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Humor in Satirical News Headlines: Analyzing Humor Form and Content, and Their Relations with Audience Engagement

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ABSTRACT

Satirical news presents a critique of current affairs through humor. Previous research suggests that satirical news can have different humor forms (e.g. linguistic strategies) and humor contents (e.g. news topics, targets), and that such differences in humor characteristics can influence audience effects of satirical news. This paper extends this research by analyzing these relationships across different types of outlets in a content analysis (Study 1) and audience engagement analysis (Study 2). In Study 1, we compared humor forms and contents of satirical news headlines posted on Facebook ($N = 5,775$) between outlets from different countries (United States and the Netherlands) with different political leanings (liberal and conservative). Findings showed that the coded humor forms reasonably consistently characterized satirical news across outlet types, while humor contents did not. In Study 2, we examined associations of the humor characteristics with the number of likes and comments the Facebook posts received. Results were often outlet-specific, especially in case of the coded humor contents. This paper thus reveals that when satirical news' audience effects differ by humor characteristics, this may be attributed less to differences in humor form, and more to differences in humor content.

Satirical news (e.g., *The Daily Show*, *The Onion*) is a hybrid news genre that presents a critique of current affairs through humor (Burgers & Brugman,

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2021). By providing humorous criticism, satirical news entertains, but also has the potential to influence audiences' thoughts and feelings about the current affairs that are humorously critiqued (see Burgers & Brugman, 2021 for a meta-analysis of satire experiments). Previous research suggests that the presence and size of audience effects of satirical news depend on several factors (Burgers & Brugman, 2021). One such factor seems to be satirical news' humor characteristics (Holbert et al., 2011).

Holbert et al. (2011) proposed that researchers should consider more how different humor characteristics of satirical news can have different effects. They argued that whether satirical news persuades audiences depends on the types of arguments different kinds of humor allow satirists to make. However, attention for the characteristics and effects of humor in satirical news has been limited (e.g., Becker, 2012; Boukes et al., 2015), despite initial evidence for the importance of a pluralistic approach to studying satirical news (Holbert et al., 2011).

According to previous research, the characteristics and effects of humor in satirical news may depend on outlet characteristics. A first is outlets' country of origin because cultural and political contexts can pose constraints on satirical humor (Davis, 2016) as well as guide the appetite of audiences for specific jokes (Skalicky et al., 2021). A second characteristic is outlets' political leaning, given that, at least in the United States, satirical news is created, consumed, and enjoyed more by liberals than conservatives (Young, 2019). Nevertheless, because these types of studies are still scarce, they have only scratched the surface of how exactly the characteristics and effects of satirical news differ between different types of outlets.

To address these gaps, this paper investigated the characteristics and effects of humor in satirical news, while taking into account the country of origin and political leaning of outlets. We first conducted a manual content analysis that identified differences in humor characteristics of satirical news between outlet types (Study 1). We next compared associations of the humor characteristics with audience engagement between outlet types (Study 2). We focused on audience engagement with satirical news on social media, via liking and commenting, to contribute to recent work in that area (Boukes et al., 2021; Peifer et al., 2021).

The outlets included in this research originate from two countries: the United States and the Netherlands. These countries were chosen because they differ in culture (e.g., language, religiousness, humor traditions) and how they are governed politically (e.g., two-party vs. multiparty system), but they are similar in terms of how popular satirical news is (Boukes, 2018). For each country, the Facebook pages of the most popular satirical news outlets were selected. Using a pluralistic approach to studying satirical news (Holbert et al., 2011), this research thus provides insight into whether

and how the relationship between humor characteristics and audience engagement differs between different types of outlets for satirical news.

Humor form and content

An important distinction in humor research is that between humor form and humor content (Ruch & Hehl, 2007). Humor form refers to the joke technique used. Humor content refers to what jokes are about. Humor with the same content (e.g., jokes about politicians) can differ in humor form (e.g., some jokes rely on analogies, others on exaggerations; Skalicky & Crossley, 2019) and humor with the same humor form (e.g., jokes that rely on exaggerations) can differ in humor content (e.g., some jokes are about politicians, others about issues more broadly; Ruch & Hehl, 2007). This is why these dimensions of humor can predict humor effects independently of each other (Ruch & Hehl, 2007). However, previous humor research has predominantly studied them separately (Ruch & Hehl, 2007). The two-mode model of humor appreciation therefore proposes that humor characteristics and effects can be best understood by studying humor form and content in tandem (Ruch & Hehl, 2007).

Previous research that investigated humor characteristics (e.g., Droog et al., 2020; Niven et al., 2003) and humor effects (e.g., Becker, 2012; Boukes et al., 2015) of satirical news also tended to either examine humor form (e.g., linguistic strategies) or humor content (e.g., news topics, targets). Following the two-mode model (Ruch & Hehl, 2007), a key contribution of the current research is that it examines both humor form and content of satirical news.

With regard to humor forms, we focused on three linguistic strategies that are often said to characterize satirical news. A first is the use of metaphors (e.g., Droog et al., 2020), which can be defined as cross-domain mappings (Lakoff & Johnson, 1980). An example is the headline “Calling Earth a ‘Loser,’ Trump Vows to Make Better Deal with New Planet,” which humorously describes planet Earth as a politician with whom negotiations failed. A second strategy is the use of extreme exaggerations, also known as hyperboles (e.g., Young et al., 2019). Of this, an example is the headline “Thousands Saved After Worship Band Nails Sick Bass Drop,” which humorously exaggerates the impact of church music. The third strategy is syntactic negation, which involves words such as “not” and “never” (e.g., Simpson, 2003). An example is the headline “Chinese Factory Workers Fear They May Never Be Replaced With Machines,” which creates a humorous opposition between expectations and reality.¹

¹All examples are taken from this study's corpus.

What makes these humor forms uniquely valuable to study in satirical news is that, in addition to serving as building blocks of humor (Droog et al., 2020; Simpson, 2003; Young et al., 2019), they can serve as communicative cues that mark the presence of humor (Burgers & Van Mulken, 2017). At the core of satirical humor is incongruity between the expressed and intended message of the satirist (e.g., Matthes & Rauchfleisch, 2013). Metaphors, hyperboles, and negations are strongly expressive linguistic phenomena that can draw attention to this incongruity, and therefore can set up the expectation for a non-serious interpretation of a message (Burgers & Van Mulken, 2017). As a result, these humor forms could possibly enhance humor perceptions of satirical news.

In terms of humor contents, we focused on three levels at which news content in satirical news has mostly been studied in previous research: (1) news substance: the degree in which the news story is important to society and urgent to report such as most domestic, foreign, and international news (vs. culture/lifestyle news; Fox et al., 2007), (2) which news topics are discussed (e.g., politics, technology; Holland & Levy, 2018), and (3) which societal actors are targeted (e.g., politicians, news media; Niven et al., 2003).

Differences between outlet types

According to the satire literature, humor characteristics of and audience responses to satirical news may differ between different types of outlets. Contexts of outlets, as the result of outlets' country of origin, could for instance play a role (Holbert et al., 2014). Culturally, what is considered funny is different between countries to varying degrees (Kuipers, 2015). Politically, humor characteristics can differ between countries that have different political systems because of differences in partisan dynamics (Matthes & Rauchfleisch, 2013). Despite this probable importance of country context, there is a distinct lack of systematic cross-country comparisons (Skalicky et al., 2021). The current research therefore systematically compares humor characteristics and effects of satirical news from two countries from different continents, that differ in humor culture and political system but that share a fondness for satire (Boukes, 2018): the United States and the Netherlands.

Another factor that could influence results is the political leaning of outlets (Young, 2019). It is argued that liberal and conservative satirical news have different positions in the news media landscape (Young, 2019). In line with the psychology associated with the liberal ideology, liberal satirical news for instance contains more ambiguous humor (Young, 2019) and more criticism of authority figures (Dagnes, 2012) than conservative satirical news. By contrast, conservative satirical news contains more jokes about marginalized cultural groups (Sienkiewicz & Marx, 2021).

Previous research, however, tends to be limited to the discussion of a few examples of satirical humor. The current research thus systematically analyzes how the political leaning of outlets relates to the characteristics and effects of humor in satirical news in a relatively large corpus of both liberal and conservative outlets.

It is important to jointly compare how satirical news outlets from different countries with different political leanings differ in humor characteristics and effects, because the outlet labels “liberal” and “conservative” can mean different things in different countries. The American political landscape is highly polarized due to the country’s two-party system. This generally causes satirical news outlets to clearly support liberal or conservative viewpoints (Young, 2019). In the multiparty system of the Netherlands, the government always consists of a coalition of various parties which can span across the political spectrum. Accordingly, Dutch satirical news outlets target left-wing and right-wing parties to similar degrees, potentially resulting in more fluid political leanings (Luimstra, 2017).

Liberal and conservative political ideologies also manifest differently in the United States and the Netherlands. This is especially true of the social dimension of conservatism, which favors the preservations of traditional beliefs, practices, and institutions (Vermeer & Scheepers, 2018). In the United States, where Christian church attendance is relatively high, there is a strong relationship between social conservatism and religion, meaning that traditional values are largely shaped by religious ones (O’Brien & Abdelhadi, 2020). The Netherlands, however, is a more secular country. In this country, no strong relationship between social conservatism and religion exists (Vermeer & Scheepers, 2018). These differences could influence results.

Study 1: Content analysis

Study 1 assessed the degree to which different types of outlets for satirical news differ in humor characteristics (Holbert et al., 2011). We analyzed article headlines because they summarize the humorous message of satirical news articles (Skalicky, 2018), making them a clear unit of analysis for identifying humor forms and contents. To first inspect how often various humor forms and contents occur in satirical news headlines, we asked:

RQ1: How often do different (a) humor forms (metaphor, hyperbole, negation) and (b) humor contents (news substance, topics, targets) occur in satirical news headlines?

To next determine whether and how results generalize across outlets that differ in country origin and in political leaning, we asked:

RQ2: To which extent do the occurrences of humor forms and contents in satirical news headlines differ between (a) American and Dutch outlets and (b) liberal and conservative outlets?

Method

Data collection

Facebook posts were collected in May 2020 using Facepager (Jünger & Keyling, 2019), an application developed for retrieving publicly available data on social media. Outlets were selected based on popularity and political leaning in the respective countries to ensure a valid representation of satirical news in both countries. The political leaning of American outlets was determined by means of the *All Sides* website (www.allsides.com), which rates biases of news outlets based on survey data and editorial reviews. For Dutch outlets, no such resource existed, which is why outlet leanings were derived by the researchers from outlet viewpoints toward polarizing topics, such as climate change and immigration. American outlets *The Onion* (liberal), *The Borowitz Report* (liberal), and *The Babylon Bee* (conservative), and Dutch outlets *De Speld* (liberal) and *Nieuwspaal* (conservative) were selected for this research.

From the selected outlets, we collected all posts that were published from 2017 through 2019. These consecutive years were chosen to collect a relatively large corpus, while excluding atypical years in terms of news coverage (i.e., due to presidential elections² and the COVID-19 pandemic). The time frame thus ensured as much robustness of findings as possible.

In total, 8,929 posts were collected. Posts were next excluded from analysis when they (a) were duplicates ($n = 618$), (b) only promoted merchandise ($n = 17$), (c) linked to images or videos rather than written texts ($n = 1,080$), and (d) did not link to a satirical news article, because they linked to a non-satirical site ($n = 866$) or did not contain any hyperlink ($n = 431$). This way, we prevented differences in modality from influencing results. After coding the dataset, another 142 posts that did not meet the criteria were excluded. The final corpus consisted of 5,775 posts: 721 from *The Onion*, 283 from *The Borowitz Report*, 1,502 from *The Babylon Bee* (total US = 2,506), 1,549 from *De Speld* and 1,720 from *Nieuwspaal* (total NL = 3,269).

Humor form

Metaphor. We coded the headlines for the use of both direct and indirect metaphor by means of the Metaphor Identification Procedure Vrije Universiteit (MIPVU; Steen et al., 2010). When direct metaphor was present,

²A Dutch general election did take place on 15 March 2017. Since this was only at the beginning of the year, 2017 was chosen as the start date nonetheless.

both the source and target domain of the metaphor were explicit. Headlines that contained indirect metaphor also invited new perspectives on the topic of the headline through cross-domain mappings (Skalicky & Crossley, 2019), but they did so by presenting the topic in terms of another domain more generally.

Hyperbole. We coded the presence of hyperbole by means of the Hyperbole Identification Procedure (HIP; Burgers et al., 2016). In line with this procedure, we differentiated between quantitative and qualitative hyperbole. A headline contained quantitative hyperbole when it contained countable information that was extremely exaggerated, which for instance concerned numbers of people (e.g., “everyone,” “nobody”) and likelihoods of events (e.g., “always,” “never”). Qualitative hyperbole was present when evaluative information (e.g., how foolish the target is) was extremely exaggerated.

Negation. Headlines were coded as containing syntactic negation when they contained one or more of the following words (Garner, 2016): (a) negative particles: “not/n’t” and “no;” (b) negating pronouns: “no one/nobody,” “none,” and “nothing;” and (c) negating adverbs: “no more/no longer,” “nowhere,” “never,” and “neither . . . nor.”

See Table 1 for examples. Although only incidentally the case, headlines could contain more than one humor form (e.g., both hyperbole and negation).

Humor content

See Online Supplemental Materials for coding instructions.

News substance. We classified headlines as containing either domestic news, foreign news, international news, or culture/lifestyle news.

Table 1. Headline examples from the corpus for each humor form.

Variable	Topic: Politics, target: Trump	Topic: Religion, target: Pastor
Direct metaphor	Trump Clarifies Border Wall Was Actually Just A Metaphor For Love [wall = love]	Local Pastor’s Description Of Holy Spirit Identical To “The Force” From Star Wars [Holy Spirit = The Force]
Indirect metaphor	Trump’s Slurred Speech Tied to Low Battery in Putin’s Remote [president = robot]	Pastor Assures Seniors Church Organ Sent Away To Nice, Big Farm In Country [organ = pet]
Quantitative hyperbole	Trump Creates Ten Million Jobs for Fact Checkers	Pastor Labors All Weekend On Church Blog Post Approximately Four People Will End Up Reading
Qualitative hyperbole	Trump Takes To Twitter To Viciously Attack White House Step He Stumbled Over	Pastor Forced To Flee Country After Forgetting To Mention Mother’s Day In Sermon
Syntactic negation	Trump Says Sleeping Only Four Hours a Day Not Affecting His Ability to Cljryff	Southern Baptist Pastor Resigns In Disgrace After Admitting He Does Not Like Casseroles

Topics. Each headline was also coded for thematic focus (multiple topics could apply to one headline; e.g., a political debate about a health issue): politics, law and order, business/economics, science, education, technology, environment, health, religion, and sports.

Targets. We finally coded the targets of the headlines³ (multiple targets could apply): governmental actors (e.g., politicians, government officials), political parties, political institutions (e.g., Congress), news media and journalists, organizations (e.g., Facebook), experts (e.g., doctors), celebrities, religious figures/leaders, and historical figures.

Intercoder reliability

All headlines were coded by the first author of this paper. To determine intercoder reliability, a random sample of 1,200 headlines (approximately 20% of the data) was independently coded by a second coder. Intercoder reliability scores (see Online Supplemental Materials) showed that coding agreement for the majority of variables was “almost perfect,” for some “substantial” and for only two “poor” to “fair” (Landis & Koch, 1977). The two variables with low intercoder reliability were qualitative hyperbole and historical figures, which were subsequently dropped from analysis to guarantee sufficient reliability of results.

Results

Data, code, and output can be found on the Open Science Framework (OSF): <https://osf.io/e5h7a/>.

Humor form and content. RQ1a asked how often different humor forms are used in satirical news headlines. We found that 0.5% of American headlines contained direct metaphor, 13.7% contained indirect metaphor, 9.8% contained quantitative hyperbole, and 9.4% contained negation. Of the Dutch headlines, 0.4% contained direct metaphor, 12.5% contained indirect metaphor, 5.1% contained quantitative hyperbole, and 10.7% contained negations. Because of the low frequency of direct metaphor, we combined the metaphor variables for further analysis.

³The exception was when headlines only consisted of a quote as indicated by quotation marks around the entire headline. In those few cases, the message (the Facebook message post, which usually was an excerpt of the article that was shared from the satirical news website) and description (the caption of the hyperlink to the article on the website) were read to determine who the quote was supposedly from (i.e., the target of the headline).

RQ1b asked how often different humor contents are used in satirical news headlines. In terms of news substance, American headlines most often contained domestic news (50.6%), followed by culture/lifestyle news (40.6%), international news (6.2%), and foreign news (2.6%). Dutch headlines also most often contained domestic news (42.9%) and culture/lifestyle news (42.8%), but then devoted attention to foreign news (7.9%), followed by international news (6.5%). The most frequent topics in American headlines were politics (32.4%), religion (30.8%), law and order (10.3%), and business/economics (9.4%). Dutch headlines also most often discussed politics (17.1%), business/economics (11.1%), and law and order (8.4%). However, few Dutch headlines addressed religion (2.3%). Instead, the topics of environment (11.8%), health (8.1%), and sports (6.9%) were relatively frequent. The most frequent targets in American headlines were governmental actors (20.2%), religious actors (12.1%), organizations (12.0%) and celebrities (7.3%). In Dutch headlines celebrities (9.3%), organizations (8.7%), and governmental actors (7.2%) were also most frequent, with no clear fourth place. See Online Supplemental Materials for the frequency counts of the remaining topics and targets that were coded.

Country differences. Next, chi-square tests were conducted to identify differences in occurrences of the humor forms and contents between the different types of outlets. Because some content categories occurred rather infrequently, we merged certain topics and targets based on conceptual similarity. Subsequent analyses included all four news substance categories, six rather than ten topics and five rather than eight targets.⁴ Our relatively large dataset allowed us to identify both meaningful and possibly trivial differences. In this paper, we therefore only report significant chi-square results with Cramér's V scores starting at .05, where .10 indicates a small association, .30 a medium association, and .50 a large association (Cohen, 1988). See Online Supplemental Materials for all chi-square test statistics.⁵

RQ2a asked whether occurrences of the humor forms and contents would differ between countries. Chi-square results showed only one humor form difference: American headlines contained more quantitative hyperbole than Dutch headlines ($V = .09, p < .001$). For humor content, we found differences regarding two out of four news substance categories. American headlines focused more often on domestic news ($V = .08, p < .001$), but less often on foreign news ($V = .12, p < .001$) than Dutch headlines. Furthermore, American

⁴Results with all original variables can be found in Online Supplemental Materials.

⁵We also examined to which extent the humor forms co-occurred with certain humor contents (see Online Supplemental Materials). Results, in particular, showed that metaphors were positively associated with humor content about hard news stories (e.g., domestic news, politics/law) and were negatively associated with lifestyle/culture news.

headlines more often addressed politics/law ($V = .15, p < .001$) and religion ($V = .40, p < .001$), and less often addressed environment/health ($V = .14, p < .001$) and sports ($V = .08, p < .001$) than Dutch headlines. Lastly, American headlines contained more references than Dutch headlines to four out of five target categories: political actors ($V = .20, p < .001$), experts/news media ($V = .09, p < .001$), organizations ($V = .05, p < .001$), and religious actors ($V = .25, p < .001$). Combined, results showed that it was mainly humor content that differed between countries (RQ2a). American satirical news is more political in nature, focuses more on religion, and is more target-oriented (vs. issue-oriented) than Dutch satirical news, while Dutch satirical news is more diverse in thematic focus. Figure 1 graphically displays the frequencies per country.

Outlet leaning differences. RQ2b asked whether occurrences of humor forms and contents in satirical news would differ between outlets with different political leanings. All chi-square results for the American headlines are visually presented in Figure 2, and those for the Dutch headlines in Figure 3.

With regard to humor form, results showed that American liberal headlines contained more negations than American conservative headlines ($V = .08, p < .001$). Dutch liberal headlines also contained more negations than Dutch conservative headlines ($V = .07, p < .001$), as well as more metaphors ($V = .07, p < .001$) and more quantitative hyperboles ($V = .12, p < .001$).

With regard to humor content, results revealed that American liberal headlines contained more international news ($V = .11, p < .001$) and less culture/lifestyle news ($V = .11, p < .001$) than American conservative headlines. Also, while American liberal headlines were more often about politics/law ($V = .18, p < .001$), business/economics ($V = .07, p < .001$), and environment/health ($V = .12, p < .001$) than American conservative headlines, no less than half of the American conservative headlines placed religion at the center ($V = .50, p < .001$). American liberal headlines also more often contained references to political actors ($V = .22, p < .001$), whereas—in line with the topics result—religious actors were more frequent in American conservative headlines ($V = .25, p < .001$). In line with these results, Dutch liberal headlines paid more attention to politics/law ($V = .08, p < .001$) and political actors ($V = .13, p < .001$) than Dutch conservative headlines. Unlike the American results, Dutch liberal headlines focused less often on domestic news ($V = .19, p < .001$), more often on culture/lifestyle news ($V = .18, p < .001$), and less often on environment/health ($V = .16, p < .001$) than Dutch conservative headlines.

Overall, differences were found between liberal and conservative outlets, but typically in different ways per country (RQ2b). The only shared differences were that liberal headlines in both countries contained more negation and focused more on politics and political actors than conservative headlines.

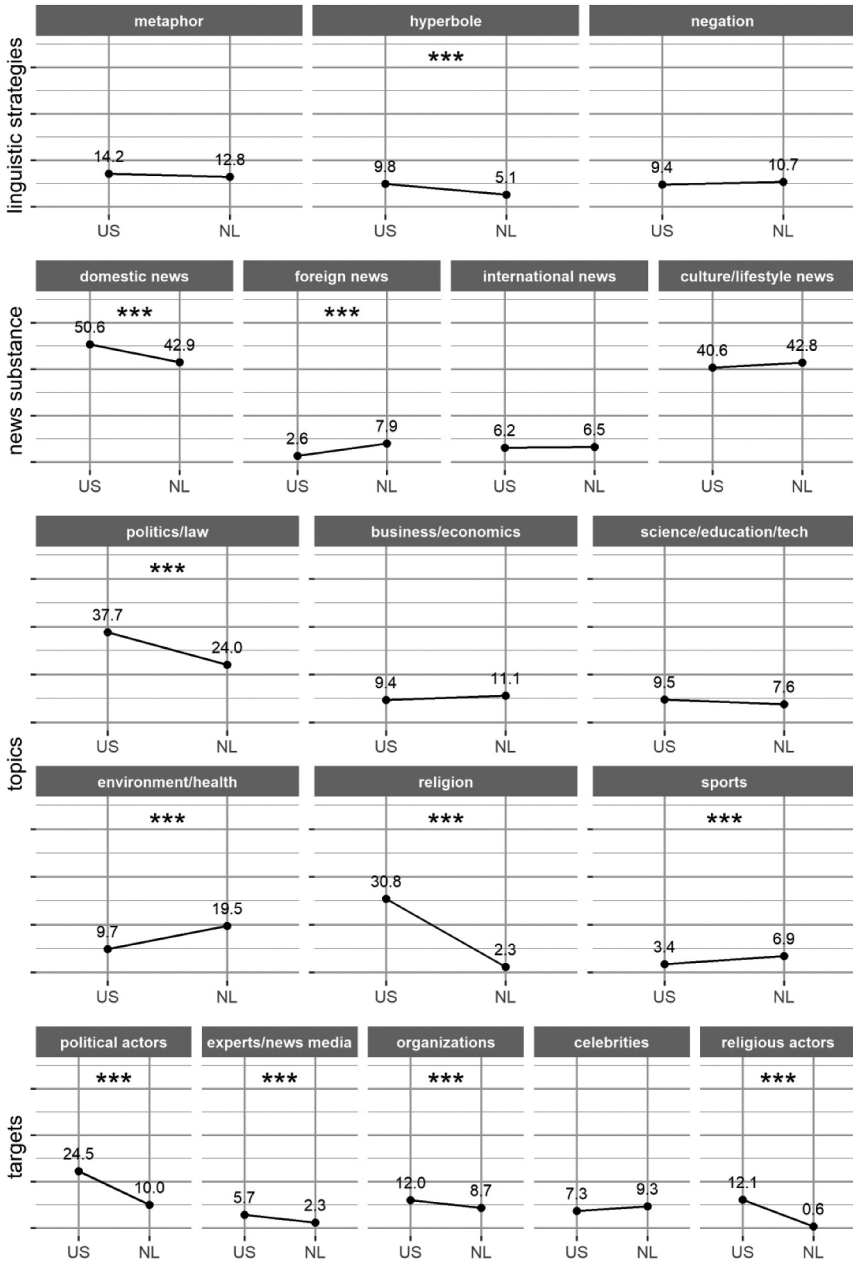


Figure 1. Differences in percent frequencies (%) of the humor forms and contents between countries.

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

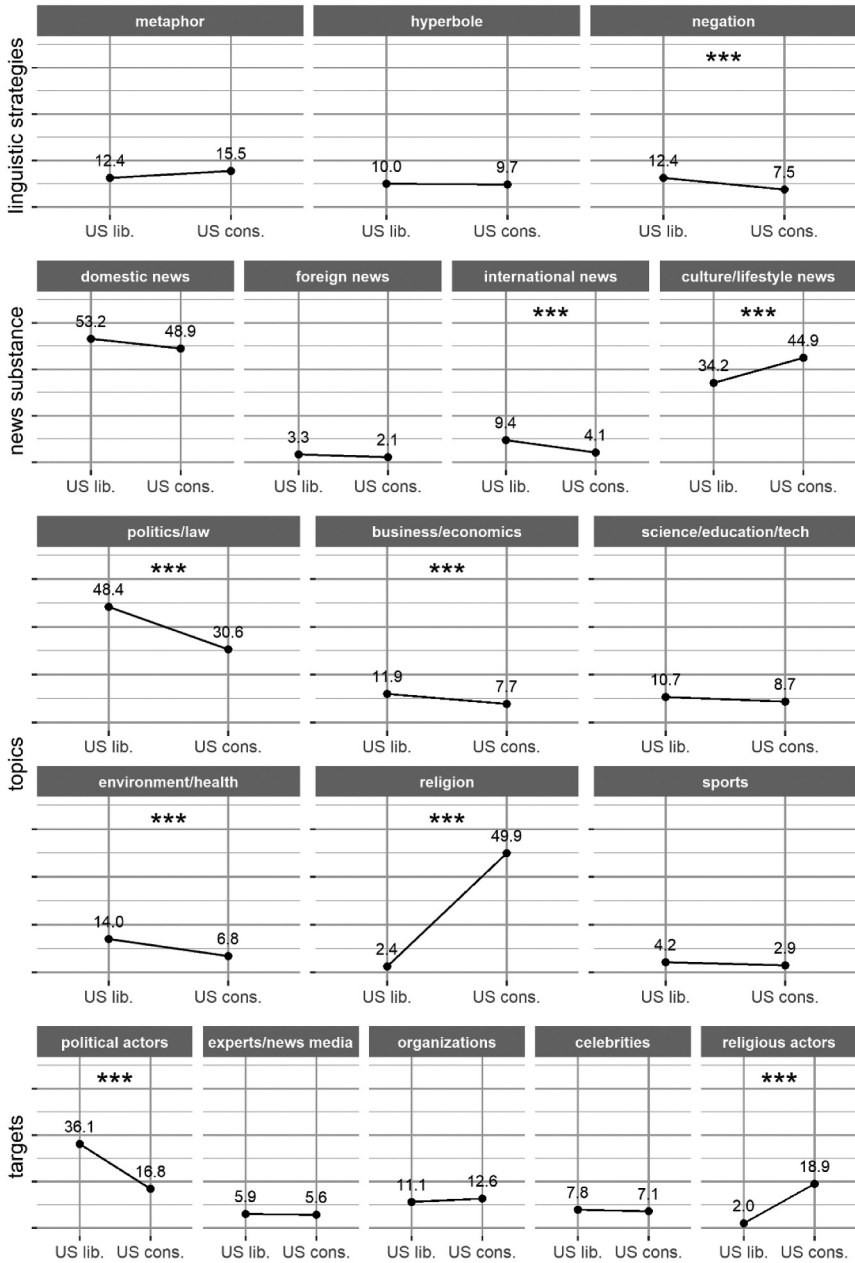


Figure 2. Differences in percent frequencies (%) of the humor forms and contents between liberal and conservative American outlets.

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

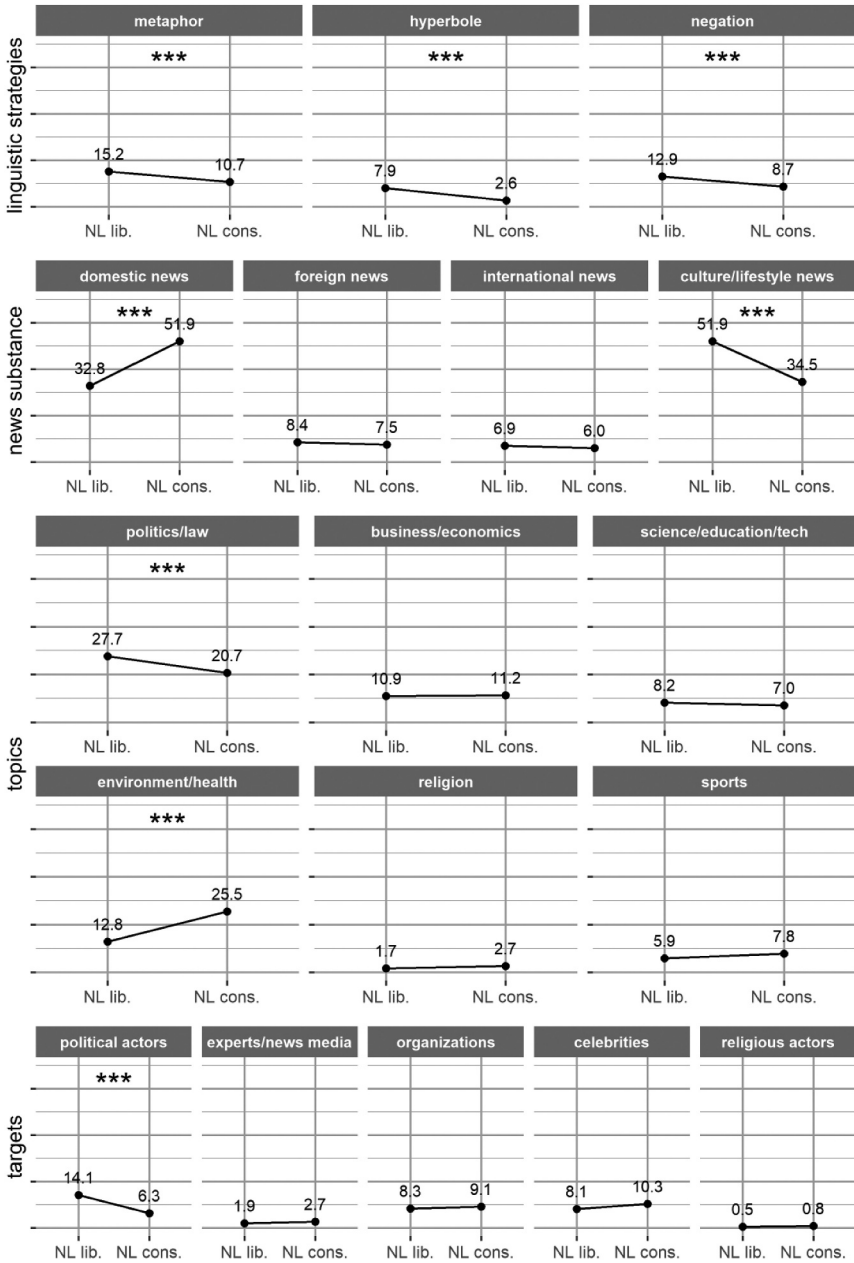


Figure 3. Differences in percent frequencies (%) of the humor forms and contents between liberal and conservative Dutch outlets.

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

Conclusion

The aim of Study 1 was to further our understanding of humor diversity in satirical news (Holbert et al., 2011) by focusing on both humor form and content (Ruch & Hehl, 2007). Whereas we only found some small differences in humor forms between the different types of outlets, we found both more and larger differences between outlet types in humor contents. Findings of Study 1 thus demonstrated that humor diversity in satirical news concerns humor content more than it concerns humor form.

Study 2: Audience engagement analysis

Study 2 next linked the occurrences of the humor forms and contents to audience engagement of satirical news, measured by means of number of Facebook likes and comments. Our analysis sought to reveal patterns in how audience effects of satirical news depend on humor characteristics (Holbert et al., 2011) across the different types of outlets. We asked:

RQ3: How are the (a) humor forms and (b) humor contents associated with audience engagement across American and Dutch, liberal and conservative outlets?

Method

Data preparation

When we collected the Facebook posts, we also collected their like and comment counts.⁶ Before performing data analysis, we checked whether these variables had a normal distribution. Q-Q plots (see Online Supplemental Materials) demonstrated that this was not the case. We therefore applied log transformation to minimize skewness (Nicklin & Plonsky, 2020). Q-Q plots revealed that the data transformation to a normal distribution was successful (see Online Supplemental Materials).

Another step in preparing the data for analysis involved accounting for different numbers of followers per satirical news Facebook page. Unfortunately, we could not retrieve historical follower counts. We resolved this issue by applying mean-centering to the engagement variables per Facebook page, meaning that all like and comment counts now represented deviations in the number of likes and comments per post from the page's average counts.

⁶Other reactions were simultaneously collected: the numbers of shares, and love, haha, wow, angry, and sad reactions. These counts are available in the dataset.

We next identified outliers in like and comment counts per Facebook page, following the procedure by Leys et al. (2013, 2019). A common method of outlier detection is to use the mean plus/minus two or three standard deviations to determine outlier thresholds (Leys et al., 2013). A weakness of this method is that means and standard deviations are influenced by the presence of outliers. Leys et al. (2013, 2019) therefore recommend to base outlier detection on median absolute deviation (MAD)⁷ instead, because the median is insensitive to outliers. An outlier analysis with the median plus/minus three MAD (as proposed by Leys et al., 2019) found few outliers, both for the like counts ($n = 20$, 0.35%) and comment counts ($n = 39$, 0.68%). We removed them to prevent outliers from influencing results (Leys et al., 2019).

Analytical plan

Several linear regression models per outlet type per country were fitted, with Facebook like counts or comment counts as the dependent variable. To fit these models, we used the *lme4* package (version 1.1–23; Bates et al., 2015) for *R* (version: 4.0). Each Model 1 contained the humor forms as predictors. In each Model 2a, news substance was added as a predictor through dummy variables. Because news substance contained more than two categories, one category needed to be chosen as the reference to compare the other categories against. Domestic, foreign, and international news all generally focused on substantive topics and targets (e.g., news about politics), whereas culture/lifestyle news did not. This is why culture/lifestyle news was chosen as the reference category.⁸ In each Model 2b, we added the topic categories as predictors and removed the news substance dummies to avoid multicollinearity. In each Model 2c, we followed the same procedure, but using the targets categories. All models contained two control variables: month of posting to control for time effects and the number of characters per headline to control for headline length.

Results

Given the many tested associations between humor characteristics of satirical news and audience engagement, only significant associations are reported next. Moreover, we only describe patterns of associations to be able to draw general conclusions from the results. Please consult [Figures 4 and 5](#) for an overview of all tested associations, including the significance levels of the standardized effect estimates. Full model statistics are reported in the Online Supplemental Materials.

⁷This is the median multiplied by the default value of 1.4826 (Leys et al., 2013).

⁸A different choice of reference category would not change the observed associations.

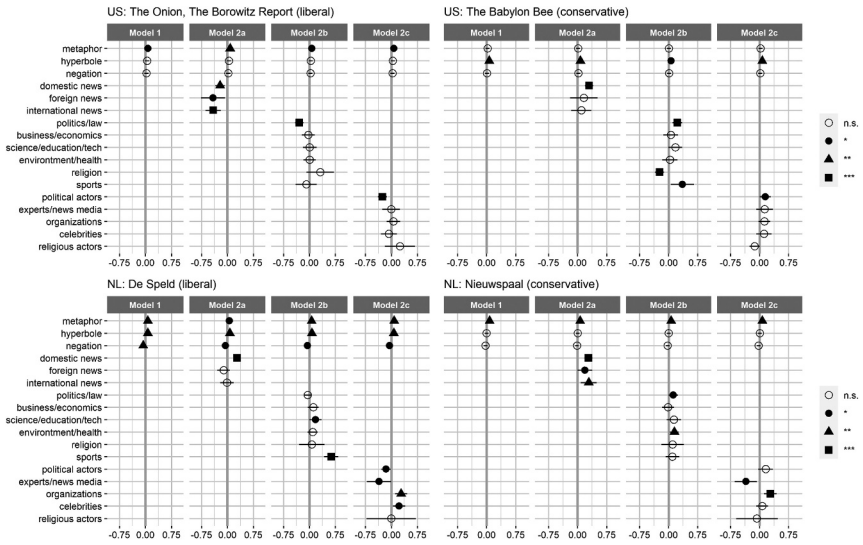


Figure 4. Standardized effect estimates (β) of the predictors (all dummy variables) on Facebook like counts, with 95% confidence intervals. Significance levels are indicated by point shape (e.g., circle, square). * $p < .05$; ** $p < .01$; *** $p < .001$.

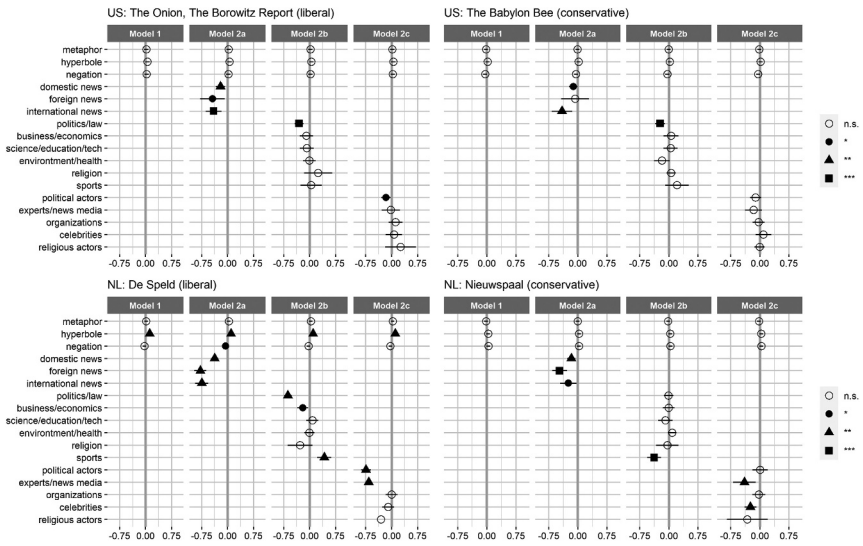


Figure 5. Standardized effect estimates (β) of the predictors (all dummy variables) on Facebook comment counts, with 95% confidence intervals. Significance levels are indicated by point shape (e.g., circle, square). * $p < .05$; ** $p < .01$; *** $p < .001$.

Humor forms

RQ3a asked to which extent humor forms were associated with audience engagement across the different types of satirical news outlets. Results demonstrated that metaphors increased like counts for American liberal ($\beta = 0.07, p = .02$), Dutch liberal ($\beta = 0.07, p = .01$), and Dutch conservative ($\beta = 0.08, p = .001$) posts. For American conservative posts, positive associations with like counts were found in case of hyperboles ($\beta = 0.07, p = .01$), but not metaphors ($p = .35$). For Dutch liberal posts, results also showed positive associations of hyperboles with like counts ($\beta = 0.07, p = .004$), but negative associations of negations with like counts ($\beta = -0.07, p = .01$). With regard to comment counts, we only found one significant association: hyperboles increased comment counts of Dutch liberal posts ($\beta = 0.12, p < .001$). These results were consistent across the statistical models, which means that the humor forms explained variance in like and comment counts independently of the humor contents.

Humor contents

RQ3b asked to which extent humor content is associated with audience engagement across different types of satirical news outlets. We found that some associations of the humor contents with like counts were shared between outlet types. Across countries, attention to politics/law increased like counts of conservative posts (US cons.: $\beta = 0.23, p < .001$; NL cons.: $\beta = 0.12, p = .046$), while attention to political actors decreased likes of liberal posts (US lib.: $\beta = -0.26, p < .001$; NL lib.: $\beta = -0.15, p = .03$). For both liberal and conservative Dutch posts, positive associations were found between like counts and attention to organizations (NL lib.: $\beta = 0.28, p = .002$; NL cons.: $\beta = 0.28, p = .001$) and experts/news media (NL lib.: $\beta = -0.35, p = .048$; NL cons.: $\beta = -0.35, p = .02$).

Some associations of the humor contents with comment counts were also consistent. Across countries, attention to political actors decreased comment counts of liberal posts (US lib.: $\beta = -0.16, p = .02$; NL lib.: $\beta = -0.74, p < .001$). Attention to experts/news media decreased comment counts of both liberal and conservative Dutch posts (NL lib.: $\beta = -0.66, p < .001$; NL cons.: $\beta = -0.40, p = .01$). These associations were in line with results for the like counts.

In contrast to the like count results, however, comment counts of all four outlet types were lower in case of attention to domestic news (US lib: $\beta = -0.20, p = .003$; US cons.: $\beta = -0.12, p = .04$; NL lib.: $\beta = -0.37, p < .001$; NL cons.: $\beta = -0.17, p = .002$), foreign news (US lib: $\beta = -0.44, p = .02$; US cons.: $p = .71$; NL lib.: $\beta = -0.79, p < .001$; NL cons.: $\beta = -0.47, p < .001$), and international news (US lib: $\beta = -0.40, p = .001$; US cons.: $\beta = -0.41, p = .002$; NL lib.: $\beta = -0.74, p < .001$; NL cons.: $\beta = -0.25, p = .02$), compared to culture/lifestyle news. There was no such clear pattern of associations for the likes

counts. Also, in contrast to the like count results, attention to politics/law decreased comment counts across outlet types (US lib: $\beta = -0.30$, $p < .001$; US cons.: $\beta = -0.23$, $p < .001$; NL lib.: $\beta = -0.62$, $p < .001$) except in case of Dutch conservative posts ($p = .91$).

Other results regarding how humor content was related to audience engagement were outlet specific. For instance, only American liberal posts were liked less often when they were about domestic news ($\beta = -0.21$, $p = .002$), foreign news ($\beta = -0.42$, $p = .02$), and international news ($\beta = -0.41$, $p < .001$), compared to culture/lifestyle news. We also only found a negative association of attention to religion with like counts for American conservative posts ($\beta = -0.23$, $p < .001$). A result unique to Dutch liberal posts was a positive association of attention to science/education/technology with like counts ($\beta = 0.18$, $p = .046$). A result that only characterized Dutch conservative posts was a positive association of attention to health/environment with like counts ($\beta = 0.15$, $p = .01$). See [Figures 4 and 5](#) for more outlet-specific results that we do not discuss here to ensure a clear presentation of results. These additional country-specific results are described in the Online Supplemental Materials.

Conclusion

Study 2 aimed to provide insight into how humor characteristics influence audience effects of satirical news across outlet types (Holbert et al., 2011). With regard to humor forms, like counts increased when metaphors (3 out of 4 outlet types) and hyperboles (2 out of 4 outlet types) were used, and comment counts for Dutch liberal posts also increased with hyperboles. By contrast, like counts of Dutch liberal posts decreased with negations. With regard to associations between audience engagement and the humor contents, there were a number of consistent results across outlets of the same country of origin (e.g., like and comment counts decreased for Dutch posts with attention to experts/news media) and of the same political leaning (e.g., like as well as comment counts decreased for both American and Dutch liberal posts with attention to political actors). Nevertheless, many results were unique to a particular outlet type. Findings therefore showed that when audience effects of satirical news differ by humor characteristics, this is more likely due to differences in humor content than to differences in humor form.

General discussion

This paper improves our understanding regarding differences in the characteristics and effects of humor in satirical news in three ways. First, where most of previous satirical news research focused on either humor form or

humor content, we systematically analyzed both dimensions of humor in line with the two-mode model of humor appreciation (Ruch & Hehl, 2007). Second, following earlier studies that suggested that the characteristics and effects of humor in satirical news would differ between outlets from different countries (e.g., Davis, 2016; Skalicky et al., 2021) and between liberal and conservative outlets (e.g., Sienkiewicz & Marx, 2021; Young, 2019), we compared findings between these different types of outlets. Third, our research was conducted in the context of social media to contribute to a growing area of research that determines how and why audience members engage with satirical news online (Boukes et al., 2021; Peifer et al., 2021). Our findings have several implications worth highlighting.

General implications

First, our findings support the value of distinguishing between humor form and content when studying humor characteristics, as proposed by the two-mode model of humor appreciation (Ruch & Hehl, 2007). Findings of the content analysis often showed differences in humor form and especially in humor content between satirical news outlets from different political leanings across the different countries. Therefore, this research introduced a new way of adopting a pluralistic approach to studying satirical news' characteristics (Holbert et al., 2011).

Our findings also support the hypothesis put forward by the two-mode model of humor that humor form and content would independently from each other predict humor effects (Ruch & Hehl, 2007). In the audience engagement analysis, we found that the humor forms and contents each were associated with audience engagement in their own, independent ways. Accordingly, this research shows why a pluralistic approach to studying satirical news' effects (Holbert et al., 2011) should involve distinguishing between humor form and content.

A final general implication is that our findings demonstrate that a large proportion of satirical news items has been understudied in previous research. Up to now, content analyses (e.g., Brewer & Marquardt, 2007; Fox et al., 2007; Niven et al., 2003) and experiments (Burgers & Brugman, 2021) overwhelmingly focused on political content in satirical news. However, we found a dichotomy in the most frequent humor contents in satirical news. On the one hand, headlines indeed often addressed domestic news in general and news about politics/law, business/economics, political actors, and organizations in particular. On the other hand, a similar number of headlines involved culture/lifestyle news. Audience engagement was even found to sometimes be higher in case of culture/lifestyle news. Findings thus showed that soft news has just as central a place in satirical news as hard news. In order to provide a complete picture of the genre,

future research should therefore devote more attention to soft news in satirical news.

Implications regarding humor form

Some of the humor form findings were consistent across the different types of outlets. First, the humor forms characterized approximately one out of ten satirical news headlines each, and about one out of three in total. Furthermore, depending on the outlet type, Facebook like counts were higher when metaphors and/or hyperboles were used. These findings support the idea that metaphors and hyperboles can effectively be used by satirists as building blocks of humor (e.g., Droog et al., 2020; Young et al., 2019). Also, their use could have signaled the satirical humor (cf., Burgers & Van Mulken, 2017), inviting audiences to focus on the humorous interpretation of the satirical message. To explore this further, future research would benefit from more attention to effects of humor marking on audience perceptions of satirical news.

The main difference between American and Dutch satirical news in terms of humor form was that, in the Dutch data, we found evidence for the hypothesis posited in the literature that humor forms associated with ambiguous humor (e.g., metaphor, hyperbole, negation) characterize liberal satirical news more than conservative satirical news (Young, 2019). Nevertheless, in the American data, such evidence was only limited. The liberal-conservative split in satire characteristics may thus not be as straightforward as proposed (see Sienkiewicz & Marx, 2021, for additional observations). More research is needed to understand what role the political leaning of satirists plays in how they approach satirical humor.

Another unexpected finding was that the use of negations was either not associated with Facebook like and comment counts of satirical news posts, or was negatively associated with likes in case of the Dutch liberal outlet. This lack of positive associations of this humor form with audience engagement may be explained by the fact that, unlike metaphors and hyperboles, negations are not forms of figurative expression (Burgers et al., 2016; Steen et al., 2010). Figurative framing theory proposes that conveying a message is more effective when figurative expressions are used, because so-called figurative frames add conceptual content to a message (Burgers et al., 2016). This means that satirical humor could come across more clearly and/or more powerfully when figurative expressions are used. Future research into satirical news effects may test this claim by explicitly comparing engagement with posts containing figurative (metaphor, hyperbole) versus nonfigurative humor forms (negation).

Implications regarding humor content

Some of the humor content findings were consistent across outlet types. A first consistent finding was that American satirical news focused more on politics and associated targets than Dutch satirical news, regardless of the political leaning of outlets. This could be explained by country differences in political systems. In the American two-party system, party differences are rather clear, which makes political parties, affiliated politicians, their policies, and other stakeholders relatively easy targets (Matthes & Rauchfleisch, 2013). By contrast, in European countries with multi-party systems like the Netherlands, party differences are less evident, which may cause satirists to focus more on other issues than party politics to achieve their humorous goals (Matthes & Rauchfleisch, 2013). This could be why American satirical news is very political and Dutch satirical news has a broader thematic focus.

Another explanation of this country difference could be that American and Dutch journalists differ in role perceptions (Deuze, 2002). American journalists find being a government watchdog an essential aspect of their jobs, while Dutch journalists prioritize providing the public with analysis and interpretation of current affairs (Deuze, 2002). This difference in role perceptions could extend to satirists, where American satirists consider it more their responsibility to keep the government in check. Both the political and journalistic contexts of countries may thus explain humor characteristics of satirical news.

A consistent finding across countries was that liberal outlets focused more on politics than conservative outlets. This confirms the idea that mocking authority is more prominent in liberal than conservative satirical news (Dagnes, 2012). Conservative outlets stood out in ways unique to how social conservatism manifests in each country. Given how much Christian views guide the core beliefs of American social conservatism (O'Brien & Abdelhadi, 2020), it is not surprising that the American conservative outlet focused predominantly on religious topics. Despite secularization, many Dutch still view themselves as spiritual (Rutjens & Van der Lee, 2020). Contemporary spirituality beliefs are that the way to truth is through personal experience rather than through religion or through science (Rutjens & Van der Lee, 2020). Accordingly, rather than focusing on religion, the Dutch conservative outlet for instance addressed environment/health more than any other outlet in our data. A qualitative reading of the posts suggested that negative climate projections, including extreme weather forecasts, were often ridiculed. It thus seems that the role that contemporary spirituality plays in Dutch conservatism is reflected in the humor contents of the Dutch conservative satirical news outlet.

In addition to results of the content analysis, some of the results of the audience engagement analysis were also consistent across different types of satirical news outlets. Notable, for example, was that political headlines from liberal outlets across countries received fewer Facebook likes and comments than their nonpolitical headlines. Our data originate from a time when the US had conservative leadership that had been covered extensively by the news media (Trump Administration since 2017, with a Republican majority in the House of Representatives and the Senate) and when the Netherlands had conservative leadership for an even longer period of time (Rutte Cabinets since 2010). Therefore, issue fatigue (Gurr & Metag, 2021) and potentially even anger (Steiger et al., 2019) among liberals regarding the country's leadership may explain the negative association with engagement found for political headlines from liberal outlets.

However, many associations found between the humor contents and audience engagement with satirical news were outlet-type specific. In part, these findings may be attributed to politically and culturally driven differences in attitudes toward certain topics and targets between the audiences of these outlets. For instance, given the close relationship between American conservatism and religion (O'Brien & Abdelhadi, 2020), American conservative audience members may not always be comfortable with certain religious issues, figures, and institutions being made fun of. This might explain why we found a negative association between attention to religion and like counts of American conservative but not liberal posts. Furthermore, the Dutch are known to be critical of experts (Hornikx, 2011), which potentially reduces their interest in jokes about them. This might explain why we found a negative association between attention to experts/news media and like and comment counts of Dutch posts but not American ones. To further examine how satirical news effects may generalize to different political groups (Sienkiewicz & Marx, 2021; Young, 2019) and cultural contexts (Burgers & Brugman, 2021; Holbert et al., 2014), future research may consider testing how appreciation of satirical humor contents interacts with political dimensions such as respect for authority as well as cultural dimensions such as power distance and masculinity in influencing satire perceptions.

Limitations and future directions

Three caveats of the current research should be mentioned. The first is that various relevant humor forms of satirical news were not investigated. These include additional linguistic humor forms (e.g., word play, allusion, repetition; Berger, 2017), but also more conceptually oriented ones such as attenuation (i.e., purposeful underspecificity; Simpson, 2003) and contextual clashing (i.e.,

mixing of seemingly unconnected contexts; Waisanen, 2009). We encourage future research to extend this research to these humor forms.

Another study limitation is that social media activity can sometimes be an imprecise measure of audience engagement. Even though enjoyment and appreciation of posts are important predictors of social media activity (e.g., Lowe-Calverley & Grieve, 2018), most individuals are quite careful about how they present themselves online, both socially (e.g., Lowe-Calverley & Grieve, 2018) and politically (e.g., Pang et al., 2016). This means that self-presentation considerations could cause some posts (e.g., about morally loaded issues) not to be liked on social media or not to be commented on, despite people enjoying their humor form and/or content (e.g., Lowe-Calverley & Grieve, 2018; Pang et al., 2016). Future research should therefore also examine associations between satirical news' humor characteristics and other types of audience engagement (e.g., evoked thoughts, emotions).

Lastly, while an advantage of basing the analyses on real-world data was that external validity of the research was ensured, the trade-off was that no causal claims could be inferred from the results. Satirists likely create content that generates audience engagement and avoid creating content that does not, resulting in differences between outlets in availability of different types of content to audiences. We therefore recommend future research to experimentally unpack our findings to improve our understanding of the relationships between humor characteristics of satirical news and audience engagement.

Conclusion

By differentiating between humor form and content (Ruch & Hehl, 2007) as well as between outlets from different countries (Davis, 2016; Skalicky et al., 2021) with different political leanings (Sienkiewicz & Marx, 2021; Young, 2019), this research used a pluralistic approach to study the humor characteristics and effects of satirical news (Holbert et al., 2011). We additionally focused on the context of social media to provide new insight into when audiences engage with satirical news online (e.g., Boukes et al., 2021; Peifer et al., 2021). The clearest pattern of results that emerged was that both the humor characteristics of satirical news and their associations with audience engagement on social media were reasonably consistent across the different types of outlets regarding humor form (i.e., metaphor, hyperbole), but not regarding humor content (e.g., politics/law, religion). This means that differences in audience effects of satirical news as the result of differences in humor characteristics (Holbert et al., 2011) may be more attributed to differences in humor content than humor form.

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Data availability statement

The data that support the findings of this research are openly available on the Open Science Framework (OSF) at <https://osf.io/e5h7a/>.

Open scholarship



This article has earned the Center for Open Science badges for Open Data and Open Materials through Open Practices Disclosure. The data and materials are openly accessible at <https://osf.io/e5h7a/>.

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