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Framing social conflicts in news coverage and social media: A multicountry comparative study

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Abstract
This study attempts to understand how geopolitical proximity influences framing of social conflicts in news coverage and social media discussions. Within the context of 2013 Little India riot in Singapore, a manual content and automated linguistic analyses are conducted on 227 news articles and 4,495 tweets. A multinational comparison suggests that news media follow the traditional hypothesis of geopolitical proximity and international news coverage. However, Twitter seems less constrained by geopolitical boundaries of news making allowing citizens to bypass press censorship in an alternate information system. The reasons for framing differences across mediums and between countries are explored. Implications of these findings and limitations of the study are discussed.

Keywords
Framing, geopolitical proximity, international news, riot, Singapore, Twitter

Mass media have long been considered to provide the primary framework through which individuals experience and make sense of the society (Entman, 2004). Research has posited that news accounts construct a mediated reality which in turn shapes people’s understanding of the society. Under this conception of media effects, research has focused on how issues and events are covered in news (e.g., Dimitrova and Strömbäck, 2005; Semetko and Valkenburg, 2000) and how news messages are consumed and processed by the audience (e.g., Iyengar, 1994;
McLeod and Shah, 2015). Underlying this research is the assumption that the media have a quasi-monopolistic power in accessing information about issues/events and in getting messages across to massive audiences, while ordinary citizens lack such power (Livingston and Bennett, 2003).

Recent years, however, have seen profound changes in media ecology largely driven by the developments in digital technology and the online social sphere (Shah et al., 2017). For example, citizens using social networking sites or other online information/communication platforms can produce messages and distribute them widely. Under some circumstances, the citizen-generated content makes known an important event faster than the media (Shirky, 2011). These changes in the political information environment undermine the boundaries of existing media institutions and challenge the power of traditional news organizations in news making and delivery. In this context, recent research has extended the long-standing approach in media effects research by looking at how messages are produced and circulated on social media (Kwak et al., 2010; Vis, 2013) and how these messages influence news coverage (Hermida, 2013; Tong, 2017).

Recognizing the changing media ecology where social media emerges as an alternative information source, the present study is set out to examine how a controversial political event is framed in traditional news media and social media. Specifically, drawing on the literature of media framing on social conflicts (Benford and Snow, 2000; Hamdy and Gomaa, 2012; Snow et al., 2007), we investigate whether a 2013 riot in Singapore, as the focal event, was discussed similarly or differently in newspapers and citizen-generated tweets. Further, we add another layer to the comparison of two domains of issue discussion by considering geopolitical proximity to the event as a contextual factor. Given that geopolitical proximity has been known as one of the determinants of news coverage (Chang et al., 1987; Mueller, 1997; Snyder and Kelly, 1977), examining whether social media content—particularly the way the riot is framed in citizens’ tweets—is also bounded by geopolitical proximity provides a useful perspective in understanding the role of social media in political communication as compared to that of the traditional news media. For this cross-national comparison based on geopolitical proximity, we considered newspaper reports and tweets on the riot collected from 13 countries.

The comparison of news coverage and citizens’ tweets will shed light on whether political discourse on social media is merely a reflection of media discourse or is a source of alternative perspectives. If the latter is true, social media can feed the public different information or opinions than news coverage, competing with traditional media for public attention and issue interpretation. This is of importance when political parallelism—the degree of the media–politics link (Mancini, 2012)—is high or when political autonomy of the press is limited. Indeed, Singapore has a highly regulated mainstream media system, which is known for its pro-government coverage (George, 2007; Goh, 2015). The newsmakers are ‘expected to conform to government-approved values’ (Tandoc and Duffy, 2016: 3345) and unlike the Western watchdog model, favor harmony over debate (Duffy, 2010). Thus, if social media function as an alternate information source,
it can allow citizens in Singapore to bypass press censorship and access a more diverse range of information. Furthermore, understanding the relationship between geopolitical context and issue framing will shed light on a macro-level mechanism underlying how issues are portrayed in news accounts and in citizen discourse.

The context—The Little India riot in Singapore

Little India is an ethnic district in Singapore, where migrant workers often gather on weekends. At 9:23 pm on 8 December 2013, a migrant worker from India was killed in a car accident at a crowded dining spot. While the police and emergency personnel were attempting to extricate the body, the crowd of onlookers, comprising mostly other migrant workers, turned aggressive, hurling abuses and physical objects at the personnel. The story about Singapore’s ‘Little India Riot’ broke on Twitter at 9:57 pm (Pang and Ng, 2016).

The riot incident, which has received attention widely from regional as well as international communities, triggered criticism of immigrant workers and debates about the country’s heavy reliance on foreign labor (Shen and Armstrong, 2013). Pang and Ng (2016), the only other study on the incident thus far, has looked at Twitter’s role in crisis communication during and after the Little India riot. No study has yet investigated how the incident was discussed in news media and social networking sites. We utilize the riot as a context to study the mediated discourse about social conflict in traditional news media and social media.

Framing as a way to construct reality

The concept, framing, has been used in two distinct, albeit connected, contexts. First, frames are a cognitive device for ordinary citizens to make sense of their everyday experiences as well as to organize and express their thoughts (Goffman, 1974). Framing is thus viewed as essential to the construction of meaning and the process of human communication (Gamson, 1992). On the other hand, shifting the focus to elite discourse from individuals’ mind, the notion of framing has also been discussed in the context of news making (Pan and Kosicki, 1993). Gamson and Modigliani (1987: 143), for example, described a news frame as ‘a central organizing idea or story line that provides meaning to an unfolding strip of events.’ Indeed, the media construct reality by selecting certain aspects of an issue/event over others and emphasizing those through a lens which is often influenced or obscured by the ideologies or cultural values of the authoring establishment (Edelman, 1993; Shoemaker and Reese, 1996).

The citizen-elite frame distinction has been recognized and discussed in some studies on framing (Druckman, 2001; Entman and Rojecki, 1993; Matthes, 2012; Scheufele, 1999). For instance, Druckman (2001: 228) notes that frames in communication and frames in thought are similar in that they both are concerned with variations in emphasis or salience. However, they differ in that the
former usage focuses on what a speaker says (e.g., the aspects of an issue emphasized in elite discourse), while the latter usage focuses on what an individual is thinking (e.g., the aspects of an issue a citizen thinks are most important).

Similarly, Scheufele (1999: 106) also decomposes framing into media frames and individual frames, claiming that ‘a concept explication of framing must take into account both kinds of frames and link them consistently.’ To summarize, common to media frames and citizen frames is the idea that framing concerns a central interpretive mechanism to make sense of a situation under consideration and organize ideas. The conceptual distinction between the two frames, however, is useful in understanding how frames are negotiated and constructed in an integrative and societal process of frame building which involves the triad of media, politics, and the citizen (Matthes, 2012). In line with the literature on framing, we distinguish between frames used in news accounts and those employed by social media users and compare the two to explore whether the two domains of political discussion provide different perspectives.

**News and social media dynamics in framing social conflicts**

The Web 2.0 applications, which facilitate citizen involvement in public discourse in various forms including one-way self-expression, interactive debate, and even citizen journalism (Castells, 2012), have been widely adopted worldwide over the past decade. The 13 countries included in this study, for example, had a social media penetration rate of 49.06% \((\text{Median} = 58.38; \text{SD} = 20.91)\) on average (Statista.com, n.d.). One of the consequences of the new and increasingly popular ways of routine communication and interaction via various social media platforms is that citizens can bypass the routine practice of news making in traditional media, which involves gatekeeping and framing (Hermida et al., 2012). The changes driven by ongoing developments in the virtual communities have thus blurred the line between the media as producers and the audience as a receiver. Recognizing this, recent work offers a more integrative view in which traditional media function as the official, prescriptive source and social media as the reactionary and sometimes preemptive public feedback (Neuman et al., 2014).

The importance of social media as an alternative source for information and public sentiments appears to be more pronounced especially in times of social conflicts and political turmoil (Hamdy and Gomaa, 2012; Meraz and Papacharissi, 2013). Comparing news coverage of Egypt’s 2011 uprising in country’s state-run media and citizen discussion on social media, Hamdy and Gomaa (2012) found that news reports and social media discussion framed the event disparately in that government-controlled newspapers framed the protests as a conspiracy whereas citizen discussion on social media framed them as a revolution. Their findings were corroborated in a study which showed that Twitter enabled the sustenance of otherwise marginalized, alternative narratives of dissension for framing #Egypt protests (Lim, 2012). In a similar vein,
Meraz and Papacharissi (2013) compared frames used by journalists against those used by social media users and identified a unique role of social media in the collaborative selection and curation of dominant frames distinct from media frames used to depict the uprising.

**Proximity as a contextual factor in framing social conflicts**

Research in media sociology has long suggested that media’s newsworthiness and framing decisions are subject to event proximity (Chang et al., 1987). More specifically, a substantial body of literature has looked at the role of geographic (e.g., Balmas and Sheafer, 2013), economic (e.g., Semetko and Valkenburg, 2000), and political proximity of an issue or an event (e.g., Maslog et al., 2006; Snow et al., 2007) in news coverage. Although it might be assumed that media in countries which are geographically proximate will pay more attention to each other, the findings are mixed (Wu, 1998). In a meta-analysis of international news flow, Wu (1998) explains this inconsistency by suggesting that although geographic proximity is a significant factor, the contradiction in findings could be related to the divergent operationalization of the construct or the variance in media samples and analyzed topics. More recently Balmas and Sheafer (2013) in their analysis of international political news coverage in six democracies found that geographical proximity was significantly associated with media attention. The media in proximate countries not only paid greater attention to each other’s political events but also provided a richer presentation in their news.

On the other hand, political and economic relations between countries have been found to be more consistent predictors of increased media coverage in foreign nations. A six-country study by Snow et al. (2007) found that political and economic proximity significantly influences news frames in international coverage. Media in countries economically and politically distant from an event are more likely to be critical of state actors as compared to the local media of the local country or establishment in proximal countries. Drawing on previous findings, this study adopts a cautious approach in operationalizing issue proximity between countries by analyzing all three dimensions: geographic, economic, and political relations between countries.

Does this discussion of issue proximity and news coverage apply to citizen discussion on social media? Two possibilities appear to arise. First, given that foreign issues are often less of a concern, citizens in nonlocal countries might simply rely on news accounts, which thus leads their discussion on social media to be guided by the way news media discuss the issues. If this is the case, it is likely that there is a parallel between media coverage and citizen discourse on social media, with both influenced by issue proximity. The study by Wilkinson and Thelwall (2012) is one of the few on this topic, and their analysis of trending topics on Twitter shows that Twitter discussions broadly followed similar patterns to those of news reporting. They suggest that this is not surprising ‘because news coverage presumably impacts what people tweet about’ (Wilkinson and Thelwall, 2012: 11).
The second possibility, however, paints a quite different picture. Because the constraint of the physical space is minimal in virtual social networks, messages produced by social media users easily and instantly transcend geographical and cultural boundaries. When passed through people in the local country of an event, such messages might be able to nurture a different course of discussion among social media users, which is less susceptible to issue proximity. Scholars analyzing information dissemination capabilities of social media have found support for this argument (Lotan et al., 2011). In this context, it is worthwhile to examine if framing employed on social media is influenced by issue proximity in the same pattern as traditional media.

**Research focus—Frames about the Little India riot in Singapore**

The notion of news framing has been frequently applied to analyze media discourse about various forms of social conflict including protests and social movements (Benford and Snow, 2000; Haigh and Bruce, 2017; Mueller, 1997), riots (Burch et al., 2015; Snow et al., 2007), wars (Entman and Rojecki, 1993; Maslog et al., 2006), and acts of terrorism (Papacharissi and De Fatima Oliveira, 2008). Benford and Snow (2000) in their extensive review of social movement framing literature argue that framing dynamics and processes does not occur in structural or cultural vacuum but are shaped by several sociopolitical elements including political structure, cultural opportunities and constraints, and the needs of the targeted audience. Snyder and Kelly (1977) emphasized that media sensitivity (in coverage) of social conflicts, particularly protests, is dependent on political climate (e.g., press freedom) and on contextual characteristics of events including proximity to relevant reporting networks. Similarly, Mueller (1997) in analyzing the international coverage of the 1989 East German protest also found that the farther an elite press was from the proximity to protest events the less likely they were to report the issue.

Snow et al. (2007) also conducted a cross-country analysis of the news coverage of the 2005 French riots to identify patterns in news frame and the contextual factors which account for them. A key finding was that the news media typically adopts a diagnostic frame, which defines a problem or assign blame, when reporting on riots.

Despite the established body of literature on media discourse about social conflicts, not much is known about how a riot is represented in citizens’ discussion in comparison with media discourse and how event proximity would be factored into the discussion in the two domains. For a systematic analysis of frames present in news and tweets, we should have a measurable definition of frame. Indeed, defining a frame is an issue that has been debated in the scholarship on framing over the past decade. Of different approaches and definitions, we follow the idea that a frame is viewed ‘as a certain pattern in a given text that is composed of several elements’ (Matthes and Kohring, 2008: 263). In this view, a frame could be better understood and revealed (coded) through identifying clusters of specific aspects which are conceptually pertinent and empirically observable. Further, building
on work by Entman and Rojecki (1993), Matthes and Kohring (2008) specify generic, not case-specific, elements that constitute a frame on public issues and events, including problem definition, moral evaluation (valence), and causal interpretation (attribution of failure/success). Each of these elements can be treated as a variable that might have multiple subcategories for content coding. Guided by these insights into a frame, the present study looks at how the Little India riot was discussed on social networking sites and news reports in terms of salience, valence, responsibility attribution, and problem definition.

**Issue salience.** Salience on the issue refers to the attention given to the riot in the news and Tweets. Previous findings have shown that attention to an international issue is closely related to a country’s issue proximity to the news event as increasing geographical distance to news event constrains the availability of crews and adds to the cost of news making (Chang et al., 1987). In the present study, the case in point occurred in Singapore (local), and it involved South-Asian migrant workers from India and Bangladesh (involved countries). Accordingly, it is expected that news media of these local and involved countries and those which are geopolitically proximal to Singapore would pay greater attention to the incident than news media of distant countries. However, due to mixed findings in previous research, we propose a research question instead, as follows:

RQ1: How is geopolitical proximity to Singapore related to the salience of issue in newspaper coverage of the Little India riot?

On the other hand, it is plausible that the salience of the issue on Twitter would be driven by the inherent viral characteristics of social media stories, which often transcend political borders (Lotan et al., 2011). However, others suggest that geography still determines user interactions on Twitter (Kulshrestha et al., 2012). Therefore, with no conclusive hypothesis on geolocation bias on Twitter, a second research question is posed:

RQ2: How is geopolitical proximity to Singapore related to the salience of issue in Twitter posts about the Little India riot?

**Discourse valence.** Valence in news coverage on social conflicts is an important dimension of news framing because conflict- or violence-related events are often discussed with a positive and/or negative tone (De Vreese and Boomgaarden, 2003). Previous work has found that local media, being proximal to an event, tend to be positive in their news reporting. This might be to pacify the populace and encourage them to be optimistic during crises (Martin and Boynton, 2005). On the other hand, findings have also shown that local media can differ among themselves in both their tone and framing while covering the same event (Ferman, 2013).
Similarly, on Twitter, while it is common for users to be overtly negative in their posts surrounding a negative event (Thelwall et al., 2011), scholars have found online groups to foster positive discussions during a turbulent time (Muralidharan et al., 2011). We can only speculate on the valence patterns which will emerge from each medium or across countries; accordingly, we pose the next set of research questions:

RQ3: How is geopolitical proximity to Singapore related to the valence of discourse on the Little India riot in newspaper coverage?

RQ4: How is geopolitical proximity to Singapore related to the valence of discourse on the Little India riot in Twitter posts?

Attribution of responsibility. When it comes to public discourse over social conflict, a causal interpretation of who was responsible for the conflict or violence is a common and important element because it leads to the overall conclusion of the discourse (Hugh-Jones et al., 2009). Certain actors or groups are often held responsible and blamed for negative outcomes or risks associated with conflicts. After the Little India riot, many Singaporeans blamed an overabundance of migrant workers responsible for the riots (Shen and Armstrong, 2013). Indians and Bangladeshis, the two communities who form a majority of the migrant labor force were among the prime suspects arrested after the incident (Financial Express, 2013). The Bangladeshi media refuted the possibility of Bangladeshi migrant workers’ involvement (Financial Express, 2013) while some in the Indian media suggested the violence to be an act of resistance against the oppressive policies and harsh treatment of migrant workers (Heble, 2013). Given this was first riot in the country in four decades, the international media also paid significant attention to the issue. Given that there was no common discourse in terms of attribution of responsibility for the riots, we pose the following research questions:

RQ5: How is geopolitical proximity to Singapore related to the attribution of responsibility of the Little India riot in newspaper coverage?

RQ6: How is geopolitical proximity to Singapore related to the attribution of responsibility of the Little India riot in Twitter posts?

Problem definition. In their analysis of the 2005 French riots, Snow et al. (2007) compared the use of the ‘riff-raff,’ ‘ethnic and religious minority groups,’ ‘failure of authorities,’ ‘failure of migrant incorporation,’ ‘economy/education,’ and ‘housing’ frames in media coverage from a half-dozen countries during the period in which the riots occurred. The present study is closely modeled on their approach, and elected to focus on the following problem definitions: ‘riff-raff,’
‘failure of authorities,’ and ‘failure of migrant incorporation,’ while discarding the ‘religious’ and ‘education,’ which are not pertinent to the current context. These were substituted with previously identified frames surrounding social conflicts (Luther and Miller, 2005; Sevenans and Vliegenthart, 2016). A preliminary investigation of Twitter data identified that ‘racial’ and ‘social conflict’ definitions were frequently being used to discuss the Singapore riot. To sum up, this study utilizes problem definitions including ‘riff-raff,’ ‘failure of authorities,’ ‘failure of migrant incorporation,’ ‘racial conflict,’ and ‘social conflict’, with its final set of research questions:

RQ7: How does the choice of problem definition in reporting the Little India riot in newspapers differ with geopolitical proximity to Singapore?

RQ8: How does the choice of problem definition in discussing the Little India riot on Twitter differ with geopolitical proximity to Singapore?

Method

Country selection and categorization

Conducting a bimodal cross-national comparative research requires data comprising news reports and Twitter posts from the same countries. To collect the data, we first followed a bottom-to-top approach to select countries for analysis, based on whether there were sufficient numbers of geotagged Twitter posts. The initial tweets posted about the riot were from 21 countries. Out of this set, eight countries had a minimal number of tweets (less than 50 posts each), which were discarded from our sample set. The remaining 13 countries were categorized per their relationship with Singapore and the riot. First, Singapore was categorized as ‘local’ and India and Bangladesh constituted the ‘involved’ countries because of the alleged involvement and subsequent arrests of Indian and Bangladeshi migrant workers. The remaining 10 countries were qualitatively categorized as either ‘proximal’ or ‘distant’ based on their economic, political, and geographic ties to Singapore. Specifically, political proximity was identified by calculating the share of consular, high commissions or embassies Singapore had in these countries (Ministry of Foreign Affairs Singapore, 2016). Second, economic proximity was measured by the share of total merchandise trade (both import and export) accounted for by Singapore’s partner country in 2013 (World Integrated Trade Solutions, 2013). Last, geographical proximity was operationalized by measuring the air distance between each country and Singapore.

Based on these indicators, we categorized the final 10 countries as either proximal or distant groups (see Table 1). All the countries in the proximal category rank highly across all measures except for the USA in geographical proximity. However, USA features at a high-rank for both economic and political proximities. Given that economic relations through trade or investment are strong predictors of
### Table 1. Country indicators.

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Country</th>
<th>Import partner share (%)</th>
<th>Export partner share (%)</th>
<th>Average trade partner share (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Malaysia</td>
<td>10.95</td>
<td>12.17</td>
<td>11.56</td>
</tr>
<tr>
<td>2</td>
<td>USA</td>
<td>5.15</td>
<td>9.88</td>
<td>8.13</td>
</tr>
<tr>
<td>3</td>
<td>Indonesia</td>
<td>.79</td>
<td>12.17</td>
<td>7.52</td>
</tr>
<tr>
<td>4</td>
<td>Hong Kong</td>
<td>10.42</td>
<td>5.84</td>
<td>6.48</td>
</tr>
<tr>
<td>5</td>
<td>Thailand</td>
<td>4.43</td>
<td>1.37</td>
<td>3.10</td>
</tr>
<tr>
<td>6</td>
<td>UAE</td>
<td>2.49</td>
<td>3.70</td>
<td>2.90</td>
</tr>
<tr>
<td>7</td>
<td>Australia</td>
<td>1.11</td>
<td>3.84</td>
<td>2.48</td>
</tr>
<tr>
<td>8</td>
<td>UK</td>
<td>2.13</td>
<td>.94</td>
<td>1.54</td>
</tr>
<tr>
<td>9</td>
<td>Canada</td>
<td>.33</td>
<td>.39</td>
<td>0.36</td>
</tr>
<tr>
<td>10</td>
<td>Turkey</td>
<td>.15</td>
<td>.13</td>
<td>0.14</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Country</th>
<th># Foreign embassy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Indonesia</td>
<td>4</td>
</tr>
<tr>
<td>1</td>
<td>USA</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>Malaysia</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>UAE</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Thailand</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Hong Kong</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Australia</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>UK</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Turkey</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Canada</td>
<td>–</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Country</th>
<th>Geo distance (km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Malaysia</td>
<td>378</td>
</tr>
<tr>
<td>2</td>
<td>Indonesia</td>
<td>1,149</td>
</tr>
<tr>
<td>3</td>
<td>Thailand</td>
<td>1,645</td>
</tr>
<tr>
<td>4</td>
<td>Hong Kong</td>
<td>2,593</td>
</tr>
<tr>
<td>5</td>
<td>Australia</td>
<td>4,381</td>
</tr>
<tr>
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<td>UAE</td>
<td>5,919</td>
</tr>
<tr>
<td>7</td>
<td>Turkey</td>
<td>8,083</td>
</tr>
<tr>
<td>8</td>
<td>UK</td>
<td>10,973</td>
</tr>
<tr>
<td>9</td>
<td>Canada</td>
<td>13,082</td>
</tr>
<tr>
<td>10</td>
<td>USA</td>
<td>15,307</td>
</tr>
</tbody>
</table>
country closeness (Wu, 1998), USA was classified close to Singapore. All the countries in the distant category were geographically located outside of South East or East Asia and mostly belong to the lower half of ranking across all political and economic measures.

**Newspaper data**

Using LexisNexis, a total of 227 English articles containing both the words ‘Little India’ or ‘Singapore’ and ‘riot’ or ‘riots’ published between 9 and 15 December 2013 were culled from the two English newspapers from each of the 13 countries selected at the previous stage. For countries in our set, which were not indexed in LexisNexis, the authors conducted a manual search of the newspaper’s website to identify news articles. The study focuses on a 1-week period from the beginning of the riot until 15 December, the day after the last of the arrests was made. This enables a measurement of the immediate framing presence in newspapers and on Twitter.

**Twitter data**

The tweets in this study were collected using Twitter’s streaming API and filtering on the hashtags ‘#littleindiariot’ or ‘#sgriot,’ and search terms ‘little India’ and ‘riot’ or ‘sg riot.’ In our data collection, two conditions were applied. First, a custom-written script was used to filter non-English language tweets and retweets. Second, since the focus is on a cross-national analysis, we retained only geotagged tweets. At the coding stage (explained later), any tweets posted by a news organization/verified newsmaker were also excluded. The final set included 4,495 tweets collected from 9 to 15 December 2013.

**Measures**

**Issue salience**

The salience of the issue for newspapers is operationalized in line with a formula adapted from previous work (Snow et al., 2007). Here the visibility score is sub-linearly dependent on the framing elements present in an article, a number of words in the article, and the placement of the article in the newspaper, as follows

\[
\text{The salience of riot in newspaper} = \log(2n_r) \times n_w \times w_p
\]

where \(n_r\) is the total framing elements in an article, \(n_w\) is the number of words in the article, and \(w_p\) is the place of the article in the newspaper (front page is weighed as 2; other pages as 1).

Given that the text in Twitter posts has a different structure, the same formula is hardly applicable to tweets. Previous research has adopted the frequency of tweets
as a measure of salience but we go beyond and adjust the tweet count by social
media penetration in each country. This step is necessary since absolute number of
tweets in one country (e.g., India) is not comparable to another (e.g., Singapore or
Malaysia) given the difference in population. Therefore, the salience on Twitter is
calculated by the following formula

\[ \text{The salience of riot on Twitter} = (t_x/smp_x) \times 100 \]

where \( t_x \) is number of tweets for country \( x \), \( smp_x \) is the social media penetration rate
in country \( x \), and 100 is a constant.

**Discourse valence**

Each article and tweet was individually scored per the percentage proportion of
positive or negative valence present. We used Linguistic Inquiry and Word Count
(Pennebaker et al., 2001), a text analytics program that counts words and scores
texts for their sentiment, emotionality, social relationships, thinking styles, and
individual differences.

**Coding**

Two human coders analyzed each newspaper article and tweet individually for
respective attribution of responsibility and problem definitions ( riff-raff, failure
of authorities, failure of migrant incorporation, racial conflict, and social conflict).

Following the framework of Snow et al. (2007), the coders assigned attribution of
responsibility for the riot to authorities (government or police) and rioters. For brevity
the other marginal categories (society, ethnic groups, others) are not discussed in the
article. The coding description for problem definitions are provided in Table 2.

A coding training session was conducted before the final coding process. The
pilot tests of intercoding reliability involved 20% of newspaper articles (\( N = 45 \))
and approximately 10% of tweets (\( N = 450 \)). Once an acceptable intercoder reliabil-
ity was reached at the pilot stage, the coders advanced to individually code the
remaining sample. After the final coding process, intercoding reliability was calcu-
lated for attribution of responsibility and problem definitions for both newspaper
and Twitter sample using Scott’s \( \pi \). The \( \pi \) values indicated satisfactory intercoder
reliability with scores of higher than 0.78 on all measures.

**Results**

**Issue salience**

The results showed that newspapers in distant countries evidenced less attention to
the riot as compared to other countries. One-way ANOVA followed by post hoc
tests demonstrate that newspapers in distant countries \( (M = 2.34, SD = .55) \) paid significantly less attention to the riot as compared to local \( (M = 2.72, SD = .34, p < .001) \), involved \( (M = 2.69, SD = .46, p < .05) \), and proximal countries \( (M = 2.66, SD = .64, p < .05) \) \( [F (3, 223) = 6.58, p < .001] \). Post hoc tests reveal no significant differences between any other pairs.

On Twitter, the pattern of issue salience is somewhat different to newspaper coverage. When the absolute number of tweets were adjusted for social media penetration in each country the results reveal that the issue was the most salient for Twitter users in Singapore \( (Adj N = 3,069.55; \text{see Table 3}) \) followed by users in the involved nations \( (Avg Adj N = 2,280.50) \). However, among the involved nations, it is to be noted that India \( (Adj N = 3,186.01) \) was at par with Singapore but the users in Bangladesh \( (Adj N = 1,375) \) were comparatively less active. This is not surprising considering the low preference of Twitter as a social media tool in Bangladesh (Mahtab et al., 2016).

Furthermore, although not tested statistically, the descriptive difference (on average) between proximal and distant countries suggests results similar to newspaper coverage, where distant countries \( (Avg Adj N = 354.84) \) paid less attention to the riot than proximal countries \( (Avg Adj N = 434.54) \). However, on a closer inspection it can be seen that some of the distant countries like Australia \( (Adj N = 620.91) \), UK \( (Adj N = 3,069.55) \), and UAE \( (Adj N = 3,069.55) \) pay an equal or higher attention to the riot than some proximal countries. Therefore, it is difficult to confirm that distant countries paid less attention than proximal countries. In sum, it can be concluded that cross-national political discussions on social media are somewhat less bounded by proximity (or distance) to the event than newspaper coverage.

<table>
<thead>
<tr>
<th>Problem definition</th>
<th>Problem definition explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Riff-raff</td>
<td>If the riots are presented as a senseless, criminal act of violence rather than rooted in structural problem or politics</td>
</tr>
<tr>
<td>Racial conflict</td>
<td>If the riots are associated with the conflict between ethnic groups (Indian, Malay, Chinese) and Singaporeans</td>
</tr>
<tr>
<td>Social conflict</td>
<td>If the riots are attributed to a conflict arising out of economic or social opportunities among Singapore residents (locals and migrants)</td>
</tr>
<tr>
<td>Failure of authorities</td>
<td>If the riots are associated with the failure of the law and order (including the police) or government officials</td>
</tr>
<tr>
<td>Failure of migrant incorporation</td>
<td>If the riots are attributed to the failure of incorporation of migrants in the Singaporean society</td>
</tr>
</tbody>
</table>

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Discourse valence

The newspaper coverage and Twitter discussion of the riot were both more negative than positive. Paired-samples *t*-tests show that the newspaper stories of the riot were in general more negative (*M* = 1.92, *SD* = .34) than positive (*M* = 1.46, *SD* = .38); *t* (226) = 12.68, *p* < .001. Similarly, the tone of Twitter posts was also more negative (*M* = 2.26, *SD* = 4.03) than positive (*M* = 1.84, *SD* = 4.01); *t* (4,494) = 4.91, *p* < .001. The results are not surprising considering that early public discourse on social media surrounding negative events are usually inflammatory. As for the newspapers, it is assumed that the negative tone could have been driven by the criticism of the act, the rioters, or the government. The reasons can be better explored taking into account the attribution findings (RQ5 and RQ6).

Beyond this overall pattern, it was tested whether the tone differed across country categories. The results of ANOVA suggest that the tone of newspaper articles was significantly different across countries for both positive (*p* < .001) and negative tone (*p* < .001) (see Table 4). Post hoc tests reveal that Singaporean newspapers
covered the riot in the most positive and least negative tone as compared to other newspapers. The restrictive control of the government over the local media could have played a role in the strategic approach of Singaporean newspapers. Further, news reporting in involved countries was significantly more negative as compared to proximal countries ($p < .05$).

On Twitter, on the other hand, only the negative valence of the tweets was significantly different across countries ($p < .001$). Users in Singapore and involved countries were more negative in their tweets than the users in proximal and distant countries.

To summarize, the data suggest that there are differences between newspaper coverage and Twitter discourse of the same event. Singaporean newspapers covered the riot in more positive and less negative tone than other foreign newspapers reporting on the same event whereas the tweets from Singaporean users were more negative as compared to users in proximal and distant countries. It is also noticeable that newspapers and Twitter in the involved countries, India and Bangladesh, were the most negative.

Although the patterns of difference are observable, it is hard to infer the meaning of the patterns without having an understanding about the target of either positive or negative messages. To better understand the findings of

### Table 4. Valence of news coverage and twitter discussion.

<table>
<thead>
<tr>
<th>Country category</th>
<th>Newspaper</th>
<th>Twitter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Positive</td>
<td>Negative</td>
</tr>
<tr>
<td></td>
<td>$M$ (SD)</td>
<td>$M$ (SD)</td>
</tr>
<tr>
<td>Local</td>
<td>1.57 (.18)</td>
<td>1.80 (.14)</td>
</tr>
<tr>
<td>Involved</td>
<td>1.29 (.49)</td>
<td>2.25 (.74)</td>
</tr>
<tr>
<td>Proximal</td>
<td>1.36 (.71)</td>
<td>2.01 (.29)</td>
</tr>
<tr>
<td>Distant</td>
<td>1.21 (.24)</td>
<td>2.08 (.41)</td>
</tr>
<tr>
<td></td>
<td>$F=12.15$</td>
<td>$F=18.25$</td>
</tr>
<tr>
<td></td>
<td>$p &lt; .001$</td>
<td>$p &lt; .001$</td>
</tr>
<tr>
<td>Post hoc test</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local versus involved</td>
<td>$p &lt; .01$</td>
<td>$p &lt; .001$</td>
</tr>
<tr>
<td>Local versus proximal</td>
<td>$p &lt; .05$</td>
<td>$p &lt; .01$</td>
</tr>
<tr>
<td>Local versus distant</td>
<td>$p &lt; .001$</td>
<td>$p &lt; .001$</td>
</tr>
<tr>
<td>Involved versus proximal</td>
<td>$p = .91$</td>
<td>$p &lt; .05$</td>
</tr>
<tr>
<td>Involved versus distant</td>
<td>$p = .87$</td>
<td>$p = .18$</td>
</tr>
<tr>
<td>Proximal versus distant</td>
<td>$p = .32$</td>
<td>$p = .78$</td>
</tr>
</tbody>
</table>
message valence, we consider the results for the attribution of responsibility for the riot.

**Attribution of responsibility**

For newspapers, the results of ANOVA for the target of attribution indicate that Singaporean newspapers \( (M = .04, SD = .18) \) were the lowest in blaming authorities for the riot while newspapers in involved countries \( (M = .21, SD = .42) \) were the highest (Table 5). It is also found that Singaporean newspapers \( (M = .50, SD = .50) \) placed more blame on rioters than any other foreign newspapers (involved, \( M = .37, SD = .49 \); proximal, \( M = .34, SD = .48 \); distant, \( M = .28, SD = .45 \)).

On Twitter, as observed in newspaper coverage, posts from Singaporean users \( (M = .04, SD = .19) \) were the lowest in blaming authorities for the riot and posts from users in involved countries \( (M = .21, SD = .40) \) were the highest. When it comes to blaming rioters, tweets from Singaporean users \( (M = .15, SD = .35) \) were the highest and posts from users in involved countries \( (M = .08, SD = .26) \) were the lowest.

If we combine the results of message valence and attribution of responsibility, it appears that the negative sentiments in involved countries’ news reporting and

<table>
<thead>
<tr>
<th>Country category</th>
<th>Attribution to authorities</th>
<th>Attribution to rioters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local</td>
<td>.04 (.18)</td>
<td>.50 (.50)</td>
</tr>
<tr>
<td>Involved</td>
<td>.21 (.42)</td>
<td>.37 (.49)</td>
</tr>
<tr>
<td>Proximal</td>
<td>.09 (.28)</td>
<td>.34 (.48)</td>
</tr>
<tr>
<td>Distant</td>
<td>.14 (.35)</td>
<td>.28 (.45)</td>
</tr>
</tbody>
</table>

\( F = 3.48 \)

\( p < .05 \)

\( F = 2.45 \)

\( p = .06 \)

\( F = 55.46 \)

\( p < .001 \)

\( F = 10.77 \)

\( p < .001 \)

<table>
<thead>
<tr>
<th>Post hoc test</th>
<th>Attribution to authorities</th>
<th>Attribution to rioters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local versus involved</td>
<td>( p &lt; .05 )</td>
<td>( p = .71 )</td>
</tr>
<tr>
<td>Local versus proximal</td>
<td>( p = .74 )</td>
<td>( p = .35 )</td>
</tr>
<tr>
<td>Local versus distant</td>
<td>( p = .15 )</td>
<td>( p = .08 )</td>
</tr>
<tr>
<td>Involved versus proximal</td>
<td>( p = .33 )</td>
<td>( p = .96 )</td>
</tr>
<tr>
<td>Involved versus distant</td>
<td>( p = .76 )</td>
<td>( p = .81 )</td>
</tr>
<tr>
<td>Proximal versus distant</td>
<td>( p = .82 )</td>
<td>( p = .94 )</td>
</tr>
</tbody>
</table>
Twitter posts would be more directed toward Singaporean government. In contrast, it seems that the negative sentiments in tweets of users in Singapore were more frequently directed at the rioters and migrants. Yet, as for newspaper coverage, we speculate that given the sensitivity of the issue and the normative
responsibility of reporters in state-controlled Singaporean media, they were less frequent in constructing their stories using negative sentiments.

**Problem definition**

**Riff-raff.** With regards to newspapers’ presenting the riot as riff-raff, there were no significant differences between newspapers across countries ($p = .12$, Table 6). On the other hand, significant differences were found in Twitter posts ($p < .05$). Posts from involved countries ($M = .17$, $SD = .38$) were the lowest in the use of the riff-raff definition, as compared to local ($M = .23$, $SD = .42$), proximal ($M = .22$, $SD = .41$), and distant countries ($M = .20$, $SD = .39$). Post hoc analyses revealed that Twitter users in India and Bangladesh were using the riff-raff frame significantly less frequently than users in Singapore ($p < .05$).

The findings suggest that all newspapers equally considered the riots as senseless act but perhaps due to the much-criticized labor conditions of migrant workers, Twitter users from India and Bangladesh evaluated the riots as a reaction by migrant workers toward the structural problems.

**Racial conflict.** The newspapers across four country categories differed in presenting the riot through a racial conflict definition ($p < .05$). The newspapers in involved countries ($M = .26$, $SD = .45$) were more likely to define the riot as a racial conflict than local ($M = .07$, $SD = .25$), proximal ($M = .11$, $SD = .32$), and distant countries ($M = .19$, $SD = .40$). Post hoc analyses revealed that significant statistical differences were found only between newspapers in involved countries and newspapers in Singapore ($p < .05$).

Likewise, significant differences were also found on Twitter ($p < .001$). However, the post hoc tests revealed a different pattern to newspaper coverage as Twitter users in Singapore ($M = .28$, $SD = .45$) were significantly more likely to define the riot as a racial conflict than involved ($M = .19$, $SD = .39$, $p < .001$) and proximal ($M = .17$, $SD = .40$, $p < .001$) but not distant countries ($M = .24$, $SD = .43$, $p = .65$).

To summarize, the findings reveal that the newspapers in Singapore were less likely to discuss the riot as a conflict between ethnic groups and locals than involved countries. However, a contrary trend is visible on Twitter where users in Singapore were more likely to discuss the riot as a racial conflict than involved and/or proximal countries. These findings again point to how the affordances offered by social media can challenge authority control. Velayutham (2016) suggests that while it is public knowledge in Singapore that institutional racism exists yet it is not publicly discussed or highlighted in the Singapore media because the discussion would undermine the credibility and achievement of the government’s successful multiracial policy and race relations. However, the advent of social media has ‘made it possible for Singaporeans oftentimes unwittingly to express racially derogatory remarks’ (Velayutham, 2016: 1) and this might be more salient during the Little India riot.
Social conflict. With regards to newspapers’ coverage of the riot as a social conflict, significant differences were found across four country categories ($p < .001$). The newspapers in involved countries ($M = .27, SD = .34$) were more likely to define the riot as a racial conflict than newspapers in Singapore ($M = .04, SD = .21, p < .001$) and proximal countries ($M = .06, SD = .23, p < .05$). The newspapers in distant countries ($M = .22, SD = .42$) were also more likely to use the social conflict definition than Singapore newspapers ($p < .001$). No significant differences were found between local and proximal countries.

On Twitter, significant differences were found between four country categories ($p < .001$). Twitter users in Singapore ($M = .04, SD = .21$) were least likely to discuss the riot as a social conflict as compared to users in proximal ($M = .13, SD = .33, p < .001$), involved ($M = .18, SD = .38, p < .001$), and distant countries ($M = .20, SD = .40, p < .001$). Similarly, users in proximal countries were also less frequent in using the social conflict than users in involved ($p < .001$) and distant countries ($p < .001$).

These results imply that newspapers in Singapore were less likely to frame the riot as a social conflict as compared to involved and distant countries. Newspapers in proximal countries followed the same pattern as Singapore newspapers. These findings follow a similar pattern to racial conflict results suggesting that newspapers in Singapore were cautious to discuss underlying social conflicts. This can again be attributed to a combination of factors, including the state control over the press, media bias toward sensationalism, and the usual lack of in-depth analyses of conflicts. While the local media was hesitant to discuss the worker conditions, foreign media has previously highlighted systematic problems with migrant living conditions (The New York Times, 2013). On Twitter, users in Singapore were least likely to frame the riot as a social conflict when compared to all other countries. On one hand, this can be a result of Twitter users in Singapore not considering any social conflict issues to be responsible for riot but it can also be driven by the minimal local media coverage of social issues involving migrants, which would be unobtrusive for the online population usually consisting of individuals with high education and income.

Failure of authorities. The newspapers across different countries significantly differed in using the failure of authorities’ definition ($p < .001$). Similar to the social conflict results, newspapers in involved countries ($M = .37, SD = .51$) were more likely to use this definition than newspapers in Singapore ($M = .04, SD = .20, p < .001$) and proximal countries ($M = .11, SD = .32, p < .001$). The newspapers in distant countries ($M = .28, SD = .46$) also used the problem definition more commonly than Singapore newspapers ($p < .001$).

On Twitter, statistically significant differences were found between the four country categories ($p < .001$). Users in Singapore ($M = .05, SD = .20$) were least likely to indicate the riot as a failure of authorities as compared to all the other categories, namely distant ($M = .26, SD = .44, p < .001$), involved ($M = .22,$
SD = .42, p < .001), and proximal countries (M = .17, SD = .38, p < .001). Proximal countries also used the failure of authorities’ definition significantly less than involved countries (p < .05).

These findings reveal that both newspapers and Twitter users from Singapore were least likely to discuss the riot as a failure of authorities. This is not surprising since critics have observed that criticism of authorities is uncommon in the media and the public sphere in Singapore (Kenyon, 2010). On the other hand, proximal countries frequent use of the failure of authorities’ definition (as compared to users in Singapore) is dissimilar to the findings of press relations between close-knit neighboring countries thereby highlighting the potential of social media tools as an alternative platform for political expression and discussion.

**Failure of migrant incorporation.** There were no significant differences found among newspapers in covering the riot as a failure of incorporating migrants into society (p = .09). On Twitter, however, the use of failure of migrant incorporation definition was statistically different across countries (p < .001). Users in Singapore (M = .07, SD = .24) were least likely to use the definition as compared to involved (M = .12, SD = .33, p < .01), proximal (M = .10, SD = .31, p < .01), and distant countries (M = .16, SD = .37, p < .001).

These findings can be understood in conjunction with previously discussed results, especially social conflict findings. It seems there was a lack of focus in the media on the possible causes of the riot. Malay (2014) argues that above and beyond the critical factor of alcohol and anger, the marginalization of migrant workers in Singaporean society led to the Little India riot. Yet, as we observe, there was minimal use of failure of migrant incorporation frame in newspapers when discussing the riot. On Twitter, the discussion of migrant incorporation was least on among users in Singapore perhaps because such discussions would mean direct criticism of the government and the system.

**Discussion**

By focusing on the framing of a civil unrest across both traditional and social media, this study had two broad research goals: (a) how geopolitical proximity to an event influences the way the issue is discussed and (b) whether and how the issue is differently framed across traditional and social media. The results, in general, suggest that newsmakers in traditional media and users in social media applied different frames in their discussion of the Little India riot while geopolitical proximity played varying roles across mediums.

Event proximity is an important indicator of how attentive international news media is toward an issue. Accordingly, it was not unexpected that the newspapers in Singapore paid the most attention to the riot. On Twitter, too, users from Singapore, along with India, were the most active in discussing the riot, but the salience of the issue was almost equivalent in both proximal and distant countries,
unlike news media reporting. This suggests the potential of social media to act as an unfettered news network, somewhat less constrained by geographical borders or strategic political ties, which facilitates mass discussion and information dissemination.

The second set of findings reveals that the valence of coverage for both positive and negative sentiments significantly differed across newspapers in Singapore and other countries. While it was expected of Singaporean newspapers to be most positive and the involved nations to be most negative, these variations in tone of coverage, especially for proximal and distant countries, point to the eternal debate of how should media report violent incidents. Normative arguments suggest that it is the social responsibility of the media to show utmost caution and objectivity while reporting violence to prevent aggravating the situation, it is impossible to ignore the business interests of news making processes where increased competition and commercial interests drive journalists and editors to sensationalize events. This is implicit in how proximal countries were significantly more negative in their reporting than newspapers in Singapore. This is interesting given the fact that they hold close geopolitical ties with Singapore and even closely followed the same frames adopted by Singaporean newspapers. The additional analyses of the attribution of responsibility for the riot reveal that the newspapers in Singapore and proximal countries were equally likely to blame the rioters for the unrest than criticizing the government.

The observations from Twitter discourse suggest a different paradigm at work. Twitter has been described as a platform for ambient journalism where a mix of alternate news, information, and opinions converge and traditional journalistic approaches are not necessarily followed (Hermida, 2013). Twitter users from Singapore were equally negative in their posts as users from the involved country. This corroborates Twitter’s potential to present itself as an alternative avenue of political discussions, which is further strengthened by the insights from problem definition findings.

The national media in Singapore have previously been criticized for not providing in-depth analyses of local social issues (Velayutham, 2016), thus it was not unexpected to observe that the newspapers in Singapore presented the riot as just a social nuisance, and avoided discussions of the underlying reasons or conflicts. These editorial choices can be understood in the context of the stringent press regulation in Singapore. Its press is always subject to direct or implied control by the state and mainstream news to promote government’s elite perspectives (Goh, 2015). News articles that criticize or challenge the ruling party are liable to be prosecuted through a slew of acts.

On Twitter, Singaporean users were more likely to use the racial conflict definition, which contradicted the Singapore government’s official version of the event. They were also significantly more frequent in criticizing the authorities than newspapers. These findings point to the online channels as an alternative platform for political discussions which bypasses the official gatekeeping of traditional media. Up until recently, the ruling party maintained a stringent control of online
discourse in Singapore and individuals or groups were not able to engage in political discussions without registering with the authorities. However, with the liberalization of the Internet in Singapore in 2010, which eliminated the individual registration requirement, citizens are freer to express their political opinions online and are not as closely monitored as before (Goh, 2015). This could explain the diverging perspectives of the riot on Twitter as compared to Singaporean newspapers. The results indicate that Twitter users in Singapore were rather strategic in their opinion expression—although they were found to use the conflict problem definition, they tended to avoid open attribution of responsibility to the government, as compared to other countries. This may signal their mindfulness of social media monitoring by the Singaporean government. In several recent incidents, the Singaporean government has cracked down on online dissenters as political bloggers have been charged with a defamation suit and jailed for posts criticizing the government (Tan, 2015). Nevertheless, the Internet is still an important space for Singaporeans to voice their opinion.

Among the proximal countries, Twitter enables the free trade of information unregulated by press censorship or geopolitical ties—this was visible in the observed frame usage by Twitter users in proximal countries, where both the failure of authorities and failure of migrant incorporation definitions were more commonly used than their press. Again, this discourse diverged from the official rhetoric of their mainstream press which mainly criticized and condemned only the rioters. The problem attribution findings also support this argument as Twitter users in proximal and distant countries were more likely to hold the authorities responsible as compared to users in Singapore.

In summary, the findings highlight that the same event is framed in different ways in traditional media, yet in the same way in the social media, of proximal versus distant countries.

A major contribution of this study is that it not only evaluates the trend of news framing by media in four different regions, each influenced by their geopolitical ties, but it also compares these findings to the discourse offered by social media. The findings raise important questions about the authority of traditional media in influencing audience behavior and attitudes in the current environment. The results indicating that the way social media present and discuss the Little India riot is not in correspondence with traditional media’s coverage should interest future scholars to take alternative avenues of political discussions into account while analyzing media effects.

There are a few limitations of the present study. First, it focused only on newspapers but framing in television news could be different. Second, inclusion of non-English language tweets and articles could have added further value to the claims. Third, China, a close strategic partner of Singapore, was excluded due to the unavailability of Twitter data. Finally, it might be that the discussion of a riot has a greater potential to go viral as compared to mundane political issues. Future scholars should replicate this study across different topics and contexts.
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References


