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Newsworthiness and story prominence: How the presence of news factors relates to upfront position and length of news stories

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Abstract
The presence of news factors in journalistic products has been abundantly researched, but investigations into their actual impact on the news production process are scarce. This study provides a large-scale analysis of why news factors matter: Whether, how, and which news factors affect the prominence of news items and does this differ per outlet type? A manual content analysis of print, online, and television news demonstrates that a larger total number of news factors in a story positively predict an item’s length and likelihood of front-page publication or likelihood of being a newscast’s opening item. News factors ‘conflict’ and ‘eliteness’ have the strongest impact, mixed evidence was found for ‘proximity’ and ‘personification’, whereas relationships with ‘negativity’, ‘influence and relevance’, and ‘continuity’ were mostly insignificant. Fewer differences than expected emerged between outlet types (popular vs quality press). Especially for television news, outlet type (public vs commercial broadcaster) hardly mattered.

Keywords
Content analysis, news factors, news value theory, newsworthiness, prominence, popular vs quality, public vs commercial

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Over the years, research on news factors has resulted in increasingly sophisticated taxonomies (from Galtung and Ruge, 1965 to Harcup and O’Neill, 2017). Yet, important questions about why these news factors concretely matter for news production have largely remained unaddressed. Prior research evidenced the presence of various news factors in journalistic coverage. Insights from within the newsroom, moreover, demonstrated how journalists (Jacobs and Tobback, 2013) and their sub-editors (Vandendaele, 2018) consciously apply these news factors to make the most appealing news product. Still little is known, though, about their consequences for journalistic products and a systematic, large-scale assessment was lacking.

As Cotter (2010) writes, news factors play a role ‘from the beginning to the end of the reporting and editing process’ (p. 74), and thus do not only involve the selection of news, but also decisions about the prominence given to a story. After all, prominence reflects the degree of importance given by journalists and/or editors (newsworthiness, see Schulz, 1982). This prominence can be operationalized by a news story’s length and placement (Cotter, 2010; Elorza, 2014; Fico and Freedman, 2001). This study not only compares the general impact of particular news factors but also whether their impact differs between popular and quality press,¹ and between newscasts of public and commercial TV channels.

We investigate the impact of news factors within the context of Dutch economic news. The topic of the economy has the advantage that is found essentially within any section of a news outlet (domestic and foreign news, culture or sports) – making it one of the most general news topics. Moreover, a massive increase in economic and business news has occurred, with almost every platform incorporating economic news to a large degree (Lee and Baek, 2018). As such, economic news provides a suitable sample for this study’s purpose (Tumber, 1993).

**Newsworthiness and news factors**

The study of journalistic news factors can be approached from the following two theoretical perspectives: a functional and causal model (Staab, 1990). In the functional model, an event is not newsworthy in itself, but is accorded its newsworthiness by discursively ascribing news factors through language, image, and typography to sell an event to an audience as news (Bednarek and Caple, 2014). Conceptually, news factors are assumed to be qualities of a text rather than inherent characteristics of an event itself, and are applied by the media to heighten the legitimacy of an event becoming news (Bednarek and Caple, 2014). In the causal model, by contrast, news factors are inherent qualities of a story that determine whether and how journalists treat the story.

In either model, the assumption is that the more news factors a story contains, the more newsworthy it is considered and the higher the likelihood for the event to reach a prominent publication. The consequences of news factors – whether ascribed by journalists or as objective event criteria – for the decisions that journalists take regarding newsworthiness, however, remain not only an assumption to be tested
(Kepplinger and Ehmig, 2006), but is also at the core of news value theory (Galtung and Ruge, 1965; Harcup and O’Neill, 2001). Empirically valid tests, with news selection as the outcome variable, are scarce because it requires a comparison of extra-media and intra-media events (i.e. what is published and what is not). Also in the current study, we cannot focus on what is published (or not), but instead analyze the prominence of a news item itself. We assume that selection and prominence are to a considerable extent driven by the same mechanisms (see also Cotter, 2010); however, it should be noted that individual journalists are more in charge of topic selection, whereas decisions about the composition of an outlet (i.e. prominence) are often taken on higher editorial levels. Nevertheless, the factors determining the newsworthiness of a story are likely to be the same ones that affect its prominence.

In a study on politicians in Swiss newspapers, for example, Tresch (2009) found that presence and prominence of actors are to a considerable degree driven by the same mechanisms and are ‘relatively similar’ (p. 84). By operationalizing newsworthiness of a news item as its relative prominence in an outlet (see Fico and Freedman, 2001), this study still allows for the examination of the relationship between news factors’ presence and journalistic decisions of newsworthiness.

Prominence has the advantage that it allows for a transparent and objective measurement, which is virtually unfeasible regarding the original gatekeeping processes of story selection. Specifically, prominence is operationalized as a function of both story length and story position in an outlet (Elorza, 2014). In essence, the more newsworthy a news item is considered by media workers – because it contains more news factors – the more prominence it should be assigned and the longer and earlier the article should appear within a news product (Schulz, 1982). Following the theoretical idea behind newsworthiness (Staab, 1990), we expect the following:

H1: The more news factors a news item contains, the more prominence it will be given in terms of (a) story length and (b) story position.

Identification of news factors

Ever since Galtung and Ruge’s (1965) cornerstone research, clear standards for which news factors to include in empirical research have remained absent. Harcup and O’Neill (2017) even revised their own 2001 revision of Galtung and Ruge’s taxonomy of news values, as it transpired that some of their newly defined categories were too broad when subject to empirical analysis. We adopt the framework of news factors that have repeatedly been found to be relevant in the North-European region (Eilders, 2006). This framework largely overlaps with the news factors identified in a research project across 63 countries (Masterton, 2005) and corresponds with the criteria for newsworthiness explained by journalism textbooks over the past decades (Parks, 2019).

Specifically, Eilders (2006) found seven news factors to continually influence journalistic judgments of newsworthiness: negativity (damage; the negative aspects of an event or issue), continuity (frequency; having been in the news previously), proximity (cultural, geographical, and/or economic ‘nearness’), eliteness (presence of individuals, organizations, or
nations of elite status involved in an event), influence and relevance (the significance of an event in terms of its effects and/or consequences), personification (inclusion of the personal in an event, such as eyewitness reports), and conflict (presence of confrontation and/or controversy). Whereas, the presence of these news factors has repeatedly been investigated, literature is still lacking an examination of which specific news factors actually relate to the prominence of news items. Few stories will contain all news factors, as stories are inherently bounded and constrained in terms of length. Because some news factors require more space (e.g. personification) than others (e.g. continuity) do, the question of which news factors are most important in determining prominence becomes a highly relevant one – especially when story length and story position are considered separately. Without much literature to formulate clear-cut hypotheses, we investigate whether all news factors or only some of these relate to story prominence:

RQ1: Which news factors relate to news item prominence in terms of (a) story length and (b) story position?

**News factors by outlet type**

News factors and news values are the two components that comprise newsworthiness (Kepplinger and Ehlig, 2006). As aforementioned, news factors are inherent or ascribed event characteristics influencing how journalists evaluate and select a story for publication (Staab, 1990). News values, in contrast, are the valuations by journalists regarding the relevance of specific news factors. As such, news factors themselves do not determine the newsworthiness of a story; a journalist must assign them sufficient value. This study elucidates whether differences exist between outlet types in the value that they assign to the specific news factors.

The organizational structure, commercial pressures, and motivations differing between news media may contribute to a particular construction of newsworthiness (Bednarek and Caple, 2014) by giving more value to one news factor than to another (Allern, 2002). Growing scholarly concern about the ‘tabloidization’ of news, in which tabloid news factors (i.e. personalization and negativity) would be increasingly adopted by traditional media at the expense of journalistic quality, warrants research into the validity of such claims (Barnett and Seymour, 1999).

Concretely, we compare quality versus popular news media and public versus commercial broadcasting newscasts. It is important to emphasize that we are interested in the relative importance of different news factors across types of media. One can anticipate that the specific news factors contribute to prominence across the board, but that for different outlet types, certain news factors are considered to be of more value and, thus, to contribute more strongly to stories’ newsworthiness.

**News factors relevant for the quality news media**

Readers of quality press are often referred to as ‘elite audiences’; educated consumers seeking to be informed about ‘serious news’ rather than about the lighter fare (Mitchell and Holcomb, 2016). While the news audience generally declines, readership of quality
news has remained relatively steady due to the stable news interest of their audience niche. Feeling less commercial pressure from declining audiences, quality press are allowed greater authority over their story construction than popular news media (Strömbäck et al., 2012).

Quality press journalists frequently emphasize the importance of objective reporting (Skovsgaard, 2014). Through actively including a range of perspectives and commentary on an issue, journalists demonstrate their adherence to this objectivity norm. In the literature (i.e. most prominently by Semetko and Valkenburg, 2000), this has been broadly defined as the factor of ‘conflict’, which represents a journalistic style of presenting issues with opposing and clashing views. Conflict, thus, provides a method of comprehensive reporting, as including and comparing contrasting positions can present additional insights that advance audience knowledge (Bartholomé et al., 2015). As such, the broadly defined news factor of ‘conflict’ may be ascribed more value in quality press outlets than in the popular press.

Journalists of quality press also regularly delve beneath the surface and approach stories with a broader political perspective by narrating stories of social significance and emphasizing the potential societal consequences (Reinemann et al., 2012). In fact, commercial news factors such as the episodic focus on personalization and negativity are often said to displace relevance in popular news outlets (Skovsgaard, 2014). Thus, journalistic decisions about prominence are likely to be guided more strongly by influence and relevance as a news factor in quality news outlets compared to popular news outlets. Prominent stories on the same topic in quality news outlets, therefore, are more likely to highlight the societal-wide impact of a story compared to a more factual summary or personified coverage of the story in popular news outlets.

Involvement of elite actors is often an important news factor. While the information these sources provide may shape the newsworthiness of a story, the presence of these sources themselves is already considered newsworthy in itself (Strömbäck et al., 2012). After all, their involvement evokes the impression that an issue must be societally important, and requires the attention of journalists who perceive themselves as societal ‘watchdogs’ (Skovsgaard, 2014). As quality news media seek to represent a more encompassing societally relevant story and elaborate analysis, they will have a higher likelihood of prominently publishing a news item when elite individuals, organizations, or institutions are present (Caple and Bednarek, 2013).

Finally, we expect the news factor of continuity to especially pertain to quality news media. This news factor refers to a journalistic style that stands opposite to fragmented or incident-based reporting that lacks context and/or interpretation (see Mothes et al., 2019). Continuity instead refers to a form of journalism in which topics are covered in greater depth by journalists who have the time to specialize in an issue and give interpretation. Alternatively, as Harcup and O’Neill (2001: 263) write, ‘even if its amplitude has been greatly reduced’, journalists may follow up on an issue to dig deeper and further explain it to its audience. Earlier coverage will cause audience awareness of a topic, and readers may expect the quality outlets to provide more prominent coverage of this topic to further expand their knowledge (Eilders, 2006). This is not to say that those popular outlets do not provide any continuity; actually, Mothes et al. (2019) find that non-fragmented news is particularly attractive to readers with lower internal efficacy. We rather
contend that the resources and incentives that those outlets have to produce follow-up coverage are more limited and therefore prioritize covering the ‘breaking news’ of the day. Based on this theoretical background, the following sub-hypothesis is formulated:

H2: News factors (a) conflict, (b) influence and relevance, (c) eliteness, and (d) continuity positively relate to story prominence more strongly for quality press compared to popular press.

**News factors relevant for the popular news media**

Whereas quality news outlets target elite audiences, the popular press first-and-foremost strives to appeal to the broadest possible audience (Skovsgaard, 2014). Seemingly contradictory, however, they suffer the most from decreases in news consumption among the general public. This instils a continuous commercial pressure that can cause popular news journalists to ascribe increased value to a set of commercial news factors that would appeal to a large target audience (Allern, 2002). First, it is imperative that popular news media simplify their stories; so, stories are easily digestible to the average citizen (Allern, 2002). Personified content offers closeness to as well as identification with the reader and is more easily comprehensible for audiences with low news interest. Hence, it may especially appeal to the audience typical of popular news (Mothes et al., 2019), thus incentivizing popular news media to include citizens’ private experiences by reporting events with a personalized viewpoint (Skovsgaard, 2014). Again, this is in comparative perspective – also quality newspapers will have those incentives, but arguably to a lesser degree.

To target the broadest possible audience, popular news is expected to put a premium on the news factor of negativity. Curran et al. (1980) illustrate that a personal emphasis and sensationalized negative elements in news make it more accessible to non-elite audiences. Finally, the news factor proximity aids in journalists’ aim to appeal to the masses: Proximity increases audience engagement (Trilling et al., 2017), and as such the likelihood that popular news media will employ this factor to determine which news items should be published prominently (Allern, 2002). Altogether, this guides us to the following hypothesis:

H3: News factors (a) personification, (b) negativity, and (c) proximity will positively relate to story prominence more strongly for popular press compared to quality press.

**News factors and public versus commercial broadcasting news**

How public service broadcasters (PSB) and commercial broadcasters differ regarding the value they assign to specific news factors is less clear. For several reason, news of the PSB may follow a similar logic as quality news outlets – whereas commercial newscasts may share similarities with popular outlets. PSBs have to meet the objectives formalized in EU and national regulations (Hargreaves Heap, 2005): among others, aiding informed citizenship through impartial and independent news by offering a wide range of quality
programs. Moreover, PSBs rely strongly on government funding and, hence, can be less obsessed about making revenue through the inclusion of tabloid news factors. Thus similar to quality outlets, journalists working for the PSB’s newscast share a relative freedom to be less profit-oriented, which makes a difference with commercial newscasters plausible regarding the value assigned to specific news factors.

However, the quality criteria of governments for PSBs are often not clearly defined (Hargreaves Heap, 2005) and their target audience is broad: News of public broadcasters should not only inform with high quality content, but it should also inform a large share of the citizenry. Although for a different motivation – public service versus selling advertisements at a higher price – PSBs and commercial outlets, thus, partly share the same objective. Moreover, PSBs are only partly financed through government funding in many countries, with alternative income mostly coming from advertising. Such mixed financing models open the door to a commercial logic (De Bens and Paulussen, 2005). So, the PSB may also rely strongly on the news factors expected to be of particular importance for popular news.

Furthermore, commercial broadcasters cannot differ too much from the public broadcaster either, since they are often in competition with them for largely the same audience (De Haan and Bardoel, 2012). Commercial news will therefore try to achieve similar levels of quality coverage as the PSB (Nguyen and García-Martínez, 2012). In the country under investigation, the Netherlands, this also holds: RTL Nieuws, as the first commercial broadcast news organization, is the largest competitor of the PSB’s flagship news program NOS Journaal. Consequently, it competes for an audience that – for decades – has been socialized by the high standards of public broadcasting news. RTL Nieuws, moreover, is subject to various systems of self-regulation and co-regulation. The distinction between public television news bulletins and these of privately owned commercial stations may, thus, not be as discernable as expected (Hendriks Vettehen et al., 2005). In fact, previous research found that – given all the differences in terms of structure and organization – the coverage of public and commercial channels often is surprisingly similar (De Bens and Paulussen, 2005; Kerbel et al., 2000). Thus, with theory guiding us toward two opposite directions, we ask the following research question:

RQ2: Are specific news factors more or less strongly related to story prominence for the newscasts of the public service broadcaster versus the commercial broadcaster?

**Method**

**Data**

Part of a larger research project (see, e.g., Boukes et al., 2019), a quantitative content analysis was conducted on five complete months (1 February–8 July 2015) of economic news coverage from 11 major Dutch news sources. Today, these news sources are still among the most prominent and widely used ones. Four news outlets were identified as popular news media: newspaper Algemeen Dagblad, newspaper Telegraaf and its online counterpart telegraaf.nl, as well as the largest online news site with no offline equivalent nu.nl. These popular news sources position themselves as ‘family’ newspapers
(Algemeen Dagblad) that ‘give people a voice’ (Telegraaf), with repeated emphasis on the general character of their readership. Moreover, they generally contain briefer stories, larger headlines, and more colorful illustrations, which are all format characteristics of tabloid journalism (Skovsgaard, 2014). In contrast, the two newspapers NRC Handelsblad and Volkskrant, their respective online websites nrc.nl and volksrant.nl, as well as the newspaper Trouw, describe themselves by their standards of ‘quality’ (Volkskrant) and ‘in-depth’ reporting (NRC and Trouw), aimed at ‘an audience that is willing to think’ (Volkskrant). As such, these five news sources are defined as quality news sources. Similar popular-versus-quality classifications of those newspapers were made by Broersma and Graham (2012) as well as by d’Haenens and Bosman (2003). Finally, a distinction was made between the PSB’s news bulletin NOS Journaal and the privately owned newscast RTL Nieuws. For both, we use the prime-time evening newscast (respectively, 8PM and 7.30PM).

Units of analysis were the individual news items. All newspaper articles, all television news items (n.b., not a sample) and 25 percent of all news website articles about the economy were scrutinized for the presence of the seven news factors. Newspaper articles were obtained with keyword searches on economic terms (see Boukes and Vliegenthart, 2017, or Supplemental Appendix A) from the LexisNexis database and stored in the Amsterdam Content Analysis Toolkit (Van Atteveldt et al., 2014). Economic news from the websites were collected and stored within the Infrastructure for Automated Content Analysis-tool (Trilling et al., 2018), after which the same search string was applied. Irrelevant articles were removed by manually eliminating any article that in the headline or first paragraph did not make explicit reference to economic issues. For the television news broadcasts, all economic news items were manually identified (see instruction in Supplemental Appendix A) through watching the full programs.

The total sample consisted of 4968 news articles among 11 Dutch national news sources: 3691 newspaper articles, 207 television news items, and 1070 website articles. Relatively limited overlap exists between print and online articles of newspapers. Similar articles differ in length (Vandendaele, 2018), have different headlines, and partly different content (see Boumans et al., 2018). On these grounds, we did not delete any similar articles from the analysis. No major events occurred during our research period. The most frequent topic of economic coverage was the Greek debt crisis: 16 percent of the news items dealt with this issue. This is a substantial share of the news agenda, but still a small minority of all items.

Measurements and reliability

Dependent variables. Two characteristics of a news item measured its prominence: length and opening position. Opening position was defined as a dummy variable, with (1) for articles placed on the front page of a newspaper or as the opening item in a newscast, and (0) for those placed elsewhere. For websites, the homepage can be considered a structural equivalent of the front page. However, placement on websites is updated constantly, more fluid, and harder to register; so, we had to exclude this aspect of the dependent variable for the analysis of websites. Length was calculated as the number of words for a news article or number of minutes for a TV item.
Independent variables. To measure the presence of news factors, a team of 22 student coders conducted a manual content analysis. Table 1 contains a summary of the measured news factors, their definitions, general presence, and reliability statistics. Average presence of the news factors is largely comparable with other studies analyzing the presence of content features in news (e.g. De Keyser and Raeymaeckers, 2012; Harcup and O’Neill, 2001). Intercoder reliability statistics are calculated with Nogrod 1.1 (Wettstein, 2018) available in the table, and further details are given in the Supplemental Appendix.

Analysis

Separate regression analyses were conducted for the three media types, because length is conceptually different for textual (i.e. number of words) and audio-visual items (i.e. number of minutes). Moreover, website articles were about 81.7 words shorter ($p < .001$) than newspaper articles – complicating a one-on-one comparison. Length is a continuous variable, thus, OLS regression models are used. Given the dichotomous nature of opening position, logistic regression analyses were conducted predicting this dependent variable.

The relationship between length and news factors is not unambiguous. As a proxy of prominence, we argue that length is affected by news factors, but causality might be reversed: Longer items have more space to contain more news factors. We cannot account for this reversed causality directly, but given our focus on the relative importance of news factors (and thus interaction terms), we can still assess whether the association between each news factor and length differs across outlet types. For the other prominence variable (opening position), length was included as control variable.

Results

News factors and prominence

A cumulative scale was generated indicating how many news factors were present in a news item ($M=3.18$, $SD=1.29$, Min. = 0, Max. = 7). While controlling for outlet type, logistic regressions showed that the odds of front-page publication increased with a factor 1.35 for every additional news factor present in an article ($b=0.30$, $SE=0.09$, $p = .001$). The likelihood of being the opening item of a television newscast almost doubled and increased with a factor 1.82 for every additional news factor present in a story ($b=0.60$, $SE=0.18$, $p = .001$).

Length of newspaper articles increased with 92.15 words ($SE=3.86$) with every additional news factor, and this relationship was strong ($b^*=.35$, $p < .001$). A similar pattern was found for the length of website articles ($b=68.85$, $SE=7.64$, $b^* =.25$, $p < .001$). The length of TV news items increased 0.73 minutes ($SE=0.10$, $b^* =.44$, $p < .001$) with every additional news factor. Overall, these results confirm Hypothesis 1: More news factors predict more upfront position and longer story length. Our method does not allow disentangling the causal direction between the number of news factors and story length; we reflect on this in the ‘Discussion’ section.
Table 1. News factors with their definitions, operationalizations, overall presence in economic news (% of news items), and intercoder-reliability results.

<table>
<thead>
<tr>
<th>News factor</th>
<th>Definition</th>
<th>Coding instruction</th>
<th>Presence (%)</th>
<th>Holsti (P.A.) (%)</th>
<th>Std. Lotus (λ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negativity</td>
<td>Negative aspects of an event or issue</td>
<td>Tone of article with regard to the economy coded as either negative or mostly negative, mixed negative and positive (all coded 1), neutral, mostly positive, positive, or no evaluation (all coded 0)</td>
<td>11.7</td>
<td>79.3</td>
<td>0.75</td>
</tr>
<tr>
<td>Proximity</td>
<td>Geographical nearness of an event or issue</td>
<td>Story takes place in the Netherlands (1) or somewhere else (0).</td>
<td>54.7</td>
<td>93.2</td>
<td>0.91</td>
</tr>
<tr>
<td>Eliteness</td>
<td>Presence of individuals, organizations, or nations of high status involved in an event or issue</td>
<td>Two items are combined indicating whether at least one of the following actors was present (1): a. Political elite: European Union, Dutch government, or foreign government. b. Economic elite: Dutch Bank, European Central Bank, labor union, employers’ federation.</td>
<td>45.0</td>
<td>82.2</td>
<td>0.81</td>
</tr>
<tr>
<td>Influence and relevance</td>
<td>High significance of an event in terms of its effects and/or consequences</td>
<td>Measured by the presence of the 'economic consequences-frame': Does the article explicitly refer to the economic impact the story has, has had, or may have on individuals, companies, a group, a religion, or a country?</td>
<td>81.2</td>
<td>75.3</td>
<td>0.73</td>
</tr>
<tr>
<td>Personification</td>
<td>Inclusion of personal or 'human' face of an event/issue</td>
<td>Measured by two items: a. Does the story use personal example(s) of an issue or problem to illustrate trends in the economy? b. Does the story feature a lay person or 'man-on-the-street'?</td>
<td>10.3</td>
<td>86.7</td>
<td>0.89</td>
</tr>
<tr>
<td>Conflict</td>
<td>Presence of confrontation and/or controversy</td>
<td>Presence of disagreement between parties, individuals, groups, organizations, or nations? b. Does the story include an event or issue from two or more sides?</td>
<td>46.2</td>
<td>78.4</td>
<td>0.66</td>
</tr>
<tr>
<td>Continuity</td>
<td>Having been in the news previously</td>
<td>The main topic was coded out of a list of 58 potential topics (Std-λ = 0.79). Continuity was then operationalized as a news item about a main topic that had also been covered in that specific outlet in the 7 days before this publication.</td>
<td>67.3</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>
Which news factors matter?

To answer RQ1, we assessed how specific news factors related to the prominence of news items. Table 2 shows the results for the two indicators of prominence (length and front page/opening item) regarding the specific modalities. Overall, conflict had the largest number of significant relationships: It related positively to the length of all three the modalities, and increased the odds of a front-page publication in newspapers with a factor 2.74. Similarly, eliteness increased the odds of front-page publication with factor 2.10 and related positively to the length of textual news (print and online), but not television news.

Overall, conflict and eliteness had the most unequivocal positive relationships with the prominence indicators. Personification also related positively to story length in newspapers, on websites, and in television news – but it negatively predicted the likelihood of front-page publication; decreasing the odds with a factor 0.10. This raises the question whether personification requires greater space (a practical consideration) rather than that it boosts story newsworthiness. We elaborate on this in the ‘Discussion’ section. Geographical proximity had a mixed impact. Although, it negatively related to the length of website items, it related positively to story length in newspapers. Most interestingly, proximity was the only news factor positively predicting the likelihood of being the opening of a newscast (although marginally; \( p = .060 \)).

The influence of three news factors was rather minimal: Influence and relevance, negativity, and continuity. None of them significantly predicted the likelihood of upfront position. Whereas, Influence and relevance still related significantly to the length of both types of written news, negativity was only associated with the length of newspaper articles and continuity with length of TV news items.

The differential impact of news factors per outlet type

Interaction terms for every news factor are added to the regression models presented earlier to examine whether relationships between specific news factors and prominence are stronger for one type of outlet than the other. Outlet type is operationalized as a dummy variable with value 0 for either the quality outlets or public broadcaster, and value 1 for popular outlets or commercial broadcaster. Accordingly, the interaction effect indicates whether a news factor’s main effect is stronger or weaker for popular/commercial outlets vis-à-vis the quality/public outlets (i.e. the reference category). Table 3 shows the results. Main effects of news factors and outlet type are not displayed for reasons of clarity and space (i.e. main effects only indicate a news factor’s effect for the quality/public outlets; the reference category), but are included in the model.

In most cases, no significant interaction effects were yielded. This means that, overall, the different types of outlets were not significantly more or less sensitive to the presence of the specific news factors. Nevertheless, a number of interesting significant interaction relationships were revealed – in particular for the comparison of quality versus popular newspapers. For example, regarding influence and relevance and story length: The negative interaction effect implies that the relationship is weaker for the popular newspapers (see Figure 1). Story length increased with a 100 words for the quality outlet (from 427
to 527 words), whereas the increase in 30 words for the popular newspapers was not significant. This confirms H2b. Conflict showed a similar pattern (i.e. negative interaction effect): Its presence particularly increased story length in quality newspapers vis-à-vis popular newspapers. Thus, confirming H2a.

A surprising finding was yielded for personification. As the only news factor that differentially related to the story length on both news websites and newspapers, its negative interaction effects implied that personification particularly increased story length within the quality outlets. Concretely, the presence of personification has an effect of 440 words on length for the quality websites, but only increases article length with 52 words for the popular outlets. Altogether, this was opposite to our expectation: H3b rejected.

### Table 2. OLS and logistic regression models predicting news item prominence.

<table>
<thead>
<tr>
<th>News factor</th>
<th>Story length</th>
<th>Upfront position</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Newspaper</td>
<td>Website</td>
</tr>
<tr>
<td>Presence (0 = no, 1 = yes)</td>
<td>b (SE)</td>
<td>b (SE)</td>
</tr>
<tr>
<td>Intercept</td>
<td>294.69***</td>
<td>228.24***</td>
</tr>
<tr>
<td></td>
<td>(15.78)</td>
<td>(33.57)</td>
</tr>
<tr>
<td>Conflict</td>
<td>141.58***</td>
<td>108.22***</td>
</tr>
<tr>
<td></td>
<td>(10.53)</td>
<td>(21.27)</td>
</tr>
<tr>
<td>Eliteness</td>
<td>101.09***</td>
<td>72.12***</td>
</tr>
<tr>
<td></td>
<td>(10.67)</td>
<td>(21.42)</td>
</tr>
<tr>
<td>Personification</td>
<td>252.33***</td>
<td>292.85***</td>
</tr>
<tr>
<td></td>
<td>(15.78)</td>
<td>(50.29)</td>
</tr>
<tr>
<td>Geographical</td>
<td>21.19*</td>
<td>−43.65†</td>
</tr>
<tr>
<td></td>
<td>(10.18)</td>
<td>(20.79)</td>
</tr>
<tr>
<td>Proximity</td>
<td>63.22***</td>
<td>67.46*</td>
</tr>
<tr>
<td></td>
<td>(12.12)</td>
<td>(29.37)</td>
</tr>
<tr>
<td>Negativity</td>
<td>69.20***</td>
<td>8.89</td>
</tr>
<tr>
<td></td>
<td>(15.16)</td>
<td>(30.95)</td>
</tr>
<tr>
<td>Continuity</td>
<td>13.93</td>
<td>26.56</td>
</tr>
<tr>
<td></td>
<td>(10.70)</td>
<td>(20.27)</td>
</tr>
<tr>
<td>Popular news</td>
<td>−191.12***</td>
<td>−87.25***</td>
</tr>
<tr>
<td></td>
<td>(9.76)</td>
<td>(19.61)</td>
</tr>
<tr>
<td>Commercial</td>
<td>−0.68*</td>
<td></td>
</tr>
<tr>
<td>broadcaster</td>
<td></td>
<td>(0.23)</td>
</tr>
<tr>
<td>Length</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>adj. $R^2$</td>
<td>0.28</td>
<td>0.13</td>
</tr>
<tr>
<td>Log likelihood</td>
<td>−24,977.20</td>
<td>−7387.40</td>
</tr>
<tr>
<td></td>
<td>3534</td>
<td>1035</td>
</tr>
</tbody>
</table>

Cells contain unstandardized regression coefficients (b) or odds ratio (OR) with standard errors (SE) in parentheses, and probabilities (p; two-tailed).

†$p < .100$; * $p < .050$; ** $p < .010$; *** $p < .001$. 

$N$
Although marginally significant, geographical proximity increased story prominence of popular outlets both in terms of story length and upfront position (H4c tentatively confirmed). While proximity increased story length with 38 more words for the popular newspaper, it (marginally) increased the odds of a front-page publication in popular outlets with factor 2.68. Concretely, the likelihood was stable at 1.8 percent for the quality outlets irrespective of whether proximity was presented, but the likelihood of front-page publication increased from 0.8 percent to 2.1 percent for the popular newspapers when geographical proximity was present.

Marginaly significant interaction results were yielded for continuity and story length. While it relatively increased story length for popular but not for the quality outlets (H2d rejected), a positive relationship with length of TV news items only remained for the public broadcaster. Altogether, the effect of most news factors, however, did not significantly differ across the outlet types. Whereas still five differences were found between

### Table 3. OLS and logistic regression models predicting prominence for different outlet types (quality vs popular, or public vs commercial).

<table>
<thead>
<tr>
<th>Intercept</th>
<th>Story length</th>
<th>Upfront position</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Newspaper</td>
<td>Website</td>
</tr>
<tr>
<td></td>
<td>b (SE)</td>
<td>b (SE)</td>
</tr>
<tr>
<td></td>
<td>254.9***</td>
<td>197.80***</td>
</tr>
<tr>
<td></td>
<td>(21.18)</td>
<td>(47.88)</td>
</tr>
<tr>
<td>Conflict</td>
<td>−70.77***</td>
<td>−37.81</td>
</tr>
<tr>
<td>popular/commercial</td>
<td>(20.93)</td>
<td>(42.43)</td>
</tr>
<tr>
<td>Eliteness</td>
<td>−4.81</td>
<td>16.41</td>
</tr>
<tr>
<td>popular/commercial</td>
<td>(21.23)</td>
<td>(42.91)</td>
</tr>
<tr>
<td>Personification × popular/commercial</td>
<td>−171.05***</td>
<td>−387.50***</td>
</tr>
<tr>
<td></td>
<td>(31.40)</td>
<td>(102.9)</td>
</tr>
<tr>
<td>Geographical proximity ×</td>
<td>38.17†</td>
<td>54.32</td>
</tr>
<tr>
<td>popular/commercial</td>
<td>(20.27)</td>
<td>(41.84)</td>
</tr>
<tr>
<td>Influence and relevance ×</td>
<td>−69.81**</td>
<td>−39.33</td>
</tr>
<tr>
<td>popular/commercial</td>
<td>(24.12)</td>
<td>(58.86)</td>
</tr>
<tr>
<td>Negativity ×</td>
<td>−17.22</td>
<td>−55.39</td>
</tr>
<tr>
<td>popular/commercial</td>
<td>(30.11)</td>
<td>(61.91)</td>
</tr>
<tr>
<td>Continuity ×</td>
<td>35.69†</td>
<td>−15.41</td>
</tr>
<tr>
<td>popular/commercial</td>
<td>(21.39)</td>
<td>(40.45)</td>
</tr>
<tr>
<td>Length</td>
<td>1.00</td>
<td>5.98***</td>
</tr>
<tr>
<td>adj. $R^2$</td>
<td>0.29</td>
<td>0.14</td>
</tr>
<tr>
<td>Log likelihood</td>
<td>−24,943.81</td>
<td>−7377.41</td>
</tr>
<tr>
<td>N</td>
<td>3534</td>
<td>1035</td>
</tr>
</tbody>
</table>

Cells contain unstandardized regression coefficients (b) or odds ratio (OR) with standard errors (SE) in parentheses, and probabilities (p; two-tailed). Main effects are not displayed, but included in model. †p < .100; *p < .050; **p < .010; ***p < .001.
the popular versus quality newspapers, the websites only differed with respect to the impact of personification, and newscasts only differed regarding continuity. This means that none of the hypotheses regarding the differential impact of specific news factors received full support; only partial evidence was found for influence and relevance, conflict, and proximity in printed newspapers.

Discussion

This study illustrates that the presence of a greater number of news factors was unequivocally related to both story length and upfront position across three modalities (newspaper, websites, television). This reveals the potential leverage news factors may have on newsworthiness and, thus, on journalistic decisions about prominence in particular. To our knowledge, this is the first time that the causal mechanisms predicted by news value theory (Galtung and Ruge, 1965; Staab, 1990) have been exposed on such a large scale, although still regarding prominence instead of the selection of news. Theoretically, our study puts empirical flesh on the bones of news value theory by moving beyond the mere presence of news factors and demonstrating their potential consequences for story prominence.

Our study, moreover, demonstrates that not all news factors contribute equally to the prominence of stories. Increases in prominence were mostly found for news items that contained conflict and eliteness: They both positively predicted the likelihood of front-page publication and story length. Proximity had a mixed effect: While it increased story length in offline newspapers, it decreased length in online newspapers. Apparently, online outlets seem to only cover short (factual) foreign news, whereas printed newspapers may be more prone to pick up (background) stories from other international media. Proximity was also the only news factor increasing the odds of being the opening of a newscast.

Figure 1. Predicted length as a function of outlet type and presence of news factor “influence and relevance” in newspaper articles.
Three news factors (i.e. influence and relevance, negativity, continuity) did not increase the odds of a story’s upfront position, but only related to story length of one or two news modalities. Their influence, thus, seems rather limited. Notably, personification related positively to story length for newspapers, websites, and television – but negatively predicted the likelihood of front-page publication. Arguably, this news factor may increase the length of news because longer stories are simply required to include the perspectives of the general public, and not necessarily because they are deemed more newsworthy.

Similarly, quotes of elites or the interpretation of conflict require space, whereas to frame something as negative or the choice for a (domestic) topic that had been in the news before (i.e. continuity) does not necessarily involve additional words. The causal direction between the presence of specific news factors and story length, thus, could not be fully disentangled in our content analysis. In contrast, reverse causality is less likely for the relationship between the presence of specific news factors and the odds of upfront position, especially because the analyses controlled for story length. Conflict and elite-ness, therefore, seem to be the most influential news factors; these affected both length and position.

The literature made us expect differences between the influences of news factors by outlet type. However, our findings did not strongly support this expectation: By contrast, most interaction effects revealed no conditionality upon outlet type. The lack of significant interaction effects can be explained journalistic organizations’ tendency to ‘de-differentiate’ and to follow the dominant logic of the field to seek or maintain legitimation as a news source (Tandoc, 2018). Another explanation could be the similar kinds of training that journalists of the different outlets may receive (Parks, 2019). Hence, the objective of reader appeal is not only the ultimate production value of commercial outlets, but also for quality broadsheets (see Vandendaele, 2018), and the same news factors may be used to achieve this.

One could question the generalizability of these results outside the Netherlands. Greater differences between commercial and public broadcasting news may emerge in countries where the PBS is fully government funded (e.g. the Scandinavian countries) and does not rely on advertising revenues as the Dutch PBS does (Saurwein et al., 2019): Only 80 percent of its budget is government funded and government spending on public broadcasting is among the lowest across Europe. Moreover, it is conceivable that greater differences exist in the susceptibility to news factors in media landscapes with less regulations (the US), with more extreme forms of tabloid journalism (the UK and Germany) or with public broadcasters that have lower market shares (Portugal or Greece, see Picard, 2002).

Hardly any differences emerged between the popular and quality news websites in our study. A possible explanation could be the universally strong reliance on pre-produced news of wire services in online news (Boumans et al., 2018), which leaves little agency to the journalists in the ‘online’ newsroom. Another question is of how the discursive construction of economic newsworthiness may differ from other news topics. It might well be that coverage of other topics is more/less sensitive to certain news factors. One can imagine that a factor such as personification is stronger and more influential if the
focus is on ‘softer’ issues, whereas *eliteness* could be more influential when focusing on ‘harder’ issues.

Future research should gather insights from within the newsroom to add a production perspective to our product-only perspective (Catenaccio et al., 2011). A linguistic ethnographic approach (e.g. Van Hout and Macgilchrist, 2010) that examines journalistic work within its institutional context could verify the existence of and disentangle causality in the relationship between news factors and prominence that we revealed. Our large-scale analysis, necessarily, oversimplified the complex processes through which news is produced and largely ignores the (interactive) dynamic role of journalism professionals (Catenaccio et al., 2011). Moreover, our binary measurement of some of the news factors – e.g., negativity and proximity (that basically captures the difference between domestic and foreign news) – could be more fine-grained in future research. This is even more true for conflict, where we used a very broad conceptualization that might be in line with previous research, but does not do right to the multifaceted nature of the phenomenon (Feldman and Warfield, 2010).

Altogether, our study is of theoretical significance by empirically examining whether, how and which news factors affect the journalistic process of determining the prominence that should be given to news stories. Thereby, we have examined but could not confirm previous notions about the contextual influence of news factors; only few differences emerged between different outlet types – mainly between the quality versus popular newspapers, but hardly any differences were found between websites or public versus commercial broadcasters. Our insights would benefit from verification by newsroom insiders and the producers of these news artifacts to gain a more thorough understanding of the differential processes that translate news factors into media content.

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**Supplemental material**

Supplemental material for this article is available online.

**Notes**

1. Although the terms ‘popular’ and ‘quality’ have their ambiguities, and are often interchangeably used with the terms ‘tabloid’ versus ‘broadsheet’ newspapers, we prefer the first, because the latter distinction may be confused with the physical size of outlets. Moreover, none of the Dutch popular newspapers is comparable to ‘real’ tabloid outlets, such as the *Sun* or *Bild*. 
With popular press, we refer to newspapers that are supposed to ‘address issues of direct concern to ordinary people, to display an anti-elite bias and to focus on conflict and drama’ (Akkerman, 2011: 931), while quality newspapers are argued to provide more comprehensive, in-depth coverage, and employ official frames that privilege the political elites’ interpretations of issues or events (Akkerman, 2011: 934).

2. Additional analyses show that a second (societal) issue next to the main economic issue is more often present in quality press (49.4%) than in popular press (36.1%).

3. Additional analyses show that the news factors of ‘eliteness’ and ‘influence and relevance’ also correlate with each other: $r^* = .39$ (i.e. tetrachoric correlation for binary variables).

4. Practical difficulties (cookie wall, irregular layout) hampered scraping AD.nl, Algemeen Dagblad's website.

5. Supplemental Appendix available at https://osf.io/y54wu/?view_only=fbad68fc5c2b4109b5d1d27e9095f554

6. The interaction effect of personification and outlet type for newspapers on front page could not be examined, because none of the articles on the front page of popular newspapers ($n=32$) contained personification. Similarly, it was impossible to examine the interaction effect of ‘influence and relevance’ by outlet type for television news because every commercial broadcast opening item contained influence and relevance ($n=19$).

References


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