want to see, based on their pre-existing beliefs and partisan orientations. Indeed, LaMarre, Landreville, and Beam (2009) found that, although liberals and conservatives perceived *CR* as equally funny, conservatives took Colbert's satire at face value and thought that he actually meant to target liberals with his humor, while liberals perceived that he was being satirical, not serious, in his critique.

Satirical News as an Alternative to Mainstream Media Coverage of Global Warming?

Together, *TDS* and *CR* seem to offer compelling alternatives to mainstream news coverage of climate change. The spirit of critical inquiry and debate that characterizes *TDS* suggests that the show could cut through the partisan talking points on climate change and provide substantive coverage that is more consistent with the scientific view. Moreover, given *TDS'* policy-oriented focus and its history of criticism toward the Bush administration (Project for Excellence in Journalism, 2008), it might be particularly likely to challenge the longstanding U.S. policy of inaction on climate change. At the same time, *CR*, although critical of conservative punditry, is a complex, multilayered discursive environment

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[2] See http://www.oprah.com/own-oprahs-next-chapter/Oprah-Meets-the-Real-Stephen-Colbert-Video

where what Colbert says is not necessarily what he means. Thus, although on the surface, Colbert's character—like the conservative media hosts upon which his parody is based—is apt to outwardly challenge the scientific consensus on climate change, in so doing, he offers implicit disapproval of climate skepticism.

With these ideas in mind, this study is organized around several research objectives. The first is to determine the extent to which *TDS* and *CR* affirm or challenge mainstream scientific views of global warming. However, because the use of irony, particularly on *CR*, lends itself to multiple interpretations by viewers (LaMarre et al., 2009), it is necessary to account for both explicit and implicit messaging. This is accomplished by examining the *explicit* claims made relative to the reality, causes, and severity of global warming, as well as by identifying the broader set of individuals, ideas, and entities that serve as the *intended* targets of the shows' global warming satires. Satire, according to Test (1991), is comprised of aggression, judgment, play, and laughter. Thus, although there are certainly other ways to capture the shows' implicit content, focusing on the intended targets of humor reflects both the playfulness and critique inherent in Stewart and Colbert's satiric commentary.

An additional, complementary objective is to quantify the shows' use of particular climate change frames, with an eye toward whether *TDS* and *CR* adopt the conflict frame that is common in traditional news coverage, or whether they emphasize different dimensions of the issue. Moreover, Stewart and Colbert conduct a substantial number of interviews, which have been lauded by scholars for both their variety and deliberative flavor (Baym, 2010; Jones, 2009). As such, this study also considers the extent to which interviews that discuss global warming offer substantively different framing than non-interview segments. Finally, *TDS* and *CR*—while both representative of political satire broadly—nonetheless differ notably in terms of their content, format, and techniques. Thus, this study seeks to not only analyze how the two programs cover global warming, but also to highlight any differences between them.

Method

Relevant content from *TDS* and *CR* was located on Comedy Central's website using each show's video search function. All videos from either show that included the search tag "global warming" were culled for analysis, with the exception of videos created specifically for the Web.[3] Program segments—as

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[3] Although many prior media content analyses of global warming coverage used both "global warming" and "climate change" as search terms (e.g., Boykoff, 2007; Feldman et al., 2012), this study relied exclusively on "global warming." This is because Comedy Central's website includes a video tag for "global warming," but not one for "climate change." An initial free text search for "global warming" and "climate change" on the programs' respective web sites yielded numerous videos that didn't actually mention these terms or mentioned them only in passing; thus, relying on Comedy Central's tagging of global warming video clips was determined to be the best approach for identifying content that was explicitly about the issue. Although this approach risks missing some relevant clips, these are likely few in number and unlikely to provide substantive discussion of global warming or climate change (as those videos would likely have been tagged with "global warming").

opposed to full episodes—were treated as the unit of analysis.[4] For *TDS,* search dates ranged from January 1999, when Stewart took over as host, through April 30, 2012; for *CR*, search dates ranged from the show's debut in October 2005 through April 30, 2012. This yielded 81 videos from *TDS* and 102 from *CR*.

Clips were streamed from Comedy Central's website and coded for several key variables by two trained undergraduate students. Most were binary variables, coded for the presence or absence of particular content. Following Krippendorff (2004), intercoder reliability was verified by having both coders independently analyze a random subset of content. The reliability sample included 42 clips, or 23% of the population.[5] Any disagreements were resolved through discussion. For all variables, Krippendorff's alpha (α) was at least .70.

First, general information about each video was recorded, including its title, air date, length, and whether it included a guest interview. If appropriate, the interview guest's stance toward climate change was coded as either being concerned, dismissive, or neutral/indeterminate (α =.94). Each guest's area of expertise was also coded (e.g., politics/government, writer/journalist, scientist/academic, entertainer, environmentalist, etc.; α =.89). Guests were categorized according to their most prominent role; for example, Al Gore is best known as the former Vice President, so even though he is also now a filmmaker and environmentalist, he was coded as a politician.

The coding scheme was designed to capture the explicit, or surface-level, claims made by Stewart and Colbert relative to the reality, causes, and severity of global warming, as well as the potentially implicit, or latent, messages about global warming that resided in the shows' satirical content. Specifically, each video was coded as to whether or not it included explicit statements that either affirmed or challenged 1) the reality of global warming or its impacts (affirm α = .70; challenge α = 1.0); 2) human activity as the primary cause of global warming (affirm α = .89; challenge α = 1.0); and 3) the severity or seriousness of global warming or its impacts (affirm α = .73; challenge α = .74). These six variables were coded purely on the basis of explicit content, without regard to the statements' intended meaning. Only statements from Jon Stewart, *TDS* correspondents, and Stephen Colbert were coded (as opposed to those made by interview guests), given that regular viewers are likely to identify with them most closely, and in turn, to see them as important and trustworthy sources of information (see, e.g., Rubin & Step, 2000). From these individual statement variables, two summary variables were computed:

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[4] Program segments were pre-determined by Comedy Central, and they typically reflect coherent breaks in an episode (e.g., the show's introduction, host monologue, correspondent report, interview, etc.). The average segment length for both programs was approximately four minutes.

[5] Each segment was assigned a number and listed in a Microsoft Excel database. A random number generator was used to select clips for the reliability sample. Prior to testing for reliability, the coders completed two rounds of consensus-coding, each comprised of 10 randomly selected clips. This familiarized the coders with the codebook and allowed for fine-tuning of the coding rules. These samples, along with the reliability sample, were retained for analysis in order to preserve a reasonably sized *N* and maintain the full population of coverage. A follow-up analysis showed that removing these clips from the analysis did not substantively change the results.

One which captured whether *any* explicit statement was made affirming global warming's reality, human causes, or severity; and another which captured whether *any* explicit statement was made challenging global warming's reality, human causes, or severity.[6]

A subsequent set of codes was used to capture the *intended* targets of Stewart's or Colbert's humor about global warming. Targets, which were not mutually exclusive, included 1) Republican or conservative individuals or groups, including politicians, media figures, think tanks, etc. (α = .87), with specific codes for 2) President Bush/the Bush administration (α = .83) and 3) other Republican politicians, such as John McCain or James Inhofe (α = 1.0); 4) Democrat or liberal individuals or groups (α = 1.0), with specific codes for 5) President Obama/the Obama administration (α = 1.0), 6) Al Gore (α = 1.0), and 7) other Democrat politicians, such as Hillary Clinton or John Kerry (α = 1.0); 8) partisan disagreement or the politicization of climate change (α = .73); 9) climate skepticism or skeptics (α = .71); 10) environmentalism or concern about climate change (α = 1.0); 11) U.S. policy, in general, on climate change (α = .73); 12) specific policies or programs designed to mitigate or adapt to climate change (α = .81); 13) scientists (α = 1.0); 14) meteorologists/weather reporters (α = 1.0); 15) news media coverage of global warming (α = .85);[7] 16) the public (α = .79); 17) international figures or organizations, including the United Nations (α = 1.0); and 18) other, which included targets for which there were not enough instances to warrant a separate category, as well as targets that could not be readily categorized (α = .73). Targets of humor unrelated to global warming were not coded, nor were targets of interview guests' humor or criticism. Importantly, the focus here was on the *intended* target, which, in many cases, was rooted in irony and therefore was implicit, rather than explicit. The coding of Colbert's humor—which, as discussed earlier, is particularly open to multiple interpretations—operated from the assumption that Colbert is parodying climate change doubters, rather than ridiculing climate change believers. For example, consider the following satirical statement: "Climate scientists say that global warming is real; meanwhile I'm freezing my ass off. Explain *that*, science!"[8] The intended target was coded as climate skepticism, *not* scientists and concern about climate change.

Finally, each video was coded for whether it applied each of seven, nonmutually exclusive climate change frames, whose definitions were adapted from Nisbet (2009) and Myers et al. (2012). Although explicit messages and intended humor targets were coded based only on statements from Colbert, Stewart, or *TDS* correspondents, and not on those from interview guests, the coding of the frames took into account the dialogue of interview guests, as well as that of the hosts and correspondents. A *conflict* frame (α = .70) was coded if climate change was portrayed in the context of political conflicts and power struggles among elites, by emphasizing the factors that will defeat or pass climate change legislation, the

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[6] Specifically, the "affirm" summary variable was computed by assigning a value of "1" if either the affirm reality, affirm human impacts, or affirm severity statement variables were coded as 1; it was assigned a "0" if all three of the statement variables were coded as 0. The same procedure was used to compute the "challenge" summary variable.

[7] Media coverage was only coded as a target if a specific example of global warming coverage was mentioned. Otherwise, given both that Colbert's character is a parody of conservative media hosts, and that the format of *TDS* parodies nightly news programs, the media would always be coded as a target.

[8] http://www.colbertnation.com/the-colbert-report-videos/81747/february-05-2007/intro---2-5-07

linkage between climate change and other political debates, climate change's implications for the popularity or success of political leaders or candidates, or the strategies, tactics, and personalities involved. An *environmental* frame (α = .72) was coded if climate change was discussed in terms of its environmental impacts, such as death or danger to plant and animal species, increase in severe weather events, or sea level rise or flooding. A *public health* frame (α = 1.0) was coded if climate change was referred to as a human health issue, with linkages to disease, respiratory illnesses and allergies, human harm from extreme weather events, or food or water shortages. An *economic* frame (α = .81) was coded if there was discussion of the financial or economic risks or benefits associated with climate change or climate change policy, such as impacts on jobs, costs to consumers, or implications for U.S. global competitiveness. A *national security* frame (α = .85) was coded if climate change was linked to national or global security issues, such as terrorism, dependence on foreign oil, instability and conflict in affected regions of the world, or security risks imposed by displacement of climate change refugees. A *public accountability* frame (α = .73) was coded if climate change was discussed as a matter of research or policy in the public interest or serving special interests, with emphasis on control, transparency, participation, responsiveness, or ownership. For example, a public accountability frame is reflected in stories about Republicans suppressing science, concerns about falsification of climate data, or the politicization of science and climate change. Finally, a *morality* frame (α = .73) was coded if climate change was portrayed as a moral or ethical issue, with or without reference to God or religion.

Results

The results below focus on differences between programs and, in the case of framing, differences between interview and non-interview segments. It is important to note that, because the analyzed clips were intended to provide a census of global warming coverage on *TDS* and *CR* and were not randomly sampled from a larger population, it is not appropriate to use inferential statistics to compare coverage; thus, only relative percentages and frequencies are reported in this article.

General Overview of Global Warming Coverage

Figure 1 plots the number of segments each year from *TDS* and *CR* that discussed global warming. As a point of reference, Figure 1 also depicts the results of a LexisNexis search for transcripts from the cable news channels CNN and Fox News that included "climate change" or "global warming" as subject terms. Since *CR* debuted in 2005, it has paid more attention to global warming than *TDS*, averaging 13 segments per year to *TDS'* six. Coverage of global warming on *CR* peaked in 2007, with 27 segments. This is consistent with the trends in coverage on CNN and Fox News, and it is likely attributable to the 2007 release of the IPCC report and the awarding of the Nobel Peace Prize to the IPCC and Al Gore. *TDS* devoted its greatest amount of coverage to global warming in 2009, with 15 segments. Coverage on *CR* and the cable news networks also spiked in 2009, which was when the United Nations Climate Change Conference was held in Copenhagen, as well as when the "Climategate" scandal—which involved leaked emails from leading climate scientists allegedly revealing that they had manipulated climate data—broke. Of note, while the cable news networks and *TDS* have decreased their coverage of global warming since then, *CR* maintained its attention to the topic in 2010 and 2011.
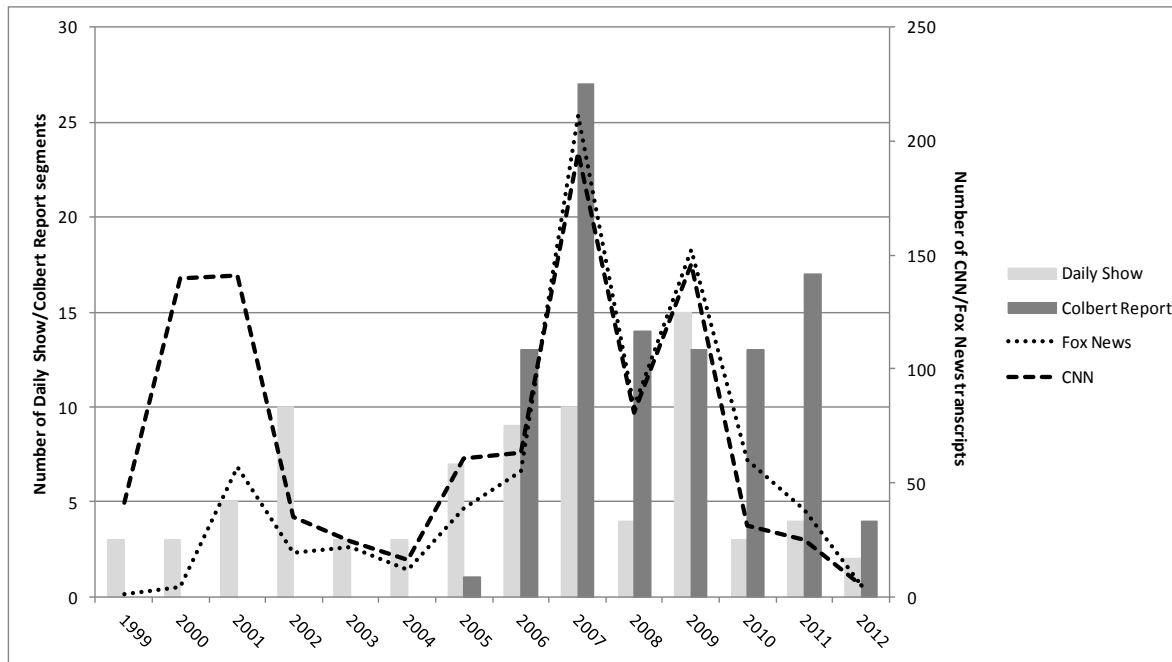
Figure 1. Coverage of global warming from January 1, 1999 to April 30, 2012.

　　　　On *TDS*, 20% of the show's global warming coverage featured a guest interview; more than a third of *CR* segments (35.3%) included interviews. This imbalance is likely a result of the fact that *CR* features more interviews overall; Colbert often conducts two separate interviews in a single episode, relative to just one nightly interview on *TDS*. Both hosts were overwhelmingly more likely to interview guests who were concerned about global warming than guests who were dismissive or neutral. Of 16 interview guests on *TDS*, 13 (81.3%) were outwardly concerned about climate change; two (12.5%) did not express a clear stance on climate change, and just one (6.3%) was dismissive of the issue. Of Colbert's 38 interview guests, 29 (76.3%) were concerned about climate change, six (15.8%) were neutral, and three (7.9%) were dismissive.[9]

　　　　A majority (56.2%) of *TDS*' interview guests were drawn from politics and government, a quarter (25.0%) were either writers or journalists, and the remaining fifth (18.8%) were scientists or academics. On *CR*, guests were more evenly distributed across a wider range of professions, including politics and government (15.8%), writers and journalists (18.4%), scientists and academics (23.7%),

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[9] Although 36 segments on *The Colbert Report* (35.5% of the total) featured interviews, Colbert spoke with 38 interview guests, as two of his interviews were with two people simultaneously.

environmentalists (18.4%), entertainers (13.2%), industry representatives (5.3%), and business entrepreneurs or inventors (5.3%).

Explicit Messaging

Turning now to the explicit messaging about global warming on *TDS* and *CR*, Table 1 shows that a large majority of segments on both programs included statements from their hosts affirming the reality of global warming and its impacts, as in the following examples:

> *Stewart:* This administration has been very slow to accept the reality of climate change, despite the overwhelming evidence.[10]
> *Colbert:* As I said before, Al Gore's movie made money, and therefore global warming must be real. The market has spoken.[11]

Although the hosts were much less likely to explicitly challenge the reality of global warming, Stephen Colbert did so in approximately one quarter of segments, often calling it a "myth," "lie," or "hoax," as in this example:

> *Colbert:* A tip of the hat to my personal hero, 11 feet of snow. . . . Good job, 11 feet of snow. You proved that global warming is a myth. Pretty hard to get the public mobilized to fight greenhouse gases when they're up on their roofs with snowblowers, which, by the way, run on fossil fuels. That's two points for our side. And, hey American Enterprise Institute, you offered a cash prize to anyone who could debunk the recent climate change report. I'd say you owe 11 feet of snow $10,000.[12]

Just 10% of *Daily Show* segments questioned the reality of global warming.

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[10] See http://www.thedailyshow.com/watch/mon-february-5-2007/hot-topic

[11] See http://www.colbertnation.com/the-colbert-report-videos/102737/september-13-2007/ed-begley-jr-

[12] See http://www.colbertnation.com/the-colbert-report-videos/182647/february-12-2007/tip-wag---john-howard

Table 1. Explicit Messaging about Global Warming on The Daily Show and The Colbert Report.

		The Daily Show		The Colbert Report
Statement Type		%		%
Reality of Global Warming				
Affirm		70.4		63.7
Challenge		9.9		26.5
Human Causes of Global Warming				
Affirm		34.6		24.5
Challenge		1.2		10.8
Severity of Global Warming				
Affirm		32.1		29.4
Challenge		33.3		44.1
Any Type				
Affirm		71.6		68.6
Challenge		39.5		65.7
N		81.0		102.0

Explicit statements that affirmed the human causes of global warming appeared in approximately a third of *TDS* segments, and in about a quarter of *CR* segments. Explicit statements that challenged the human causes of global warming were relatively rare, especially on *TDS.*

The most frequent form of explicit challenge to the mainstream scientific view on global warming was relative to its severity, occurring in at least a third of segments from both shows. These included statements that trivialized the consequences or importance of climate change, portrayed it as easily solvable, or upheld it as a positive phenomenon. For example, *CR* features a recurring segment called "Smokin' Pole," which touts the benefits of melting sea ice caused by global warming—such as increased access to oil and shipping routes—and chronicles the ensuing "fight for Arctic riches." Other examples include the following:

> *Colbert:* The head of NASA says global warming isn't a problem. Exactly. If the ice caps melt, that's just more water to make Tang.[13]

> *Mohamad Nasheed (former president of Maldives):* It's not just the Maldives. More than a quarter of the world's population is living in coastal areas. Manhattan is as high as the Maldives, actually.

> *Stewart:* I'm actually on a really high floor; so, I don't worry about that.[14]

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[13] See http://www.colbertnation.com/the-colbert-report-videos/88035/june-06-2007/intro---6-6-07

[14] See http://www.thedailyshow.com/watch/mon-april-2-2012/mohamed-nasheed

Notably, *TDS* was equally as likely to include explicit statements challenging the severity of global warming as it was to include statements affirming the severity; *CR* was *more* likely to include challenging than affirming statements.

Overall, more than two-thirds of the segments on both programs included at least one explicit statement that affirmed the reality, human causes, or severity of global warming. Nearly two-thirds of the *CR* segments included some type of explicit statement challenging the scientific view on global warming, whereas less than half of the *TDS* segments did so.

Intended Targets of Humor

Table 2 presents the distributions of intended targets of global warming humor across the two programs. On *TDS*, the most frequent targets were conservatives or Republicans, with 44% of segments targeting this group, relative to 26.5% of segments from *CR*. This was driven, in large part, by *TDS'* criticism of the Bush administration: More than a quarter of its segments targeted George W. Bush or his administration, while just over 10% of *CR* segments targeted Bush. Democrats and liberals, however, did not escape *TDS'* ire; they were targeted in nearly a quarter of *TDS* clips, compared to 16% of *CR* segments.

TDS also diverged from *CR* in its targeting of U.S. policy on global warming: Nearly a fifth of *TDS* segments critiqued U.S. policy, compared to less than 10% from *CR*. Across both programs, in approximately 70% of cases, a critique of U.S. policy went hand-in-hand with a critique of the Bush administration, as in this *TDS* example:

> *Stewart*: Last year, the Supreme Court ruled in Massachusetts v. the EPA that the Environmental Protection Agency must regulate greenhouse gases because they are pollutants and not, as the administration tried to argue, the musky cologne that makes the atmosphere sexy. Now, now, wait, be patient, it gets amazing. There was still hope. Maybe the Environmental Protection Agency wouldn't come up with an effective or economical plan. Ah, but, they did come up with a plan, and they e-mailed this plan to the White House. And here's where it gets amazing. The White House avoided implementing the EPA's recommendation by informing the agency that they would not open the e-mail. Amazing. The White House is treating America's environmental policy like a spam boner-pill ad. . . . By the way, here's the best part of the whole story. Not opening the e-mail worked. Rather than walk the hard copy over to the government, the EPA rewrote the policy to Bush's liking.[15]

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[15] See http://www.thedailyshow.com/watch/wed-june-25-2008/be-patient-this-gets-amazing---epa-e-mail

TDS was also nearly twice as likely as *CR* to target specific policies or programs designed to adapt to or mitigate global warming, such as "cap and trade." *TDS* was more than three times as likely as *CR* to target scientists and meteorologists, although this comprised a relatively small percentage of segments overall.

***Table 2. Intended Targets of Global Warming Humor in* The Daily Show *and* The Colbert Report.**

		The Daily Show		*The Colbert Report*
Target of Humor		%		%
Conservatives/Republicans		44.4		26.5
Bush administration		27.2		10.8
Other politicians		16.0		12.7
Democrats/Liberals		23.5		15.7
Obama administration		1.2		1.0
Al Gore		16.0		12.7
Other politicians		6.2		4.9
Politicization		16.0		12.7
Climate skepticism		22.2		65.7
Environmentalism		11.1		5.9
U.S. policy		18.5		8.8
Specific policy		14.8		7.8
Scientists		12.3		3.9
Meteorologists		8.6		2.0
News media		9.9		10.8
Public		9.9		7.8
International		8.6		8.8
Other		19.8		21.6
N		81.0		102.0

The most frequent target of humor on *CR* was climate skepticism, occurring in 65.7% of segments, compared to 22.2% of *TDS* segments. This disproportionate emphasis by *CR* is unsurprising, given that a critique of climate skepticism is implicit in Colbert's parodic performance as a conservative pundit. Of note, a full 84% of *CR* segments that included at least one explicit statement challenging the scientific view on global warming also critiqued climate skepticism. Thus, although Colbert frequently challenged climate change in his explicit messaging (as we saw in Table 1), the implied meaning of this messaging was often different. *TDS* was less likely to use its explicit messaging as an implied critique of climate skepticism: Just 28% of *TDS* segments that contained at least one explicit global warming-challenging statement also targeted climate skepticism in its humor.

More than a tenth of segments on both shows targeted the politicization of climate change or partisan disagreement on the issue, and similar percentages targeted Al Gore, as well as Republicans or

other conservative politicians. Targets that appeared with relative infrequency across both programs were President Obama, other Democrats or liberal politicians, media coverage of global warming, the public, international leaders or groups, and environmentalism.

Framing

The results of the framing analysis are presented in Table 3. The most common frame was a conflict frame, appearing in a majority of segments from both shows. On *TDS*, interview segments were more likely than non-interview segments to invoke a conflict frame, whereas the reverse was true on *CR*. This is perhaps owing to the higher proportion of *TDS* interview guests culled from political life. Although climate change was frequently framed in terms of political conflict, this frame was also subject to critique. Climate skepticism—which is inherent in the political conflicts surrounding climate change—was a target of humor in 62.5% of conflict-framed segments from *CR*, 26.9% of conflict-framed segments from *TDS*, and 45.4% of conflict-framed segments overall. Moreover, in nearly one-fifth (18.5%) of conflict-framed segments, either partisan bickering or the politicization of climate change was a target of humor. This was particularly true of *TDS*: Here, 23% of conflict-framed segments targeted politicization, relative to 14% of conflict-framed segments on *CR*. Overall, 56.5% of conflict-framed segments across both shows targeted either climate skepticism or politicization.

Table 3. Climate Change Framing in Interview and Non-Interview Segments
from The Daily Show and The Colbert Report.

		The Daily Show				*The Colbert Report*		
		Overall	Interview segments	Non-interviews		Overall	Interview segments	Non-interviews
		%	%	%		%	%	%
Frame								
Conflict		64.2	75.0	61.5		54.9	41.7	62.1
Environmental		50.6	62.5	47.7		47.1	61.1	39.4
Public accountability		39.5	25.0	43.1		38.2	36.1	39.4
Economic		11.1	31.3	6.2		25.5	47.2	13.6
National security		4.9	18.8	1.5		9.8	8.3	10.6
Public health		4.9	6.3	4.6		2.9	8.3	0.0
Morality		6.2	25.0	1.5		8.8	11.1	7.6
N		81.0	16.0	65.0		102.0	36.0	66.0

Approximately half of all segments from both shows used an environmental frame. For both programs, but especially *CR*, this frame was more prevalent in interviews than in non-interviews. A public accountability framing was also relatively common. On *CR*, this frame appeared regardless of segment type; on *TDS*, a public accountability frame was more likely in non-interview segments than in interview segments. *CR*, overall, was more than twice as likely as *TDS* to frame climate change as an economic issue; however, in both programs, an economic frame occurred with significantly greater frequency in

interviews than in non-interviews. A public health frame was relatively rare, appearing in less than 5% of total segments, though it was more likely in *CR* interviews. Morality and national security frames, although uncommon overall, appeared disproportionately in *TDS* interviews.

Discussion

The primary goal of this study was to systematically examine global warming coverage on *TDS* and *CR* in an effort to understand how these programs represent the issue to their audiences. The analysis focused on explicit statements about global warming, as well as on issue framing—aspects of coverage which are the typical concerns of traditional news media content analyses, and which prior theory and research suggest are likely to influence audiences' interpretation of an issue. But *TDS* and *CR* are not traditional news programs, and it was thus important to also capture their satirical content, which this study did by cataloguing the intended targets of the programs' humorous critiques related to global warming.

The results, in aggregate, show that *TDS* and *CR* present a picture of global warming that is fairly consistent with the prevailing scientific view. For example, more than two-thirds of segments across both programs explicitly affirmed either the reality, the human causes, or the severity of global warming. The most frequent joke targets were climate skepticism, in general, and specific individuals and groups associated with skepticism (e.g., George W. Bush, conservatives, etc.). Moreover, individuals who are dismissive of global warming only rarely appeared as interview guests. Instead, the shows are friends to global warming activists, environmental policy makers, scientists, and science writers—people who, in their interview appearances, were often able to shift the frame of reference from political conflict to other aspects of global warming, such as its environmental, economic, or public health implications.

At the same time, there are some concerning aspects of the coverage. More than a third of segments across the two programs made explicit statements that trivialized global warming, touted its benefits, or otherwise undermined its severity. Political leaders and their policies were frequently mocked on both shows. Indeed, a substantial portion of segments, particularly on *TDS*, took aim at U.S. policy on global warming, or at specific policies designed to mitigate or adapt to climate change. And, on both programs, a conflict frame was the most prominent.

From the perspective of climate change advocates, these findings are potentially troubling for several reasons. Behavior change and risk communication theories suggest that, in order to get people to take action on an issue like climate change, they must perceive the issue to be serious and personally consequential, and they must be offered reasonable solutions to the problem (Witte, 1992). If *TDS* and *CR* regularly downplay the severity of climate change (at least explicitly) while also criticizing the actions that can be taken to mitigate the problem, public engagement might be less likely. At the same time, highlighting the self-interest of political leaders and their incompetent handling of climate change can increase cynicism (Cappella & Jamieson, 1997). Indeed, Hart and Hartelius argue that Jon Stewart's brand of political critique is, in effect, "unbridled political cynicism" (2007, p. 263), which can stultify social change by fostering indifference. As such, it is possible that the programs' satirical treatment of global warming could undermine audience perceptions of the issue's importance and the need for mitigating

government action. Moreover, critiques of global warming skepticism, particularly on *CR*, were often communicated via messages which—on their face— questioned the reality, human causes, or severity of global warming. This ambiguity means that audiences may not "get" the shows' criticism of climate skepticism and political inaction; this might be particularly true among conservative viewers, who are predisposed to be dismissive of climate change, and whose beliefs might be reinforced as a result of Colbert's explicit messaging (see LaMarre et al., 2009).

On the other hand, criticizing stagnant climate policy and politicians' lack of accountability on the issue, while at the same time affirming the reality of global warming, might create anger, which can incite action (see, e.g., Valentino et al., 2011). Moreover, more than half of the segments that used a conflict frame criticized this frame by also targeting either climate skepticism or politicization and partisan bickering. Overall, then, the coverage and framing of climate change on *TDS* and *CR* reflect the complexity of the issue and the difficult reality of the political conflict within which it has become embedded. Indeed, it is important to remember that *TDS* and *CR* are largely derivative of "real" news coverage; that is, their commentary is a response to news as it is reported in more traditional outlets. As such, it is unsurprising that the conflict frame which dominates mainstream news coverage of global warming is adopted here, as well; what is notable is the frequency with which the frame is critiqued.

The results also reaffirm important characteristics of the two programs which have been documented in prior research. *TDS* was more policy-focused in its coverage than *CR*, and it frequently took aim at political leaders, particularly President George W. Bush. Consistent with Stewart's reputation for holding politicians accountable for their actions and words, *TDS* regularly framed climate change in terms of public accountability. Although this was true of both programs, it was especially likely in non-interview *TDS* segments. The portrayal of global warming on *CR*, on the other hand, was very much embedded in Colbert's parody of right-wing punditry. Echoing conservative commentators, Colbert was more likely than Stewart to explicitly challenge the mainstream scientific view on climate change, and yet to be implicitly critiquing climate skepticism. *CR* was also more likely than *TDS* to frame climate change as an economic issue, which is a typical frame used by conservatives, who tend to portray actions to reduce climate change as a grave economic threat (McCright & Dunlap, 2000; Nisbet, 2009). In fact, even *CR's* greater overall coverage of global warming relative to *TDS* is consistent with conservative media; the issue receives more coverage on Fox News than on nonconservative outlets CNN and MSNBC (Feldman et al., 2012). Finally, the framing analysis reinforces the programs' interview segments as a variegated source of information on critical contemporary issues. In many cases, the interview segments were more likely than non-interviews to offer alternatives to the typical conflict framing of global warming.

As with any study, there are limitations that should be kept in mind. First, our identification of segments for coding relied on Comedy Central's "tagging" of videos. To the extent that this process is imperfect, some relevant segments may have been excluded. Likewise, segments that didn't explicitly mention global warming, but still discussed related issues, such as alternative energy, may have been left out. Second, although the reliability we achieved was acceptable, human coding introduces an inherent subjectivity to the analysis. Moreover, quantitative analysis is necessarily crude and reductive and, as such, obscures important nuances of coverage. Specific transcript examples were given throughout the manuscript to better illuminate the nature of the content, but qualitative analysis is better suited for

explicating meaning and unpacking the frames used in the coverage. Nonetheless, given the inherent difficulty in quantitatively coding satire, this study makes important advances over prior research in its efforts to systematically capture both explicit and implicit message content. Finally, although content analysis provides an important baseline for assessing effects, conclusions regarding the impact of these programs on public knowledge and attitudes must await findings from future surveys or experimental studies of audiences.

Despite some limitations, this study provides important insight into how *TDS* and *CR* function in our mediated political landscape. In its broadest sense, this study asked whether satiric news programs like *TDS* and *CR*—which do not have to adhere to journalistic norms—offer a clear alternative to mainstream coverage of controversial issues. The answer is yes—and no. On one hand, unlike traditional news, *TDS* and *CR* can take a stand on an issue like global warming, asserting its reality and questioning its dissenters in ways that an "objective" journalist often cannot. This is an important democratic function of the media, in that it helps to "signify . . . what is 'true' or at least reveal what is perceived to be true within the relevant knowledge community" (Curran, 2005, p. 130). On the other hand, although these shows are not constrained by traditional journalistic norms, they rely on traditional news coverage for their material. Thus, even when *TDS* and *CR* engage in frame critique and reinterpretation, the original frame is likely to be present in the coverage, as we saw here with the prevalence of the conflict frame. Because, in such a situation, the original frame is still made cognitively accessible to viewers, its influence will not necessarily be fully negated by the critique. At the same time, *TDS* and *Colbert Report* are comedy programs. Their job is to make fun. Even when humor is being used to raise awareness of a problem, it risks trivializing the problem and, as a result, lowering its perceived severity (Moyer-Guse, Mahood, & Brookes, 2011). Thus, appropriately conveying the seriousness of policy issues—particularly issues, like global warming, with which people do not have much direct experience—might be difficult to do in a humorous context. Finally, this study reveals a sharp inconsistency—particularly on *CR*—between what the hosts say and what they really mean. Given the openness with which viewers construct meaning when faced with this kind of ambiguity (LaMarre et al., 2009), the question of whether *TDS* and *CR* effectively challenge mainstream news narratives and political spin may truly be in the eye of the beholder.

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