This Floor Speech Will Be Televised: Understanding the Factors that Influence When Floor Speeches Appear on Cable Television*

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First Draft: August 23, 2017
This Draft: August 24, 2017

Abstract

Significant attention has been devoted to understanding the degree to which members of Congress (MCs) appear on television. Less attention has been paid to which congressional activities receive airtime. Although there are a variety of activities one could consider, this study asks a very basic question – what floor speeches get aired on CNN, Fox News, and MSNBC? Using 6,432 hours of audio from nearly 75,000 floor speeches and 145,706 hours from nearly 2,000 cable news programs, we find the thousands of speeches that get aired on cable news have specific properties – most notably they are delivered at a higher vocal pitch. Viewers do not want to see banal speeches. Rather, they want to see speeches where MCs are emotionally invested in the points they are trying to advance. The present study not only adds to the growing literature on vocal pitch, but we also demonstrate the effect of vocal pitch cannot be captured using text-based measures, suggesting audio variables may yield new insights into the causes and consequences of elite emotional expression.

*We are grateful to the hardworking men and women at the *Internet Archive*. Without them, this study would not have been possible. In particular, we would like to thank Brewster Kahle (Digital Librarian). We would also like to thank everyone who helped make the *TV News Archive* possible, including Roger Macdonald (Director), Nancy Watzman (Managing Editor), Robin Chin (News Archivist and Researcher), and Katie Dahl (Research Associate). Finally, this project could not have happened without Dan Ellis's fantastic software (*Audfprint*). Please download his software at: `https://github.com/dpwe/audfprint`. Comments and suggestions welcome.

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1 Introduction

Scholars have long emphasized the importance of Congressional media coverage. Both local (Fogarty, 2012; Schaffner, 2006) and national (Cook, 1986; Fogarty, 2013; Squire, 1988) news provide voters with a wealth of information about their representatives. However, most of this literature has focused on understanding who appears on television, rather than what types of congressional activities are aired. Although there are a variety of activities one could consider, this study asks a very basic question – what floor speeches get aired on CNN, Fox News, and MSNBC?

While scholars have long noted the importance of floor speeches aired on C-SPAN (Maltzman and Sigelman, 1996; Morris, 2001), floor speeches also get aired on cable news broadcasts. Undoubtedly, C-SPAN viewers likely watch cable news, but those who watch cable news do not necessarily watch C-SPAN. Members of Congress (MCs) value C-SPAN because those who watch C-SPAN are especially interested in politics. The same can be said for CNN, Fox News, and MSNBC viewers. However, these networks reach a larger portion of the population, making them especially useful for MCs interested in speaking to politically savvy viewers.

Unfortunately, not all politicians are equally "newsworthy." For example, House leaders not only possess privileged information, but they also have the ability to act on it, making them more worthy of television coverage. However, these "news values" are also influenced by a larger set of "news routines" which also affect the value of actions and events. News organizations are much more likely to show a member of Congress kissing a baby than passing a bill during an election year because what is "newsworthy" has changed as news organizations shift their focus to the campaign trail. These "news routines" work hand-in-hand with traditional "news values" to ultimately influence who and what appears on television.

The decision to air a floor speech is influenced by both of these processes. First, who

is speaking undoubtedly matters. Just as the rank-and-file are unlikely to be covered by the New York Times or Washington Post, MCs without any institutional authority are less likely to be aired on CNN or Fox News. Second, floor speeches are less likely to be aired during election years. When MCs are on the trail, cable news networks focus almost all of their attention on the who is going to win or lose – making all legislative activity, including floor speeches less valuable.

Unfortunately, by focusing exclusively on C-SPAN those who have studied floor speeches can offer little insight into how these media processes influence speech-making. CNN, Fox News, and MSNBC not only report the news, but they do so in a way that hopefully turns a profit (Hamilton, 2004). This means, unlike C-SPAN, cable news stations likely pay more attention to floor speeches that are able to grab viewers' attention. Although there are a variety of ways for a speech to get noticed, we demonstrate the importance of vocal inflections, most notably vocal pitch.

When individuals are emotionally invested in the point they are advancing, their heart begins to race, their breath quickens, and their muscles (including their vocal cords) tighten. This reaction largely occurs below conscious awareness, meaning vocal pitch provides an "inherently honest indicator" of the degree to which speakers are emotionally invested in the points they are advancing. Using 6,432 hours of audio from 74,158 floor speeches and 145,706 hours from 1,974 cable news programs, we demonstrate speeches delivered at a higher vocal pitch are more likely to be aired. Said differently, CNN, Fox News and MSNBC are much more likely to air MCs saying "I SUPPORT THIS BILL!" as opposed to "I support this bill."

Ultimately, we make three important contributions. First, while previous scholars schol-ars have used Lexis-Nexis transcripts to determine which MCs are referenced on cable news programs, we actually can say definitively whether MCs actually appear on air. This is important because often times MCs are referenced on cable news, but they are not shown speaking which likely has a different affect on voters. Second, we actually count the number of times floor speeches appear on television. Although it is safe to assume most floor speeches

appear on C-SPAN, we are the first to actually test this assumption – at least with respect to cable news broadcasts. In doing so, we can provide a rough estimate of the likelihood a given speech is to appear on CNN, Fox News, and MSNBC. Finally, we developed original software that uses audio hashing to determine whether a given audio file appears in a larger audio corpus. Similar to music recognition software like *Shazam*, our software allows users to query every cable news broadcast since 2009 using their own audio files. For our study, we used the audio from every floor speech delivered on the House floor, but our software can be used more broadly. For example, the *Political TV Ad Archive*[1] used similar software to determine which political advertisements also appear on cable news.

This paper proceeds as follows. In Section 2, we discuss existing scholarship on congressional television coverage. We use this literature to develop our key theoretical predictions regarding what floor speeches are likely to be aired on cable news. These hypotheses are outlined in Section 3. We explain our data in Section 4 which includes the audio from every floor speech and every cable television news broadcast since 2009. In this section, we also provide a detailed description of vocal pitch and audio hashing. Section 5 includes our main results. Ultimately, we show emotionally activated speeches are more likely to receive television coverage. We conclude in Section 6 with a summary and a discussion of avenues of future research. More details about our data, as well as additional results, can be found in the Supplemental Information.

2 Legislative Sound Bites

Whether it is Cook (1989) or Johnson and O'Grady (2013), scholars have consistently found that MCs with higher political standing are more likely to be covered by national news organizations. Over the course of their careers, party leaders have developed important working relationships with news organizations. When they appear again and again, they create a continuity that is valuable to both journalists and viewers. Moreover, unlike the

[1] `https://politicaladarchive.org`

rank-and-file, Nancy Pelosi (D-CA) and Paul Ryan (R-WI) can actually turn their rhetoric into action, making them inherently more "newsworthy." This is why institutional standing is "the first and clearly most studied variable" (Vos, 2014, 2448).

Unfortunately, mixed results have been found for other variables. For example, Fogarty (2008) found no significant relationship between seniority and news coverage, whereas the inverse is true for Cook (1986), Kuklinski and Sigelman (1992), and Sellers and Schaffner (2007). Similarly, Cook (1986) found more extreme members of Congress were more likely to be covered by the news, whereas Squire (1988) and Arnold (2004) found no significant relationship. These inconsistencies also extend to demographic characteristics, like gender, where Vos (2014) identified four studies where gender was a significant predictor and eight studies where gender was not. Even though only one of these gender studies was based in the United States, similar inconsistencies have also been found in the news coverage of legislative activity.

For example, Gershon (2012) found MCs who produced more press releases were more likely to receive press coverage, suggesting members who apply "more effort to communicate with the press" are generally rewarded (170). Arnold (2004) found a similar result with respect to the amount of effort on Capitol Hill. Using counts from the *Congressional Quarterly Weekly Report*, he found MCs who produced more "newsworthy activities" tended to appear more often in local and national newspapers. Unfortunately, outside of these studies, little evidence has been found to suggest legislative work is positively associated with the amount of media coverage. For example, Fogarty (2008) found the number of bills sponsored and the number press releases had no significant affect on the number of newspaper articles they received, leading him to conclude members' actions "play no role in the amount of coverage they receive" (461).

While several scholars have questioned the classic "work horse" and "show horse" distinction (Langbein and Sigelman, 1989; Payne, 1980; Sinclair, 1986), more recent evidence suggests congressional "mavericks" are increasingly "rewarded by considerable media expo-

sure," mostly because they are better able to create a sound bite (Cook, 1986, 205). For example, Representative Tauzin (R-LA) suggests floor speeches are increasingly used "to get sound bites for television, rather than a healthy discourse on the issues" (Tauzin, 1996, H4375). Such sound bites are becoming increasingly valuable as the number of interested viewers increases on CNN, Fox News, and MSNBC. Indeed, Morris (2001) shows "that members of Congress make attempts to appeal to this audience by instituting their own version of the legislative sound bite" (115). Not only are MCs producing more and more "sound bites," but they have strong incentives to do so as news organizations increasingly focus less on what is said in a speech and more on how the speech is delivered (Hallin, 1992).

The shortening of news broadcasts is partially to blame for this change in emphasis. In 1988, the average length of a campaign sound-bite was 9.8 seconds; in 1992, it was 8.4 seconds; in 1996, 8.2 seconds; and in 2000, 7.8 seconds (Lichter, 2001). As sound bites decrease in length, more and more information must be packed into smaller and smaller clips which entices news organizations to focus more on style than substance. People are more likely to respond to information when it is presented in an audio-video medium (e.g., Dijkstra, Buijtels and van Raaij, 2005), meaning news agencies have strong incentives to focus more on the audio and video of a clip, especially as "news reports became faster paced, more tightly structured, and shorter in length" (Bucy and Grabe, 1996, 657). While there are a number of ways to measure a "legislative sound bite," changes in vocal pitch is a good place to start.

Unlike text-based measures, vocal pitch provides an "inherently honest indicator" of a speaker's "internal state" (Ekman et al., 1991, 133–134). For example, "several studies have shown, that like the body, the tone of a person's voice leaks information that is not revealed by the verbal content or facial expressions associated with the message" (Zuckerman and Driver, 1985, 129). Elkins et al. (2014) has extended this argument to strategic displays of emotion. Whether it is a friend feigning laughter or a politician displaying false anger, more effort is required to convince others of fraudulent feelings. Not only do such efforts require

more cognitive resources, but the constant thought of whether the fabricated performance is succeeding or failing increases the stress the individual feels. This often causes those involved in emotional deception to become overly concerned with their overt behaviors. For example, a friend trying to feign laughter might inadvertently laugh too much because he or she does not want to be exposed. Indeed, "deliberate attempts by liars at controlling expressive behaviors, such as attempts to control thoughts and feelings, can be the seeds of their own destruction" (DePaulo et al., 2003, 78). Consequently, often times when individuals attempt to control their vocal pitch, they may actually sound "more tense and less pleasant or compelling than someone speaking sincerely," which is associated with "increased vocal pitch" (Elkins et al., 2014, 505).

Unfortunately, these vocal inflections are often not recorded in the *Congressional Record*. For example, when Anthony Weiner (D-NY) melted down on July 29, 2010 – it was difficult to detect the tenor of his speech using the *Congressional Record*. Not only were no exclamation points used, but emotive phrases like "shame!" and "sit down!" were also noticeably absent. However, his "tone" is what mattered most to CNN, Fox News, and MSNBC where ratings are the name of the game. Viewers do not want to see banal speeches. Instead, they want to see speakers who are emotionally invested in the points they are advancing.

Vocal pitch has consistently been used as a measure of emotional activation. Indeed, "the most consistent association reported in the literature is between arousal and vocal pitch, such that higher levels of arousal have been linked to higher-pitched vocal samples" (Mauss and Robinson, 2009, 222). For example, Laukka, Juslin and Bresin (2005) asked actors to portray anger, disgust, fear, happiness, and sadness with "weak" and "strong" intensity. A mixture of amateur and expert judges were then asked the degree to which a speaker was "activated." Not only did they find actors portraying more intense emotions were judged to be more "activated," but they also found "the correlation between activation and valence was virtually zero, which supports the notion that these two dimensions are orthogonal" (643).[2]

[2]According to Russell (2003), at any given moment, one's emotional disposition is a single integral blend

Bachorowski and Owren (1995) came to a similar conclusion. Here, they asked respondents to complete a 210-trial word identification task on a computer. After each block of 10, the respondents received either positive ("Good Job") or negative ("Try Harder") feedback. After they received the feedback, subjects were asked to say the name of the next block and task aloud. The vocal pitch from these utterances was found to be associated with self-reported levels of emotional intensity, leading the authors to conclude "that vocal pitch can be used to assess the level of emotional arousal currently experienced by the individual" (Mauss and Robinson, 2009, 222). Indeed, using measures of cortisol levels, Pisanski, Nowak and Sorokowski (2016) found "for every unit increase in free cortisol concentrations (1ng/ml), mean F0 increased by 1.1 Hz" – suggesting vocal pitch is highly correlated with the muscles tightening and getting ready for action. This result and others are why vocal pitch has been consistently used by scholars to understand a variety of political phenomena.[3]

For example, Dietrich, Enos and Sen (2017*a*) used the vocal pitch of Supreme Court Justices to predict case outcomes. Similarly, Dietrich, Enos and Sen (2017*b*) and Dietrich, Hayes and O'Brien (2017) showed how changes in vocal pitch can be used to understand gender dynamics among political elites. Perhaps more importantly, Dietrich and Juelich (2017) found voters tended to respond positively to these changes in vocal inflections. More specifically, when Donald Trump spoke at a higher vocal pitch during the most recent presidential debates he was evaluated more favorably on Twitter. We expect voters likely respond in a similar manner when watching floor speeches on CNN, Fox News and MSNBC.

of a horizontal dimension which ranges from one extreme (e.g., agony) through a neutral point to its opposite extreme (e.g., ecstasy) and a vertical dimension which ranges from a deactivated emotional state, such as being sleepy, to an activated emotional state, ultimately culminating in "frenetic excitement" (Russell, 2003, 148). This dimension captures one's sense of mobilization and energy—that is, emotional arousal.

[3]We also want to make sure and highlight the work of Casey Klofstad and others (Anderson and Klofstad, 2012; Gregory Jr and Gallagher, 2002; Klofstad, 2016; Klofstad, Anderson and Peters, 2012; Klofstad, Anderson and Nowicki, 2015; Tigue et al., 2012). Although not directly related to our current study, their work on vocal pitch was highly influential.

3 Theoretical Expectations

Although previous scholars have long noted the importance of who appears on television, less attention has been paid to what types of legislative activities are covered. To help better understand the latter, this study asks a very basic question – what floor speeches get aired on CNN, Fox News, and MSNBC? In doing so, we expand our understanding of congressional television coverage while simultaneously demonstrating the importance of audio-as-data.

Hypothesis 1: Floor speeches delivered by House leaders are more likely to appear on cable news broadcasts. Although we are not primarily interested in whether House leaders are covered more than the rank-and-file, we fully expect their speeches will appear more often on CNN, Fox News, and MSNBC. House leaders possess privileged information and they are in a position to act on whatever positions they are advancing – making them inherently "newsworthy." If we are unable to demonstrate this relationship in our data set, then we would be concerned that the methodology introduced below may be misidentifying which speeches appear on air.

Hypothesis 2: Floor speeches delivered at a higher vocal pitch are more likely to appear on cable news broadcasts. When MCs are invested in the points they are advancing, they are more likely to speak at a higher vocal pitch. People do not want to see mundane speeches. Rather, they want to see speeches in which the speaker is emotionally activated. Although there are a number of ways to measure a speaker's level of activation, vocal pitch has been consistently used to achieve this end. Thus, we expect speeches delivered at a higher vocal pitch will appear more often on cable news broadcasts.

4 Data and Measurement

In order to determine whether activated speeches are more likely to appear on television, we used *HouseLive*[4] to collect 6,432 hours of audio from 863 U.S. House debates beginning in January 6, 2009 and ending in August 4, 2014. Beginning in 2009, *HouseLive* was created by the Office of the Clerk to provide both live and archived video of floor proceedings in the U.S. House. Since our focus is on vocal pitch, we restricted our analyses to the audio we extracted from each speech that appears in these videos. To ensure we only focused on floor speeches that had a chance of being aired, we only considered speeches that were at least 50 words yielding text and audio from 74,158 speeches.

Extracting Vocal Pitch

Also known as the *fundamental frequency* (or F_0), Titze (2000), we defines vocal pitch in the following way:

$$F_0 = \frac{1}{2L}\sqrt{\frac{\sigma}{\rho}} \tag{1}$$

where L is the vocal fold length, σ is the longitudinal stress on the vocal folds, and ρ is the vocal fold tissue density. Individual variations in vocal fold length (L) and density (ρ) are largely determined by genetics (e.g. Przybyla, Horii and Crawford, 1992; Debruyne et al., 2002).[5] Conversely, variations in longitudinal stress (σ) are specific to the speaker and speech. Puts, Gaulin and Verdolini (2006, 285) demonstrate that "[e]motional activation raises F_0 by increasing tension on the vocal fold mucosa (σ, in Eq. (1)), mainly via contraction of the

[4] `http://houselive.gov`

[5] Vocal pitch is inversely proportional to vocal fold length and directly proportional to the square root of tension on the vocal folds" (Puts, Gaulin and Verdolini, 2006, 284). Thus, "[l]onger vocal folds with less tension on them lead to lower voice pitch" (Puts, Gaulin and Verdolini, 2006, 284). Vocal fold length is positively correlated with size (both height and weight), which is one of the reasons why adolescent boys experience a lowering of voices after puberty (Fitch and Giedd, 1999). This also explains why men typically speak with a lower pitch than women. Male vocal folds are between 17.5 and 25mm long on average, whereas female vocal folds are between 12.5 and 17.5mm long on average. The denominator for the first part of Equation 1 is smaller for women, increasing their pitch–F_0 (Titze, 2000).

circothyroid muscles and consequent lengthening of the vocal folds."

We extracted vocal pitch using *Praat*.[6] This commonly used speech analysis software estimates the fundamental frequency by dividing the autocorrelation of a windowed signal by the autocorrelation of the window itself.[7] Although there are a variety of pitch determination algorithms (PDAs), the one used by *Praat* is the most popular. Dietrich, Enos and Sen (2017*a*) not only show it can consistently be used to extract vocal pitch, but it also has been used by other to achieve similar ends (Vogel et al., 2009).

Ultimately, we standardized vocal pitch using each MC's mean and standard deviation. This was done for three reasons. First, because women's vocal cords tend to be smaller and shorter they typically speak at a higher vocal pitch than men. Once vocal pitch is scaled to standard deviations above or below each speaker's baseline (or mean) vocal pitch, we account for these inherent sex differences. Second, as explained by Hess (2007), pitch extraction can sometimes be incredibly difficult. For example, speaker's with certain vocal pathologies, like chronic laryngitis, can create irregular speech patterns which may disproportionately influence the specific pitch estimate. By standardizing vocal pitch, one can essentially "cancel out" these potential irregularities, yielding a clean measure of whether a speaker is more or less activated than usual. Third, we are not really interested in whether news organizations are more or less likely to broadcast an MC who generally speaks at a higher vocal pitch. Rather, we are interested in whether cable news broadcasts notice when MCs deliver particularly activated speeches. Standardizing vocal pitch not only helps capture whether a speaker is higher or lower than we would expect, but also gives the relative magnitude of change. Ultimately, we expect these changes will be noticed by CNN, Fox News, and MSNBC.

[6] `http://www.fon.hum.uva.nl/praat/`

[7] *Praat* implements a variation of the Boersma (1993) algorithm. To use this software, one has to set five parameters: the pitch floor, pitch ceiling, window length, window shape, and voicing threshold. We set the pitch floor and ceiling to 50Hz and 300Hz, respectively. This resulted in a window length of 60ms. For both the window shape and voicing threshold we used the default settings.

Identifying Televised Speeches

Recording Television

Since the *Internet Archive*[8] was founded in 1996, a team of computer scientists, statisticians, and journalists have stored 279 billion web pages, 11 million books, 4 million audio recordings, and 3 million videos, 1 million images, and 100,000 software programs. This study uses one small fraction of what they have collected – 1,417,000 television news programs.

These programs were obtained by recording one minute segments using a dedicated computer based in San Francisco, CA. Using a known television schedule, these segments were then combined into full programs, ultimately yielding every program aired on local and national news over the last 3,154 days. Not only is this the largest collection of television news programs ever compiled, but the *TV News Archive*[9] also provides several tools to help users navigate the massive amount of data they have collected. Even though these tools are incredibly useful, we did not use them for the present study. However, we do provide some tutorials in the Supplemental Information for interested readers.

Searching Television

Trying to find a single program in our data, let a lone a single section of a program is incredible difficult. With transcripts, the text of each speech could be used to identify the associated video. Unfortunately, CNN, Fox News, and MSNBC do not make transcripts readily available, making them nearly impossible to use for the purposes of this study.

We also could not use automated transcription software. For example, Google's Speech Recognition API costs $0.0004 per second, which sounds affordable, but even at this relatively inexpensive rate it would cost around $2,040,480 to obtain text for all the news programs stored in the *TV News Archive*. While some open-sourced software (like CMUSphinx) does exist, it is has consistently been shown to yield less than desirable results when transcribing

[8] https://archive.org
[9] https://archive.org/details/tv

complicated audio streams – like those recovered from cable news broadcasts.

To rectify this problem, we turn to audio fingerprinting (or hashing). Similar to video hashing, the goal of any audio hashing algorithm is to reduce an audio signal into a series of representative strings. This summarized version of the audio file can then be queried using another audio file that may or may not have similar characteristics.

Unfortunately, there is no universal way to "summarize" and audio file. For this study, we use an algorithm based on a sound's frequency. This algorithm was developed by Rubin (2009) and is implemented in *audfprint*. Similar to *Praat*, this software uses a windowing process to (a) identify the most prominent waves in a given sound and (b) the corresponding frequency. It does so by splitting the audio file into a number of segments (per second), then finding the local maximum in the respective spectrograms. A "landmark" is identified using the relationship between pairs of maxima which are then recorded as the frequency of the first peak, the difference in the frequency bins to the second peak, and the number of time frames between the two peaks.

These landmarks are collected into a "hash table" for a given audio track. This and the timing information is then converted into a 32-bit string and stored in a bucket associated with each unique hash. Once stored, the buckets associated with each news program can be searched using a user-provided audio file. The "search" involves comparing the hash obtained from the new audio file with every hash stored in the database. In both theory and practice, these searchers yield remarkably consistent results – making *audfprint* particularly useful for the present study. For example, the *Internet Archive* used this software in a program called the Duplitron 5000 (or DT5k) to determine whether political advertisements appeared on local and national news broadcasts.

Finding Floor Speeches in Television

More specifically, DT5k was created to help researchers query the hashes of videos stored in the Internet Archives database. It was leveraged by *Archive* staff to analyze television news to

generate a continuously growing dataset of political advertising patterns. The Duplitron was also used to compare coverage across cable news networks of the 2016 presidential debates. This data was used by journalists to identify coverage inconsistencies and by fact checkers to identify the most prominently re-broadcast statements.

For this study, we adapted the Duplitron pipeline into a series of scripts designed to run on a computing cluster at a large midwestern university. Not only did this massively improve processing speed, but we also were able to expand the *Internet Archive*'s database to include hashes from all floor speeches and news programs between 2009 and 2014. In terms of the former, the first iteration of DT5k used 20 cores to ingest approximately 20% of the content volume used in this study over the span of around a year of nearly constant ingestion. When parallelized across cluster nodes, a similarly sized calculation took a matter of hours.

This dramatic increase in speed does not just result in more data in a shorter period. It also increases the capacity for refinement, experimentation, and error correction. Although not included in the present study, we are working on providing some tools to allow users to query the data we have complied using a similar software architecture. These will also eventually be included in the Supplemental Information.

Control Variables

Institutional standing was measured using a dummy variable for whether an MC was a party leader. We also controlled for race and gender. Both measures were obtained from *GovTrack*[10] which we also used for our measure of seniority. Stewart and Woon's (2016)[11] data was used to determine whether the speaker was a committee chair. Controls for partisanship and ideology were obtained from *Voteview*.[12] Both of which have been shown to influence floor speeches (Morris, 2001; Harris, 2005) which is also the reason why we included a dummy variable for whether the speech was delivered during an election year. This vari-

[10] `https://www.govtrack.us`
[11] `http://web.mit.edu/17.251/www/data_page.html`
[12] `http://voteview.com`

able has also been shown to influence congressional news coverage, most notably by Prior (2006) who found that the number of television stations tended to increase the incumbency advantage during election years.

To isolate the effect of vocal pitch, we also included controls for the number of "negative" and "positive" words. These were measured using the Linguistic Inquiry Word Count (LIWC) dictionary. There are 407 positive words, including "acceptable," "benevolent," and "devoted." There are 500 "negative" words, such as "abusive," "brutal," "contempt," and "destructive." The LIWC dictionary has been used in a variety of applications (for review, see Tausczik and Pennebaker, 2010), including many within political science (e.g., Owens and Wedeking, 2011, 2012). In order to make the coefficients easier to interpret, we standardized the number of "negative" and "positive" words using each speaker's mean and standard deviation. Although not shown here, the results are the same when the proportion of "negative" and "positive" words are used.

5 Results

How Often Do Floor Speeches Appear On Television?

Floor speeches give members of Congress the ability to "send out a short, pointed message of their choice to a relatively large audience" (Morris, 2001, 102). When members of Congress speak they are not consciously thinking about increasing their vocal pitch, meaning what we are observing are natural physiological reactions that are often unbeknownst to the speaker. Given that, changes in vocal pitch can be thought as being "inherently honest indicator" of the speaker's emotional state. We argue MCs who deliver a large number of emotionally activated speeches are more likely to appear on cable news broadcasts because their speeches are inherently more sincere. This makes them more "newsworthy" and ultimately more entertaining.

The question becomes, are speeches delivered at a higher vocal pitch more likely to appear

Table 1: Which Cable News Programs Air Floor Speeches?

(a) CNN

Program	Floor Speeches
Newsroom	52
The Situation Room	22
Out Front	12
New Day	12
Early Start	7
State of the Union	7
Around the World	6
Saturday Morning	3
Forensic Files	3
Your Bottom Line	2
Total	150

(b) FOX

Program	Floor Speeches
America's Newsroom	103
Special Report	79
Fox and Friends	77
Fox Report	67
Hannity	61
The O'Reilly Factor	44
Happening Now	42
On The Record	34
America Live	23
Geraldo at Large	16
Total	626

(c) MSNBC

Program	Floor Speeches
Hardball	105
Rachel Maddow	75
The Ed Show	50
Live	50
Countdown	42
The Last Word	41
Morning Joe	26
Jansing & Co.	24
Way Too Early	22
All In	18
Total	563

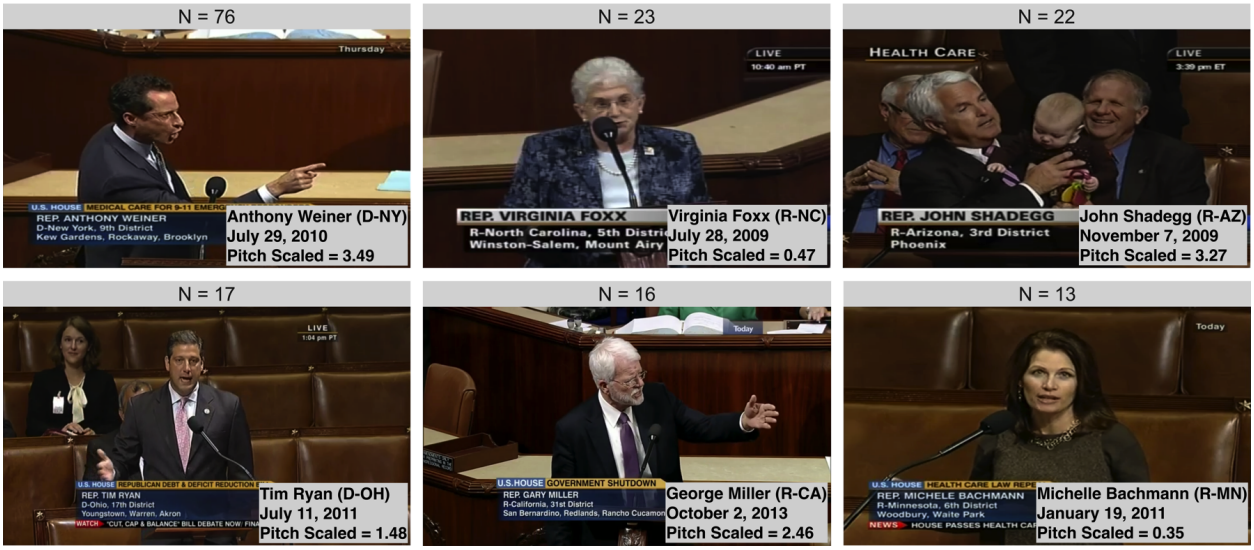
Note: In each panel we show the total number of floor speeches aired by each network, as well as the total number of floor speeches aired by specific programs. These counts do not represent unique floor speeches.

on CNN, Fox News, and MSNBC? While "news values" undoubtedly increase the likelihood that some speeches are covered more than others, news organizations also possess their own "news routines" which likely make some speeches more valuable than others. For example, part of CNN's brand hinges on it being perceived as being more objective than Fox News and MSNBC. This may make CNN less likely to air speeches like Anthony Weiner's meltdown because such outbursts are not seen as "real news." Conversely, MSNBC and Fox News may be more likely to air such emotional tirades because they energize their partisan base. Indeed, Anthony Weiner was yelling at Republicans which likely plays well with MSNBC's audience, whereas the same speech could also be framed as an example of an irrational liberal also making it valuable for those watching Fox News. However, before we can consider these more specific questions, we need to get a better understanding of the degree to which CNN, Fox News, and MSNBC air floor speeches. These results can be found in Table 1.

There are three things that are readily apparent from this table. First, CNN is much less likely to air floor speeches as compared to Fox News and MSNBC. This suggests CNN consider floor speeches to be less "newsworthy" as compared to their competitors. Second, the airing of floor speeches can not be attributed to a single program. Regardless of whether

one is talking about CNN, Fox News, and MSNBC, floor speeches seemed to be aired across the whole network rather than just a single program. Third, regardless of whether one is talking about *The Situation Room*, *Hannity*, or *Hardball*, floor speeches also seem to make their way onto the most popular talk shows for each network. Not only do these shows have higher ratings then the standard "newsroom" programs, but they are often aired and re-aired during primetime. With that said, most speeches are not aired. Indeed, floor speeches only appeared 1,440 times on CNN, Fox News, and MSNBC, meaning the odds of a single speech receiving television coverage is incredibly low.

Figure 1: Which Floor Speeches Are Aired on Cable News Programs?



Note: This plot show the floor speeches that were aired the most on CNN, Fox News, and MSNBC. In the bottom right, we also report the standardized vocal pitch. Positive values imply the speaker spoke at a vocal pitch higher than his/her baseline, suggesting he/she was more emotionally activated than normal.

However, Figure 1 shows some "over-the-top" speeches do receive a lot of media attention. For example, Anthony Weiner's meltdown on July 29, 2010 not only received the most coverage, but he is number one by a large margin. Similarly, Virginia Foxx's speech in which she said the Republican version of health care reform is "pro-life because it will not put seniors in a position of being put to death by their government" also received a lot of coverage from CNN, Fox News, and MSNBC. Although John Shadegg was not saying

anything outlandish, he did consistently raise the tone of his voice while also using someone else's baby to emphasize the importance of repealing Obamacare. Unsurprisingly, this too received a lot of television coverage. MCs give floor speeches all the time, but they do not do so using human props – making this speech particularly "newsworthy."

Increased vocal pitch is a common theme amongst these speeches. Indeed, Anthony Weiner, George Miller, and John Shadegg all spoke at least 2 standard deviations above their baselines. For the first two speakers, their increased vocal pitch can be attributed to yelling, but John Shadegg's increase had more to do with a him consistently raising the tone of voice. This suggests news organizations are not just airing MCs screaming. Instead, CNN, Fox News, and MSNBC tend to broadcast speeches in which the speaker is generally activated.

The Importance of Vocal Pitch

Similar to Fogarty (2008, 2012, 2013) and others (e.g., Squire, 1988; Schaffner, 2006; Sellers and Schaffner, 2007) our unit of analysis is the individual legislator. Ultimately, our dependent variable is the number of times a MC's floor speeches were aired on cable news broadcasts. Given the distribution of this variable, we estimated a series of negative binomial regressions including an offset for the number of speeches. Including an offset helps control for the fact that MCs who deliver a large number of floor speeches also have a greater likelihood of having one of those speeches appear on television. In the Supplemental Information, we provide additional model specifications, including models in which the speech is the unit of analysis. In each instance, our substantive results are the same. This gives us confidence our results cannot be attributed to our modeling strategy.

Table 2 reports our main results. Here, regardless of whether one is talking about CNN, Fox News, or MSNBC, the results remain the same – vocal pitch is a positive and statistically significant predictor. This provides strong evidence that MCs who consistently deliver emotionally activated speeches are more likely to appear on cable news broadcasts, suggesting

Table 2: When MCs Deliver Emotionally Activated Speeches They Are More Likely to Appear on CNN, Fox News, and MSNBC

	CNN		FOX		MSNBC		All	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Constant	−6.199***	−6.549***	−4.820***	−5.420***	−4.887***	−6.855***	−4.047***	−5.110***
	(0.144)	(0.528)	(0.130)	(0.459)	(0.157)	(0.482)	(0.117)	(0.368)
Vocal Pitch	1.372***	1.220***	1.020***	1.040***	1.021***	1.121***	1.079***	1.099***
	(0.309)	(0.359)	(0.253)	(0.292)	(0.292)	(0.297)	(0.220)	(0.254)
Negative Words		0.619		−0.045		−0.539		−0.166
		(0.420)		(0.400)		(0.418)		(0.324)
Positive Words		−1.006*		−0.620		−0.208		−0.538
		(0.540)		(0.469)		(0.458)		(0.389)
Seniority		0.013		0.022**		0.015*		0.019**
		(0.011)		(0.009)		(0.009)		(0.008)
Republican		−0.184		−0.373		−1.532***		−0.779*
		(0.441)		(0.496)		(0.467)		(0.424)
|DW-Nominate|		0.590		0.561		3.700***		1.809***
		(0.845)		(0.775)		(0.641)		(0.586)
Female		0.231		−0.263		−0.091		−0.097
		(0.321)		(0.344)		(0.476)		(0.327)
White		0.081		0.207		0.812*		0.412
		(0.401)		(0.378)		(0.477)		(0.326)
Election Year		−1.079***		−0.082		−0.663**		−0.434*
		(0.309)		(0.272)		(0.300)		(0.245)
Committee Chair		0.230		0.516		−0.979***		−0.013
		(0.452)		(0.421)		(0.340)		(0.308)
House Leader		1.924***		1.734***		0.905**		1.415***
		(0.455)		(0.362)		(0.352)		(0.349)
N	2,465	2,465	2,465	2,465	2,465	2,465	2,465	2,465
Log-Lik	−461.812	−443.975	−1,068.854	−1,056.393	−986.161	−961.475	−1,750.269	−1,724.908
θ	0.061***	0.092***	0.088***	0.097***	0.070***	0.081***	0.140***	0.154***
	(0.011)	(0.019)	(0.009)	(0.010)	(0.007)	(0.009)	(0.010)	(0.012)
AIC	927.623	911.949	2,141.707	2,136.785	1,976.323	1,946.951	3,504.539	3,473.817

Note: In all models the dependent variable is the number of times an MC's floor speeches were aired in a given legislative year. Coefficients are estimated using negative binomial regressions. `Vocal Pitch` is scaled to standard deviations above or below an MC's baseline vocal pitch. Positive values imply the MC was more emotionally activated than we would expect. Levels of significance are reported as follows: *p < .1; **p < .05; ***p < .01. Since an MC can appear multiple times, clustered standard errors are reported in parentheses.

MCs have strong incentives to “play to the camera."

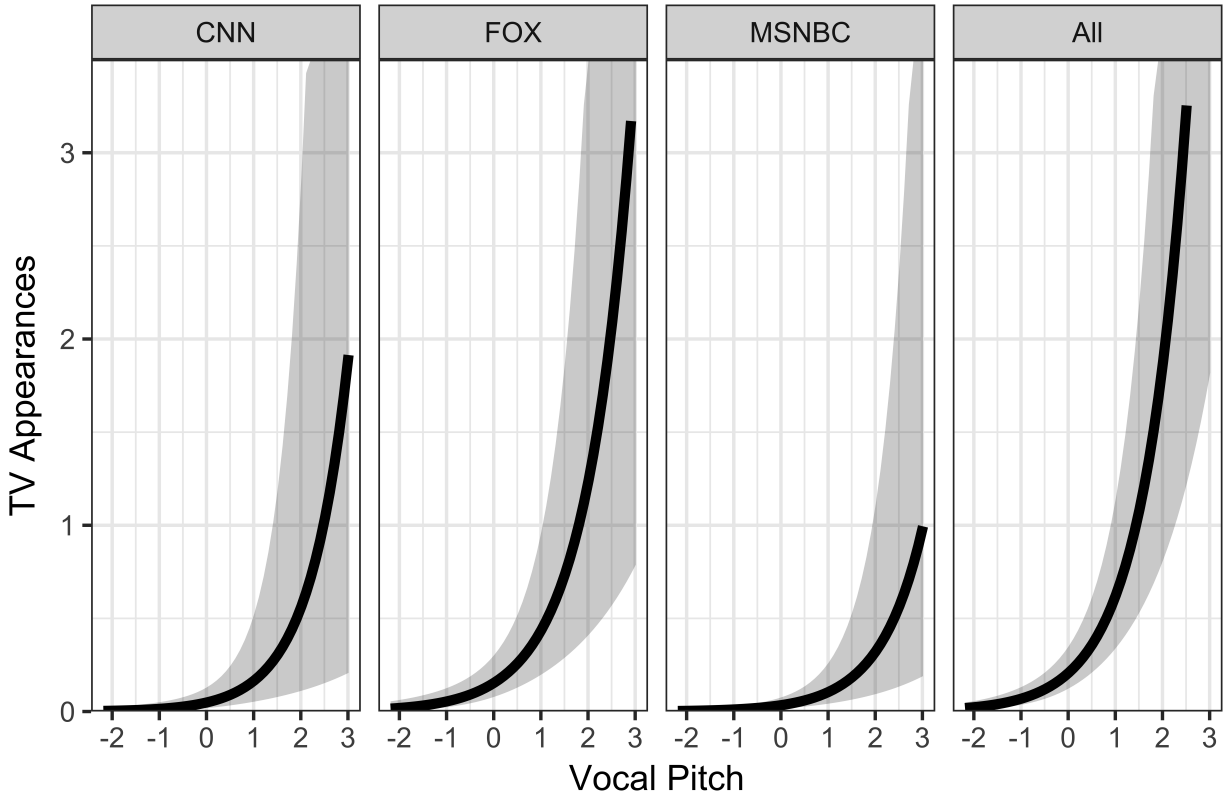
Although not central to our theoretical argument, House leaders are also more likely to appear on CNN, Fox News, and MSNBC. This suggests the methodology we introduce in this study is yielding reasonable results. Indeed, not only is `House Leaders` positive and statistically significant, but it is also the only variable outside of vocal pitch that is a consistent predictor. Similar to previous studies, mixed results are found for every other variable suggesting we are likely captured a non-trivial relationship between vocal pitch and the number of times floor speeches are aired on cable news broadcasts.

It is also worth noting that our results hold even when we include text-based measured. Not only is vocal pitch a positive and statistically significant predictor even when these variables are included as controls, but the number of “negative" and “positive" words are mostly statistically indistinguishable from zero. Indeed, the number of “positive" words is only a statistically significant in one model, whereas the number of “negative" words is never statistically significant, even at the 0.10-level. Collectively, these results provide strong evidence cable news organizations likely pay more attention to how a speech is delivered, rather than the words that are uttered.

To help interpret our results, we plotted predicted values in Figure 2. In these figures, we set all other variables to their mean and modal values, including the offset which was set to the mean number of speeches (30). Thus, each curve represent the number of floor speeches aired by each network for every 30 speeches delivered. For example, for every 30 floor speeches delivered by a given MC, CNN airs 3.802 speeches when they are delivered at the maximum vocal pitch (3.01). Conversely, when those speeches are delivered at the minimum vocal pitch (-2.19), CNN airs 0.003 speeches. Not only does this suggest vocal pitch influences the likelihood of television coverage, but it also suggests the effect can sometimes be sizable.

To put this into perspective, we estimated a model in which the only predictor was whether an MC was a House leader. Using the coefficients from this negative binomial re-

Figure 2: Predicted Values for Table 2



Note: This plot uses the coefficients from Models 2 (see "CNN" panel), 4 (see "Fox" Panel), 6 (see "MSNBC" panel) and 8 (see "All" panel). Standardize vocal pitch is allowed to vary from the minimum (-2.19) to maximum (3.01) while all other variables are held at their mean and modal values. Error bars represent 95 confidence intervals.

gression, we calculated the same predicted values. Here, for every 30 floor speeches delivered by a given MC, MSNBC aired 0.713 speeches delivered by a House leader. When those speeches are delivered at the maximum vocal pitch (3.01), MSNBC aired 5.228 speeches for every 30 floor speeches delivered. These results demonstrate not only is vocal pitch a non-trivial predictor of cable news coverage, but it far surpasses institutional standing – the "the first and clearly most studied variable" (Vos, 2014, 2448).

Table 3: Predicted Cable News Coverage for the Most Activated Members of Congress

Rank	Representative	Vocal Pitch	Speeches	Predicted Televised	Predicted Percent
1	Anthony Weiner (D-NY)	3.49	38	3.36	8.84
2	Virginia Foxx (R-NC)	0.47	164	1.56	0.95
3	John Shadegg (R-AZ)	3.27	29	2.85	9.83
4	Tim Ryan (D-OH)	1.48	37	1.15	3.11
5	George Miller (R-CA)	2.46	49	2.49	5.08
6	Michelle Bachmann (R-MN)	0.35	51	0.26	0.51

Note: This table provides predicted values for each representative outlined in Figure 1. The coefficients used for these predictions were obtained from Table 2, Model 8. All other variables were held at their mean and modal values.

Finally, in Table 3, we calculated predicted values for the MCs who delivered the most emotionally activated speeches. Imagine Anthony Weiner had a meltdown for all 38 of the speeches he delivered in our data. If this occurred, then we would expect 8.84 percent of those speeches would be aired by CNN, Fox News, and MSNBC. Conversely, Virignia Foxx would have essentially none of her speeches aired if she delivered them at the low vocal pitch we reported in Figure 1. Not only does this suggest MCs are rewarded for toning up, rather than toning down the rhetoric, but it also suggests vocal pitch effects the likelihood that MCs make it onto CNN, Fox News, and MSNBC.

6 Discussion

Scholars have long emphasized the importance of Congressional media coverage. Regardless of whether one is talking about CNN, Fox News, or MSNBC, often times the only time

voters see their representatives is when they appear on television. This gives MCs who appear on television a unique advantage. While previous scholars have spent a great deal of time understanding who appears on television, less time has been dedicated to what types of congressional activities are aired. Although there are a variety of activities one could consider, this study answered a very basic question – what floor speeches get aired on CNN, Fox News, and MSNBC?

Ultimately, we found vocal pitch was a strong and consistent predictor of the number of times an MC's speeches were aired. Viewers do not want to see banal speeches. Instead, they want to see speeches in which MCs are emotionally activated. While Anthony Weiner was undoubtedly activated when he delivered his infamous tirade, we also show that activation can take more subtle forms, such as John Shadegg who simply raised the tone of his voice. Regardless, we show MCs who deliver a large number of emotionally activated speeches are more likely to appear on CNN, Fox News, and MSNBC.

Not only does this relationship hold when other controls are included, but it is more pronounced than text-based measures. Indeed, the number of "positive" and "negative" words had little to no affect on the number of times a floor speech was aired on cable news broadcasts. We also show the effect of vocal pitch is substantively more important than an MC's institutional standing. The relationship between institutional standing and news coverage has been found time and time again, so much so that it is "the first and clearly most studied variable" (Vos, 2014, 2448). While other variables are undoubtedly important, our results suggest vocal pitch should also be actively considered by scholars interested in understanding who and what appears on cable news broadcasts.

Our study also makes a sizable contribution to the floor speech literature. While previous scholars have long noted the importance of C-SPAN, we show a large number of floor speeches actually make it onto cable news broadcasts. While the vast majority of floor speeches do not get aired on CNN, Fox News, and MSNBC, floor speeches do appear on a wide number of programs, including some of the most popular – such as *The Situation Room*, *Hannity*,

and *Hardball*. Undoubtedly, these programs have much larger audiences, meaning while MCs likely appreciate appearing on C-SPAN, they are probably more excited to be picked up by these popular shows and cable news networks more broadly.

Undoubtedly, more work needs to be done. First, we have no idea whether these speeches are presented in a positive or negative light. While appearing on CNN, Fox News, and MSNBC is generally desirable, if those appearances are coupled with negative coverage, then MCs are probably not very excited when their speeches are aired on these networks. Second, we also have no idea how voters respond when they see speeches on CNN, Fox News, and MSNBC. For example, voters may be less willing to accept speeches at their face value when they appear on these networks, meaning MCs may reach fewer viewers on C-SPAN, but they may do so in a more convincing fashion.

While previous scholars have suggested floor speeches are used to signal constituents, we are the first to provide a mechanism for how such signaling can take place. Only a handful of speeches make it onto CNN, Fox News, and MSNBC, but these speeches have distinct properties – most notably they are delivered at a higher vocal pitch. In doing so, we not only demonstrate the literal tone of a speech matters, but we also show floor speeches can sometime reach a large number of viewers, making them a potentially useful signaling device. More works needs to be done, but this study is an important first step.

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