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Something Real about Fake News: The Role of Polarization and Social Media Mindfulness

Completed Research

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Abstract

Recently the spread of fake news has become a serious concern. However, there is limited research examining the factors that can help contain the spread of fake news on social media. This research uses the lens of mindfulness and a cluster of theories related to social media engagement (information processing, the network of strong ties, homophily, polarization, and echo chamber effects) to explain how social media networks become homophilic and polarized over time. The study shows that mindfulness can combat confirmation biases caused by cognitive limitations and the polarizing nature of online social media networks. We used eight fake scenarios to examine how a friend's influence could lead to polarization (i.e., the unification of views) and how mindfulness can abet such coalescing of attitudes, thus limiting the spread of fake news. The study also presents a new social mindfulness construct, and empirically shows it to be a second-order construct with five first-order dimensions.

Keywords

Fake news, social media mindfulness, polarization, friends' influence, social media.

Introduction

“Fake news” has become a well-known phrase in American politics, and its prevalence has shaken the public's belief in journalism and fueled criticism of online social media. Facebook, in particular, has been criticized for not taking enough preventive measures to control the spread of fake news (Kim and Dennis 2019). The phrase fake news was made popular by Donald Trump during the 2016 presidential election, when then-candidate Trump dismissed many media reports because they were “fake news.” Of course, the concept of fake news has a number of possible meanings – based on degree of facticity and deception (Tandoc Jr et al. 2018). Among scholars, the concept of fake news is generally thought to mean something different. According to Lazer et al. (2018), fake news is “fabricated information that mimics news media content in form but not in organizational process or intent.” In this paper, we focus on this conceptualization of fake news. We are specifically interested in the spread of false information on social media platforms.

As a starting point, it is worth recognizing that the spread of fake news is a pressing issue in today's society (Moravec et al. 2019). Indeed, a 2018 article published in *Science* declared that “[c]oncern over the problem is global” and went on to argue that “[a]ddressing fake news requires a multidisciplinary effort” (Lazer et al. 2018, italics added for emphasis). Fake news is a serious issue, and according to a 2019 Pew Research Center survey, a majority of Americans opine that the creation and spread of made-up news and information is causing significant harm to the nation and needs to be stopped (Mitchell et al. 2019).

In this paper, our interest is in better understanding the spread of fake news. We use two different theoretical frameworks—mindfulness and a cluster of theories related to social media engagement (information processing theory, network theory, polarization, and echo-chamber theories). Research on mindfulness has increased dramatically in recent years. Indeed, many scholars have been interested in how mindfulness can foster better outcomes (e.g., improved decision-making, stress reduction, political tolerance, etc.). In fact, in a recent study Jensen et al. (2017) found that people who received mindfulness training were better at avoiding a phishing attack than those who did not. Thus, mindfulness may be something that helps reduce engagement with fake political information. Research on concepts related to social media engagement has generated considerable attention as well. For example, there is increasing worry that people will only expose themselves to information that fits with preexisting views and predispositions i.e., “echo chamber” theory, see (Shore et al. 2018b), and that as a consequence, people may rarely, if ever, be challenged to consider viewpoints other than their own or to think differently about topics and issues.

In this paper we make an attempt to understand how social media engagement impacts our information processing and sharing behavior using the lens of mindfulness and the cluster of social media engagement theories. In particular we examine the following research question - Can mindfulness lower the spread of fake news?

The rest of this paper is organized as follows. First, we provide a brief overview of the existing literature on fake news. We then discuss our theoretical approach. Next, we provide a discussion of our method, sample, and measures, before turning to our empirical results. We then provide a discussion of how our findings could be used to reduce the spread of fake news on social media and highlight the theoretical and practical implications of our work. We conclude our work by discussing some of the limitations and future research opportunities.

Theoretical Development

Over the past several years, scholars have worked quickly to develop an understanding of how fake news is created and spread in social networks. Indeed, there are now a wide range of studies, spanning multiple disciplines that examine various dimensions of fake news. Generally speaking, research on fake news has focused on a few different themes. First, some scholars have documented how much fake news exists, how far it spreads, who is exposed to it, and the outcomes that are shaped by it – (e.g., Allcott and Gentzkow 2017; Guess et al. 2018). Second, some scholars have tried to understand the attributes of those who read and/or spread fake news (e.g., Grinberg et al. 2019; Kim et al. 2019). Finally, some studies have focused on investigating and developing tools and strategies that might prevent people from spreading fake information (e.g., Basol et al. 2020; George et al. 2018).

In this paper, we rely on two frameworks—mindfulness theory (Langer 1989) and a cluster of theories related to social media engagement (information processing theory of cognitive limitation, network of strong ties, polarization and echo chamber effects). We explain the theoretical frameworks below.

Humans have limited information processing capacity (Jacoby 1977; Malhotra 1984). Limited information processing capacity makes people “cognitively lazy” (Kahneman 2011) and can prevent us from not wanting to expend cognitive energy when we have an alternative and easier heuristic route (example, source reputation, design). The distraction and limited attention span precipitated by social media is only making us even more cognitively lazy or simply less-mindful (see: Cacciatore et al. (2018)). Moreover, fake news headlines are typically designed to trigger emotional reactions or to surprise readers (e.g., “Trump plagiarized the Bee Movie for his inaugural speech”), which can further limit the brain from engaging in cognitive effort and entice impulsive reactions i.e., sharing a news story immediately – by reducing the readers willingness and ability to question the fake news and thus increasing one’s believability in the fake news.

Social media outlets conveniently provide an ability to personalize one’s network with the friends who share similar beliefs and ideologies. Social network theories have long suggested that social networks conjoin attitudes and unify opinions in the in-group (Mackie and Cooper 1984) making them more homophilic (Ashforth and Mael 1989). Homophily in social networks is driven by two main factors – individuals form groups according to their interests and individuals want to feel a sense of belonging so

they shape themselves to group norms. Research suggests that such social networks can greatly sway one's behavior. For example, in a large-scale experiment conducted on Facebook during the 2010 midterm election, Bond et al. (2012) found that users who saw that their friends were voting were more likely to vote than those who did not see such information. Similarly, Diehl et al. (2016) found that heavy social media users were more likely to change their political opinions based on what someone they regard as influential posted on social media. Social networks become more homophilic over time and create coalesced attitudes and unified singular opinions, which in turn create echo-chambers and polarized networks (Shore et al. 2018a; Shore et al. 2018b). This serves to increase confirmation biases, enabling the easy spreads of fake news.

In this paper, using the mindfulness and ideas related to social media engagement, we argue that social media users thus not only often experience information overload and reduced cognitive bandwidth, enticing fake news, but they also find themselves in an increasingly homophilic groups (Ashforth and Mael 1989). These factors could lower one's critical analysis of "fake news," especially if it is coming from a "strong tie." This may make one less mindful, and even more susceptible to spread the fake news. As indiscriminate social media engagement lowers critical analysis and reasoning of information shared in the network, *mindfulness*, which is known to curtail cognitive laziness (Wimmer et al. 2016), could be an anti-dote to the confirmation biases induced by the social media engagement, and may help combat the spread of fake news.

Constructs	Definitions	Based on
<i>Mindfulness</i>		Jensen et al. (2017); Langer (1989)
Social Media Mindfulness	Receptive attention to one's current surroundings and experiences in social media environment	
Alertness to Distinction	Degree to which individuals identify differences between different types of information shared with them on social media.	
Awareness of Multiple Perspectives	Degree to which individuals understand multiple ways they can engage with their social media.	
Orientation in the Present	Degree to which individuals understand the context surrounding what they post on social media.	
Tryout Novel Features	Degree to which individuals are willing to explore new features across various situations.	
Novel Information	Individual's willingness to explore and seek new information	
Social media Engagement	Social media engagement reflects a motivational state which occurs by virtue of an individual's interactive experiences with online social media	Hollebeek et al. (2014); Khan (2017); Chahal (2017)
Friend's Influence	Degree of normative and informational influence of one's friend on an individual, which makes one to comply with the friends' expectation and perceive the information shared by the friend as an evidence about reality	Mangleburg et al. (2004)
Intention to Share	Intention to share the "fake" news with on social media	Lee and Ma (2012)

Table 1. Definition of Key Constructs

Polarization is defined as a state where one is aware of the "other side" and is in conflict with it due to influence of one's social media friends and network (Bessi 2016; Shore et al. 2018b). Studies have shown that social media generates polarization by leading to higher correlation between one's content engagement (consumption and generation) with one's friends having similar consumption patterns (Bessi 2016). We thus argue that perceived friend's influence acts as a proxy for polarization. To measure

mindfulness, we develop a new social media mindfulness scale. We relied on IT mindfulness scale (Jensen et al. 2017) to develop the social media mindfulness scale. We modeled social media mindfulness as a second-order construct on the lines of IT mindfulness scale developed by Jensen et al. (2017). Jensen et al. (2017) have shown that IT mindfulness comprises of four dimensions – alertness to distinction, multiple perspectives, orientation in the present, and novelty. Even though social media is an IT artifact and hence social media mindfulness shares many similarities with IT mindfulness, the major difference that sets the concepts apart is the conceptualization of novelty. Whereas novelty in Jensen et al. (2017) is modeled around “novelty to use features associated with IT”, social media mindfulness novelty in our scale is characterized to be not only novelty to use features associated with social media IT (app or website), but also one’s propensity to *seek novel information* on social media. This is in line with Langer’s argument (Jensen et al. 2017; Langer 1989) that people who are drawn to novelty seek new information in order to learn more about the current situation. In Table 1, we provide the definitions of social media mindfulness and its dimensions along with the definitions of the other construct used in this study.

We explain the research model in the section below. The research model is shown in Figure 1.

Research Model

Mindfulness has been conceived of as the essence of engagement (Langer 1989). Mindful lowers cognitive laziness and fosters several positive behavioral consequences. Mindfulness makes people more attentive and also enhances one’s internal awareness (Brown and Ryan 2003), which leads to higher level of internal motivation, general well-being and also higher levels of work engagement (Leroy et al. 2013; Malinowski and Lim 2015). Building on these studies, we expect that mindfulness will improve the social media experience—by helping users stay in the present, resisting the urge to over-generalize things, promoting the acquisition of novel information, and encouraging multiple perspectives (Langer 1989). Greater social media mindfulness would lead to more selective and discerning social media engagement. Building on this work, we expect that:

H1: Social media mindfulness will be positively associated with social media engagement.

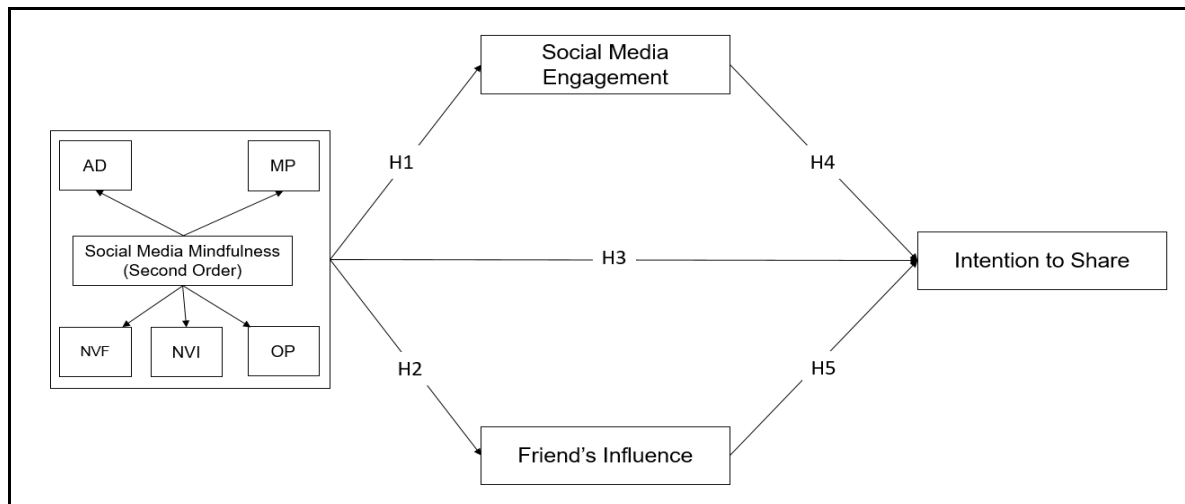


Figure 1. Research Model

Mindfulness comprises of various dimensions which will help limit the effect of over generalization, and lower cognitive laziness, and increase cognitive alertness and attention (Moore and Malinowski 2009). fMRI based research shows that mindfulness creates significant changes in our brain which help overcome our cognitive depletion and regulate our emotional responses by stimulating and regulating certain regions of the brain (Lutz et al. 2014). Such changes help reduce cognitive bias and reduce the urge to act based on emotions and avoid group-think (Good et al. 2016). Langer (1989) has noted that when individuals feel a heightened state of involvement or presence in the moment (i.e., being mindful),

they are more likely to be aware of their environment and corresponding opportunities for action. Echoing similar effect various psychologists argue that mindfulness shapes how individuals interact with their environment (Bishop et al. 2004; Dane 2011), including the information environment that surrounds them. This awareness of the environment and cognitive alertness makes one able to distinguish between beneficial and unbeneficial tendencies (Wallace 2006). Increasing cognitive alertness and lowered reliance on group-think should enable one to scrutinize the information they receive on social media platforms.

Moreover, social media usage makes one increasingly likely to adhere to one's system of beliefs and to form polarized groups of like-minded people (Bessi 2016; Shore et al. 2018a; Shore et al. 2018b). Social media mindfulness should thus lower the automatic reliance on one's strong social media network ties by directly increasing present focus, contextual awareness, attention, and acceptance (Gunasekara and Zheng 2019). Strong network ties, as good as they are, seldom lead to new information. Citing the importance of weak network ties, research suggests that new information (i.e., a new job opportunity) usually comes from a weak network tie, as strong network ties have no new information to offer (Granovetter 1977). Weak network ties are those that are loosely connected to individuals (with few or no common friends). Social media mindfulness--by creating an awareness of the environment and enhancing the ability to distinguish between wholesome and unwholesome, beneficial and unbeneficial (Langer 1989; Wallace 2006)—should reduce bandwagon and group think effects (Good et al. 2016). Social media mindfulness should thus also lower the influence of friends, as discussed in Table 1. Thus, we expect that:

H2: Social media mindfulness will lower one's friend's influence.

H3: Social media mindfulness will be negatively associated with the intention to share a fake news story that has been shared by a friend on a social media.

Recent data show that social media outlets like Facebook are now important places where people get news (Ju et al. 2014). Online social media facilitate creation and promulgation of in-groups where it is easy to immerse yourself in the comfort zone of people who think like you; conversely, the social media makes you think like your in-group. Thus, as in-group networks grow and strengthen over time, opinions in the network coalesce and attitudes shift to be consistent with the in-group (Mackie and Cooper 1984). At the extreme, this leads to fragmentation of users into ideologically homophilic and narrow groups, in which people are only exposed to information that confirms what they already believe (Burt 2004; Van Alstyne and Brynjolfsson 2005), creating polarized groups of like-minded people (Bessi 2016). The groups which are even more extreme and do not allow any different opinions to be aired become "echo chambers" (Shore et al. 2018a; Shore et al. 2018b). Echo chambers and polarized groups (Shore et al. 2018b) emerge due to the herding and homophily effect created by embeddedness in the in-group networks formed on social media, as explained by social identity (Ashforth and Mael 1989) and network theory (Burt 2004), respectively. Thus, our expectation is that those who are most engaged on social media—those who have "bought in" to the value and usefulness of social media—are more likely to believe in and trust the information shared on the social media by their friends. Relatedly, we expect that those who are the most engaged on social media will be the most inclined to share information that they encounter. Similarly, information obtained from a close friend (a "strong tie") in a social media network should lower one's distrust and skepticism of information, and heighten the intention to share. Thus, we put forward the following hypotheses:

H4: Social media engagement will be positively associated with the intention to share fake news story that has been shared by a friend on a social media.

H5: When a person views a friend as being influential (i.e., a close friend), they will be more inclined to share a fake news story that has been shared by the friend on a social media.

Research Methodology

Measurement Development

As explained in Table 1 we created a new social media mindfulness scale. We followed the following process in creating the scale: (1) develop the initial items based on Jensen et (2017) (2) collected MTurk data and examined reliability and nomological network ($n=479$); (3) refined the items and added new items for alertness to distinction and novelty for information; (4) performed pilot testing of the modified scale using students ($n=83$); (5) finalized the scale, and (6) collected final data from MTurk ($n=290$). We created items for friend's influence (Mangleburg et al. 2004), social media engagement and intention to share the news shared by one's closest friend on Facebook (Lee and Ma 2012) based on established scales to achieve reliability. This study measures social media engagement as comprising of behavioral aspects based on active participation and consumption of social media (Khan 2017).

Research Design and Data Collection

We designed the experiment using Qualtrics survey site. We created eight different “fake” scenarios – four left leaning, and four right leaning; half of them were subtle and other half were more satirical in nature. Respondents were shown one of the eight scenarios and were asked to presume it being shared by one of their closest friends on Facebook. We measured respondents' intention to share their “fake” news. As explained above, we carried out three rounds of data collection. Our final round of data collection had 312 respondents. We eliminated 22 observations based on attention checks pertaining to the fake news shown to the respondents. Thus, the final sample size was 290. The average age of the participant was 43.20 (standard deviation of 13.96 years) and ranged from 21 to 78 years in age. There were 129 males and 159 females with 2 respondents choosing “other” for gender. In terms of political ideology, 29.7 (86/290) percent respondents identified themselves as Republicans, 50 (145/290) percent as democrats, and 20.3 (59/290) percent as others.

Data Analysis

Data was analyzed using Mplus (Muthén and Muthén 1998-2012). We first examined the measurement model (CFA) and then computed the estimation model. The fit indices for both the analysis are shown in Table 2 below. The item loadings in the measurement model were all significant, and greater than .70. We also computed reliability of the constructs using Cronbach alpha and composite reliability measures. They were all greater than .805 and .871, respectively, showing that the items demonstrated adequate reliability. The average variance extracted (AVE) by all the first-order factors was greater than .5 and ranged from .629-.875. AVE for second-order mindfulness was .3. We also examined discriminant and convergent validity by comparing the construct correlations with the square root of AVE, the construct correlations of the first-order factors were smaller than any of the respective square root of AVE values, leading us to believe that the items demonstrated adequate convergent and discriminant validity as well. The fit indices for the measurement and the estimation models largely meet the required threshold, except for SRMR which is suggested to be less than .10. The second-order structure for social media mindfulness is supported with all five first-order dimensions being significantly associated with the higher-order construct. Figure 2 provides the variance explained by in the second-order social media mindfulness construct by the first-order dimensions.

	Measurement Model	Estimation Model
Chi sq/df	659.393/289	665.319/288
CFI	.915	.913
TLI	.904	.902
RMSEA	.067	.068
SRMR	.135	.135

Table 2. Fit Indices

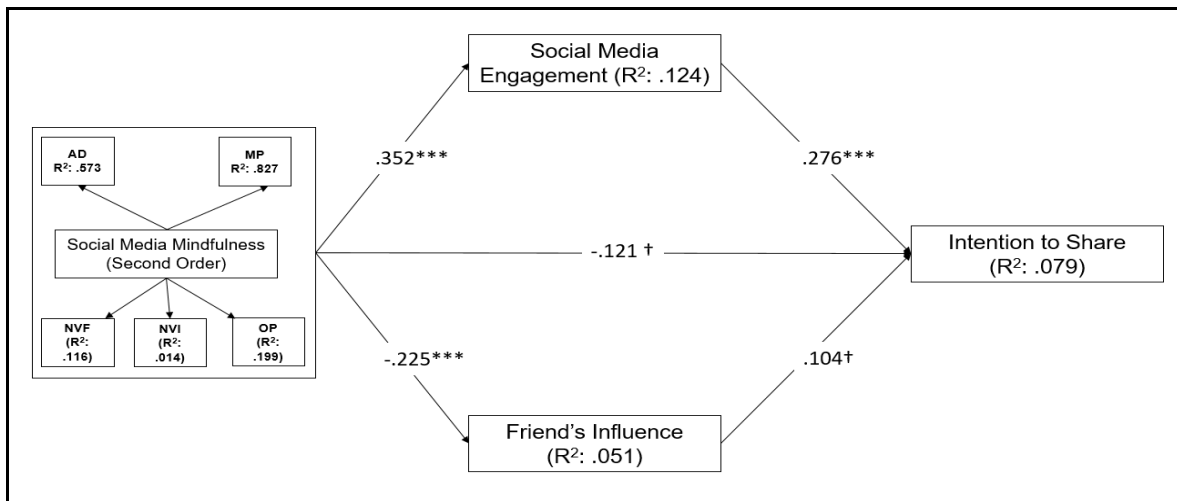


Figure 2. Results

The model explains 7.9% variance in the intention to share the fake news. Mindfulness explains 12.4% variance in the social media engagement, and 5.1% variance in the friend's influence. The path coefficients and their significance levels are shown in figure 2. H1, H2, and H4 are strongly supported at $p < .001$. H3 and H5 are weakly supported at $p < .10$. Results show that mindfulness increases social media engagement (H1), and significantly lower the perceived friend's influence (H2), and also lower the intention to share (the fake news shared by the friend). Social media engagement and the friend's influence both increase the intention to share (the fake news shared by the friend).

DISCUSSION

Key Findings and Contributions

We find that social media mindfulness plays an important role in lowering the intention to share and spread the “fake” news from one's friend, and this role is mediated by social media engagement and perceived friend's influence. The findings also show that both social media engagement and the influence of a friend can increase intention to share fake news. We find that mindfulness plays twin roles; it increases social media engagement, but it also lowers intention to share fake news; it also lowers the perceived influence of friends. Thus, mindfulness can not only help in lowering the intention to share fake news, by indulging in critical examination, but can also help lower the polarization effect by lowering the perceived influence of friends on social media.

Implications for Theory

The findings have several theoretical implications. First, our research helps us understand the mechanisms underpinning the spread of the fake news. Often, an underlying assumption regarding fake news is that it is crafted to look like real news, tricking the reader into believing it is true (Horne and Adali 2017). Our work shows that this is not the case. People were often willing to share scenarios we used in this study that were more similar to satire and were designed with a low degree of facticity that was discernible (e.g., one of the fake news we used was: Trump plagiarized Bee News). This helps us suggest that persuasion in fake news is probably achieved through heuristics rather than the strength of arguments. Second, we develop a social media mindfulness scale and illustrated how it is similar but also different to the previously developed IT mindfulness scale by Jensen et al. (2017). Third, it shows how social media engagement is shaped by cluster of theories - information processing and network of strong ties and demonstrates how these theories could work with mindfulness to help lower the polarizing

normative and informational influence of friends on social media. Fourth, the findings show that the influence of friends can have a polarizing impact in unifying ideas and coalescing attitudes. Lastly, the findings that social media mindfulness acts as a double-edged sword wherein it increases social media engagement while lowering both the intention to spread the fake news. Also, the polarizing influence of friends on social media helps us understand the role of social media mindfulness. Social media mindfulness removes cognitive laziness and lowers cognitive biases, making one realize that the news is not to be relied upon or shared. But social media mindfulness also enhances engagement with social media itself. Mindfulness is known to increase one's work engagement, but our work shows that social media mindfulness can increase engagement with social media as well. This helps extend our understanding of how social media mindfulness works and impacts our social media lives.

Implications for Practice

This study has a number of important implications for the spread of false information. Given that fake news poses a serious threat to democracy and can create divisions within society (Taddonio 2020), our findings provide insights that can help researchers and practitioners develop ways to combat fake news. It has been argued that social media platforms have inherent interest to promote more sensational, attention-seeking fake news to draw attention of more users and keep them engaged (Cacciatore et al. 2018). However, the findings from this study show that by increasing mindfulness, social media platforms can still obtain higher user engagement, and also lower spread of fake news at the same time.

The study thus also has social implications and well-being suggestions for individuals. Social media networks create homophilic groups that can enhance the perceived normative and informational influence of one's friend on him/her (Table 1). Our findings show that mindfulness can help reduce this "polarizing" influence, helping to lower confirmation bias and improve critical reasoning. This can empower individual decision making, lowering factions within the society and strengthening the democracy.

Conclusion

As with any research, it is important to acknowledge this study's limitations. To help build generalizability, future research should test the model with diverse populations and examine the model longitudinally. Future research should control for other relevant variables such as political ideology, and expertise which might help improve the model's explained variance as well. Future research can examine moderator role of social media mindfulness and evaluate if social media mindfulness can help spread out the network to include more "weak ties." It is interesting to note how mindfulness helps combat spread of fake news, while at the same time increasing the social media engagement. This is a fine balance which can only be done very "mindfully."

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