Checking Facts by a Bot: Crowdsourcing Facts through LINE Chatbot in Post-Truth Taiwan

Abstract

From discussion of the “post-truth” in 2016 to the “infodemic” in 2020, online rumors seem to have become more rampant, harmful, and harder to be debunked. Fact-checking is one of the solutions proposed to cope with online rumors. This article examines a crowdsourcing approach of fact-checking that combines a chatbot and a database of fact-checking responses provided by volunteer editors in Taiwan. I argue that crowdsourcing fact-checking is a special kind of “situated knowledges.” The embodied practice of “googling for facts,” the delegation of truth-telling through a chatbot, and the building of “a Wikipedia of rumors” all register a techno-political epistemology of openness that challenges the conventional knowledge-making practices by experts, authorities, and the powerful. Through technological mediation, Cofacts intends to cultivate a recursive public that embraces the ethos of openness. However, its dependence on technologies sets up obstacles for people who have low digital capability like seniors to take part in. The open language it adopts also ignores the social and affective needs of care that underlines the practice of forwarding rumors. Therefore, it cannot address the epistemological disparity between generations and may turn the recursive public into split publics that shape the political environment in which rumors proliferate.

“Fake news killed a diplomat!” said a news headline. On September 14, 2018, only two months before Taiwan’s midterm elections took place, diplomat Su Chii-cherng, took his own life in his Osaka residence after receiving criticism of his handling of stranded Taiwanese passengers at Kansai International Airport due to the damages caused by Super Typhoon Jebi. According to a popular social media post on PTT — Taiwan’s largest native online forum with a similar online culture to Reddit — Su did nothing to help Taiwanese passengers, and they were forced to board private buses arranged by the Chinese consulate instead. Many Taiwanese felt insulted as this touched a nerve on the political tension between Taiwan and China. Taiwan’s mainstream media outlets, which literally take user posts from PTT to fill up 24-hour cable news broadcasts or fuel online engagement, soon picked up the story and made sensational headlines. Comments and criticism flooded social media, slamming the Osaka office diplomats and the ruling Democratic Progressive Party (DPP) government for failing to rescue their people. Political pressure also came from inside the DPP as candidates worried this might have a negative impact on the upcoming election. Stress and desperation finally led Su to take his life. One day after Su’s suicide, a fact-checked report was released to rebut the Chinese rescue story. “Fake news!” people cried. But this late correction could never save his life.

Local representatives were not the only ones on the ballot in November 2018. Several national referendums including proposals of same-sex marriage, gender equality education, and nuclear power plants were also taking place on the same day. Political parties and politicians, religious groups, media outlets, influencers, and cyber armies all came to join this massive race of “discursive engineering” (Graan,

Hodges, and Stalcup 2020). The stranded Taiwanese at Kansai Airport, unfortunately, provided the material for political struggle. Meanwhile, China continued to exert its influence through both pro-China media and coordinated information manipulation attacks. Sensational click bait, misleading images, propagandas, rumors, memes, and trolling flooded the digital space, especially on Facebook, the most popular social media platform in Taiwan, and LINE, a popular messaging app similar to WhatsApp. According to research by V-Dem, Taiwan suffered the most from foreign online disinformation campaigns among 202 countries in 2018 (V-Dem Institute 2019). In many ways, Taiwan in 2018 was so much like the US in 2016 — political struggle, war of words, polarized public, and, most importantly, the pervasiveness of "fake news."

A few days after the incident, on a Wednesday evening, I sat with Cofacts' developers in their weekly meeting as they discussed Su's suicide in relation to "fake news" — or in their words, "online rumor" (*wǎnglù yáoyán*) — that spread from PTT to LINE and then to Cofacts database. Cofacts, which stands for "collaborative facts,"[1] is an open source fact-checking chatbot run on LINE. Cofacts was built by a few participants from g0v (pronounced gov-zero), a Taiwan-based civic tech community founded in 2012 that advocates civic engagement through open data and digital technologies. Embracing the open ethos from the Free and Open Source Software (FOSS) Movement (see Coleman 2013; Karanović 2012; Lessig 2001; Tkacz 2015), g0v participant tackle various social issues with "hacking" techniques — that is, to exploit the loopholes of a hierarchical system and provide alternative, often decentralized, technological solutions. g0v is one of the many groups in Taiwan that pay attention to the issue of online rumors early on. Participants at g0v had

[1] The chatbot was firstly named *Zhende Jiade* (literally "real or fake") in Chinese when Liang first proposed the idea in the g0v hackathon. Its English name "Cofacts" came later in April 2017 after the chatbot went online.

developed a number of initiatives to deal with false or inaccurate social media posts or news reports in the past, but Cofacts is their most well-known venture.

Released in early 2017, Cofacts' mission, according to its co-founder Johnson Liang, is to help those "who do not know how to google" to look for more reliable information. Cofacts combines a chatbot and a crowdsourcing database to provide fact-checking responses to its users. Behind the chatbot is not an automatic or intelligent machine but the collaborative effort of "editors" (*biānjí*) who "google" for facts. This crowdsourcing approach differs from organizational fact-checkers, who are mainly journalists and experts, and displays its ambition to cultivate an informed and participatory public in the fight against online rumors. By delegating fact-checking to unscreened, volunteer editors, Cofacts envisions itself as a "Wikipedia of online rumors." Its website states: "What you read on Cofacts is responses written by other users. Cofacts endeavors to collect diverse opinions for you to make the best judgement amid the real and the fake. We do not believe in an omnipotent judge. We believe that we can only get close to the truth through the collaboration of citizens. On Cofacts, you can read others' viewpoints and make your own judgement, and you can also share your thoughts on our platform."

This article examines how Cofacts confronts online rumors through the mediation of a chatbot and a crowdsourced database. Seeing itself as a platform, Cofacts encourages users to discern rumors with the aid of the chatbot, to read different fact-checking responses critically, and even to become fact-checkers themselves. The crowdsourcing approach makes Cofacts not one authoritarian voice but "the wisdom of the crowd." Through these endeavors, Cofacts shows the ambition to build a "recursive public" (Kelty 2008, 3) to tackle the post-truth condition. However, as I will argue, Cofacts' embracement of the open ethos — one that is

intrinsically technological — is both its strength and its limitation. Digital capacities and the distinct media consumption habits between generations cause the asymmetric distribution of participation in the crowdsourcing database. The conception of an open, connected platform where everyone is capable of being a rational and critical reader fails to respond to the affective needs underlying the behavior of forwarding rumors. The recursive public it aims to build is not as open as it anticipates and might easily be turned into split publics that shape the environment in which social distrust grows and rumors get rampant.

Borrowing from Donna Haraway's feminist critical empricism towards scientific knowledge, I boldly propose to see Cofact's fact-checking practices as a special kind of "situated knowledges" that carry "partial, locatable, critical knowledges sustaining the possibility of webs of connections called solidarity in politics and shared conversations in epistemology" (Haraway 1988, 584). This feminist critical empiricism disputes naiive relativism or denialism and calls for an ethical, affective, bodily engagement in "practice of objectivity that privileges contestation, deconstruction, passionate construction, webbed connections, and hope for transformation of systems of knowledge and ways of seeing." (585) Framing fact-checking as a situated knowledge is not to take a relativistic position and reject the existence of facts, but to take into account the material-semiotic assemblages that form the very nature of "facts" produced. As Jonathan Mair (2017) argues, what we see as "post-truth" might be actually "a new struggle — or a new phase in an ongoing struggle — over theories of truth, belief and knowledge, in the context of a radically altered information environment" (4). By taking a feminist intervention of post-truth, I attempt to examine what theories of truth Cofacts registers, and what bodies — organic, technological, or hybrid — participate in the making of a shared

epistomology, and, finally, in this process, what has been connected and what has been disconnected.

This article draws on my ethnographic fieldwork with g0v, which took place both online on multiple platforms (such as Facebook, Slack, Github, HackMD, etc.) and offline in Taipei from 2014 to 2020. In the field, I participated in g0v's hackathons and gatherings, and also followed a few projects as they developed, Cofacts among one of them. I started to pay particular attention to Cofacts around 2017 and attended their weekly meetings as well as editor meetups. In addition to my own field notes, I also gathered data from their Facebook page and group, open-access interview notes conducted by journalists and the open analytical data of the chatbot and its website.

Rumors and Fact-Checking in the Post-Truth Condition

With the shock and despair of many — mostly urban, intellectual and liberal — in America and Europe after the 2016 US presidential election and UK's Brexit referendum, "post-truth" and "fake news" have become buzzwords in media and politics. These new terms — post-truth, fake news, mis- and disinformation, information manipulation, etc. — emerge to capture the unprecedented condition of information disorder caused by the overabundance of false and misleading information running rampant in the digital spaces.[2] The Oxford Dictionaries named the Word of the Year 2016 "post-truth" to describe the "circumstances in which objective facts are less influential in shaping public opinion than appeals to emotion and personal belief." The fear that emotion and belief override reason and science

[2] More and more scholars and political commentators (Collier 2018; Fisher and Karlova 2013; Funke 2018; Habgood-Coote 2018; 2019) argue that the term "fake news" has been misleading after excessive usages by politicians to discredit unwanted reporting and propose to replace it with terms like misinformation (inaccurate information) and disinformation (deceptive information).

causes many to ask when and how facts have lost their valence. Yet as Dominic Boyer (2018) argues, what is at stake is not about "the death of belief in fact or the absence of truth but rather the appearance of competing parallel spheres of veridiction in which ideological engines of truth-making radiate facts from normative institutional centers all the way into conspiratorial fringe speculation on both ends of the political spectrum" (85). In other words, it is not that fakeness beats truth, but that "truthiness" — "something truthish or truthy, unburdened by the factual" (Zimmer 2010) — prevails and disrupts our relationship with facts.

Acknowledging this post-truth condition we are facing while not falling into the debate of terminologies, I follow my interlocutors to use "online rumors" in this article. Thinking with rumors also brings me to the long tradition of anthropology in studying various knowledge-making practices, whether it is in the form of rumor, belief, or science. Reading rumors as social facts (Durkheim 1982, 52), anthropologists (e.g. Fassin 2021; Feldman-Savelsberg, Ndonko, and Schmidt-Ehry 2000; Paz 2009; Stalcup 2020; Stewart and Strathern 2004; Wong 2017) have shown that rumors tell nuanced stories about racial conflicts, colonial and postcolonial trauma, ethnic tension, etc. when facts cannot be simply put forth under social constraints. However, seeing rumors as social facts does not mean that we should never challenge their claims and ask ethical questions. Quoting Hannah Arendt's (1967) discussion on "factual truth," Karen Ho and Jillian R. Cavanaugh (2019) call our attention to how power and politics invade facts and silence other voices with new socio-technological tactics. "Factual truth," in Arendt's argument, "is always related to other people: it concerns events and circumstances in which many are involved; it is established by witnesses and depends upon testimony" (Arendt 1967, 301). Although factual truth is stubborn to change, "modern manipulation of facts" through

mass media, in Arendt's time, and social media, in our time, may "require the bending of the very social and historical context to fit the lie, thus upturning the larger historical and factual fabric in which factual truths are situated, rendering it difficult to make the necessary distinctions between lies and facts, between opinions and larger historical records and social contexts" (Ho and Cavanaugh 2019, 162).

Fact-checking is one of the solutions proposed to cope with online rumors. As a journalistic practice emerged in the early 2000s in the United States (Graves 2016), early fact-checkers sought to "revitalize the 'truth-seeking' tradition in journalism by holding public figures to account for the things they said" (Graves 2016, 27). Since 2016, various fact-checking organizations and tools have mushroomed globally, aimed not solely at public figures but also at online rumors whose sources of origin are mostly unknown. However, these fact-checking efforts do not restore knowledge authority to the hands of experts. While professional journalists and fact-checkers still do the job (Graves 2016; Lowrey 2017), automatic technologies (Babakar and Moy 2016; Graves 2018; Hassan et al. 2017) and crowdsourcing approaches (Hassan et al. 2019) are widely adopted by social media sites. Meanwhile, the effect of fact-checking is constantly challenged. Not only do these reports often come too late before people have already taken rumors as preconceived ideas, but their dissemination is disproportionately slower and limited compared to rumors. Even worse, fact-checking can cause the "back-fire effect" (boyd 2017; Nyhan and Reifler 2010) as people tend to take what confirms their beliefs and values as facts and see corrections as malicious manipulation. Noortje Marres (2018) argues that fact-checking runs the risk of "demarcationism" as it "defines validity and invalidity as binary attributes of individual statements" (428), and attribute responsibility to content providers and users while displacing "critical

attention away from the technologies of source selection that regulate content circulation online" (431).

Indeed, the emergence of post-truth signals "information disorder" (Wardle and Derakhshan 2017) of the digital age. On the one hand, the Internet has greatly changed people's information consumption habits from one-way broadcasting mode to two-way interactive mode, where expert knowledge is diluted and even challenged by lay voices. On the other hand, algorithms are turning social media into "the hype machine" that feeds "the attention economy" (Aral 2020, 55–56) with fabrication, manipulation, advertising, trolling, and propaganda. Information manipulators further take advantage of social algorithms (Howard 2016) and technologies of data surveillance to "target the weak points where groups and individuals are most vulnerable populations to strategic influence," producing what Nadler et al. (2018) call "digital influence machine." Following news that political consulting firm Cambridge Analytica had used illicitly received Facebook data to micro-target voters in the UK's EU referendum and US elections, there has been a perception that political behavior can be easily manipulated by the coupling of misleading information campaigns and surveillance technologies.

But technologies are not the only thing to blame. Online rumors are produced in transnational agglomerations that operate at the local, and oftentimes, interpersonal level. They are co-produced by profit-oriented mainstream media and the frantic competition of click-through rate, data-exploiting social networking sites and their black-box algorithms, content moderators and data brokers, trolls and cyber armies, influencers including traditional figures like politicians and experts and non-traditional ones such as YouTubers and internet celebrities, and, last but not the least, split publics (Graan, Hodges, and Stalcup 2020) in which sensational stories

and conspiracy theories easily hijack people's attention and erode their trust in professionals.

Although post-truth has brought unexpected political results and caused tremendous harm to people and societies, it is still a very new phenomenon. For anthropologists, whose works often come from long-term fieldwork, there is still a lack of substantial ethnographic studies and theoretical framework to understand post-truth. In the Vital Topics Forum of *American Anthropologist* published in February 2019, Ho et al. wrote a series of short, enlightening essays centering around the topic "What happened to social facts?" These contributing anthropologists try to approach post-truth from their different fields of expertise and areas of interest, and thus reveal the complexity of the issue at stake. One of the common themes in the essays is the ruptured public sphere deeply ingrained in the gender, racial, and class exclusions and conflicts in American society. Like Sheila Jasanoff and Hilton R Simmet (2017) reminds, "debates about public facts have always also been debates about social meanings, rooted in realities that are subjectively experienced as all-encompassing and complete, even when they are partial and contingent" (752). Indeed, this is the area where anthropologists can contribute the most, just like how we study rumors to illuminate the subjective experiences of hidden social tension. Responding to Jonathan Mair's (2017) call to "overcome" our "aversion to the politics for long enough to study the phenomenon ethnographically" (4), this article hopes to contribute an ethnography of post-truth and fact-checking in Taiwan, and, at the same time, to shift the focus (temporarily) away from the dismay of American and European peers and to use the story of Taiwan to draw a critical space on this urgent issue that everyone is deeply concerned.

Information Disorder in Taiwan

With the lifting of Taiwan's martial law in 1987 and the loosening of restrictions on freedom of speech and the press, Taiwan's media entered a commercial era in which audience ratings have replaced journalism ethics and became the goal to pursue. The fierce media competition following the deregulation led to sensational reporting, unverified stories, celebrity gossip, and headline manipulation. Meanwhile, media outlets were also polarized along partisan lines as "pan-blue" (*fànlán*, pro-Kuomintang or pro-KMT) and "pan-green" (*fànlǜ*, pro-Democratic Progressive Party, or pro-DPP), producing biased reporting and causing social opposition. In addition to "pan-blue" and "pan-green," there also emerged "red media" (*hóngméi*) which took a pro-China position and often disseminated Chinese propaganda because of their owners' business interests in China (Lee and Cheng 2019).

The rise of social media has posed even greater challenges to journalism and the news industry. Taiwan has a high Internet penetration rate, with 89.6% of people aged twelve or over being online in 2019. Among this online population, 94.8% use messaging apps and 79.2% use social media platforms (TWNIC 2020). As readers and audience move online, journalists begin to change their style of reporting and the news industry adventure for innovative ways to make profits. On the one hand, instead of discovering and investigating stories on their own, journalists increasingly look to social media posts from Facebook or PTT for stories — many of which are not verified. On the other hand, advertorials (advertisements that are disguised as objective and independent news) have become one of the main sources of revenue for media groups. All these phenomena — sensational reporting, polarized media environment, lack of genuine and investigative stories, and the proliferation of

advertorials — have led to a loss of trust in mainstream media and journalism while providing the soil for online rumors to grow. A Reuters study has shown that Taiwanese have one of the lowest trust (24%) in news among 40 countries and areas in 2020, only slightly higher than France (23%) and Korea (21%), and the degree of trust has been continuously declining from 31% since the study was first taken in 2017 (Reuters Institute for the Study of Journalism 2020).

Taiwan suffered greatly from disinformation attacks coming from both within Taiwan and beyond. Domestically, intense party competition has led to fake political mobilization, or “paid supporters” (*zoulu gong*), in both physical rallies and online spaces. There are also cyber armies (*wang jun*), who take coordinated actions to influence public opinions (*dai fengxiang*). Meanwhile, China tries to interfere with Taiwan's democracy by means of military threats, diplomatic suppression, trade wars, economic inducements, propagandas, and disinformation campaigns. Taking advantage of Taiwan’s press freedom, the Chinese government buys advertisements, implants advertorials, and manipulates news reporting through pro-China “red media.” On social media, online commentators paid by the Chinese authorities to spread pro-China narratives (colloquially known as the 50 cents party or *wumao dang*) as well as young Chinese nationalists who voluntarily fight online battles for patriotic propaganda (also known as little pink or *xiao fenhong*) troll and spam the social media accounts of Taiwanese officials, celebrities, or media outlets so as to “distract the public and change the subject” from discussion that might pose threats to Beijing (King, Pan, and Roberts 2017; Monaco 2017).

Among all social media in Taiwan, messaging app LINE is considered a hotbed of online rumors. LINE is the most popular messaging app across generations in Taiwan. In Fall 2019, LINE reported twenty-one million users on this

island of twenty-three million people, which means over 90% of Taiwanese use this app. On LINE, people form all kinds of chat groups, varying from families to friends, classmates, coworkers, neighbors, and hobbyists. Companies and government departments are also using LINE as a way to communicate with its employees, customers, and citizens. The closed environment of LINE chat rooms provides a hotbed for rumors to grow and spread. Since conversations in LINE are all “private” and encrypted, content moderation methods commonly used in Facebook and Twitter such as removing or flagging controversial content or providing links of counter-information is impossible in LINE. It thus creates filter bubbles that block external voices. LINE makes forwarding messages easy; however, it is hard to verify them in closed chat rooms let alone track their sources. These forwarded messages thus form a regime of rumors, proliferating in closed conversations and spreading from one chat room to another.

Rumors circulated on LINE vary greatly in form and topic. They can look like news reports, government announcements, experts’ advice, or personal stories. Some might contain fake images, audios, and videos while others include phishing links. Not all rumors are hoaxes or malicious disinformation though. Some are just outdated information while some are decontextualized messages. There are also false stories originating from other Chinese-speaking areas, such as China or Malaysia, but disguising themselves as local Taiwanese news. The most common topic of rumors is health advice, followed by fake policies. Conspiracy theories or political propagandas also happen periodically when elections or other major political events take place.

In Taiwan, there have been many efforts taken by the government, social media platforms, and civil society to combat online rumors. Taiwan did not impose a

so-called “fake news law” like Singapore did, instead, the government has tried to improve its communication with citizens and set up web pages and official LINE accounts dedicated to dispelling rumors about government policies. Social media platforms, like Facebook and Twitter, also periodically take down bot accounts and content farms even though the latter return with new profiles again and again. In the U.S. or Europe, fact-checking organizations are mostly related to media companies, think tanks, or academic institutions. In Taiwan, on the contrary, fact-checking services are mostly provided by civil society groups as the result of passive state involvement, little trust towards mainstream media outlets, and a vibrant civil society and its volunteer culture. In addition to the Taiwan FactCheck Center (TFCC), which is jointly founded by the Association for Quality Journalism and Taiwan Media Watch, other fact-checking organizations like Cofacts, MyGoPen, and Rumtoast, are digital services initiated by volunteer citizens. Both MyGoPen and Rumtoast now run as companies and only Cofacts insists on doing fact-checking on a voluntary, citizen-based system.

Cofacts and Its Chatbot

“Even though freedom of speech and the Internet bring about rumors and fake news, they can become a powerful weapon to fight online rumors,” said Liang[3], Cofact’s cofounder. In one of g0v’s hackathons at the end of 2016, Liang proposed the idea of building a fact-checking chatbot. “There were so many rumors circulating on LINE, and these rumors can be easily debunked by googling them. As a programmer, I thought we could have an automatic system to do this.” After gathering a few like-minded hackers, they started to experiment with an automatic

[3] Cofacts’ interview by students of the Department of Communication and Technology, National Chiao Tung University, April 6, 2018. Full transcript, accessed on August 21, 2020, https://hackpad.tw/ep/pad/static/X1i6gJNdsZH

solution by linking the chatbot with Google Search, but the result was disappointing as Google sent back even more unreliable information. Then, like many g0v projects that seek help from the crowd, they decided to recruit volunteer editors and crowdsource fact-checking. This decision shaped what Cofacts looks like today. Cofacts comprises two parts: at the user's end is a chatbot on the messaging app LINE that users can submit dubious messages and get fact-checked responses if there's already one in the database. At the editor's end is a website where editors can see all the rumors submitted by chatbot users and debunk them online. The chatbot provides a pathway, a personified one, that users can access to the database simply by having a "conversation" with it.

Since Cofacts went online in March 2017, its users have increased rapidly. By the end of April 2021, it had accumulated almost one hundred and eighty thousand users, who together sent over 734,938 messages to the chatbot to check their validity. Because some of these messages contain duplicate content, the team believes they have collected four and half thousand rumors in the Cofacts' database. Over the span of nearly four years, over one and a half thousand "editors" (the way Cofacts calls its fact-checkers) have volunteered to verify or debunk rumors in a timely manner.

Beside sending fact-checking responses to its LINE users, Cofacts also publishes them on its website, allowing Internet users to search them via the World Wide Web. By April 2021, Cofacts' website had more than twenty million page views. Moreover, two other fact-checking chatbots — Auntie Meiyu and Dr. Message — also link with Cofacts' database, furthering Cofacts' impact. After four years, Cofacts has become one of the largest fact-checking platforms in Taiwan and the largest database of online rumors in the world.

By linking fact-checked results with a chatbot, Cofacts makes verifying rumors as simple as forwarding them. Take this rumor for example (see Figure 1):

> Starting from tomorrow, recreational marijuana will be legalized in California. Be sure to teach kids how to avoid candies and drinks that contain THC because THC is marijuana. Merchants now blend marijuana into food and label it as THC to lower people's alertness. If you buy these candies and bring them to Singapore, Malaysia, or the Philippines, you will be accused as a drug dealer and be sentenced to death.

This rumor appeared in one of my friend circles. Upon forwarding this message to Cofacts, whom I added as a friend in my LINE app, it identified a response in its database and replied:

> We found several messages matching what you sent us. Hoax messages are often re-edited and re-shared, so please choose a response from below that is closest to your message."

Below were two boxes of matching messages and one final box saying "I can't find a matching message." I clicked the first one — almost the same as the one I sent out with only a small difference that it was not California but Canada. The bot replied:

> Cofacts' volunteer editors have different views on this message. One says it contains misinformation, and the other says it is not related to fact-checking.

I chose the first one as it had 169 thumbs-up and only four disappointed faces. The bot immediately withdrew it from the database:

> A kind person responded to this message: False. Even marijuana is legalized in Canada, food containing marijuana is not everywhere. All places that sell recreational marijuana need to get the government's permission. Also, you can't buy cannabis-infused food in a random supermarket.

Along with this message was a reference link and the bot continued:

> "(Up arrow emoji)[4] In brief, the responder thinks this message contains misinformation. (Man tipping hand emoji) Above information is provided by a kind person. Please refer to its source of information and make your own judgement carefully. (Speaking head emoji) There are multiple responses to this message. We recommend you read them all before making a judgement. (Exclamation question mark emoji) If you have a different opinion from this message, please follow the link below to write your response." "Does this response help? Yes or No?" "Thank you and the other 172 people for your feedback." "(Mobile phone with arrow emoji) Don't forget to forward the above response back to where you received it! (Man tipping hand emoji) If you think you can compose a better response, please submit a better one here."

All of the above conversation happened in just a few clicks.

[4] Names of these emojis are translated according to the Emojis Wiki website https://emojis.wiki/

Figure 1: Screenshots from a conversation with Cofacts chatbot.

Cofacts' chatbot is designed in a way that users are not only recipients but also contributors. Users are the main source of Cofacts' database. Without these users, Cofacts could not gather rumors circulating in LINE's private chat rooms. Importantly, as we can see from the above conversation, the chatbot carefully avoids speaking like an authority and refuses to act as *one* unified voice. Fact-checking editors do not hide backstage. They are made present as "a kind person" or

“volunteer editors” in the conversation. Through these designs, Cofacts prompts its users’ to read carefully, think critically, and even write their own “facts.” By training its users to think critically and actively contribute, Cofacts makes fact-checking not just about producing another piece of content in a sea of rumors, but a collaborative practice to combat rumors.

Editor Meetups

Cofacts chatbot is the digital persona of “the wisdom of the crowd” (Surowiecki 2005). Both the database of rumors and fact-checking responses are generated through crowdsourcing technologies and a collaborative mode of organization. Yochai Benkler (2006) discusses collaboration as the core of commons-based peer production in FOSS, a mode of organization that is “radically decentralized, collaborative, and not proprietary; sharing resources and outputs among widely distributed, loosely connected individuals who cooperate without relying on market signals or managerial commands” (60). This mode of commons-based peer production depends on autonomous participation and what Clay Shirky (2008) calls “spontaneous division of labor” (118). Embracing such a participatory culture, FOSS has given birth to a great number of social collectives around software projects including famous examples like Linux, Mozilla, and Wikipedia, and it also inspires open movements in other social fields, such as open science, open access, and open government etc. As Christopher Kelty (2008) points out, FOSS projects gather around themselves groups of highly autonomous yet connected individuals in a specific set of technical, legal, social practices that give birth to “recursive publics,” which are “concerned with the ability to build, control, modify, and maintain the infrastructure that allows them to come into being in the first

place and which, in turn, constitutes their everyday practical commitments and the identities of the participants as creative and autonomous individuals" (7). Like Wikipedia and other FOSS projects, openness and collaboration are built into the very design of Cofacts. Not only are the code and database of Cofacts free for review and reuse with open licenses, but its operation also relies on the contributions from loosely-connected individuals based on shared code, notes, and protocols. And, most importantly, Cofacts displays a strong desire to cultivate a recursive public by holding regular meetups.

On a Saturday afternoon in November, 2017, I was sitting in a Cofacts editor meetup with eighteen volunteer editors. These editor meetups were held every other month in downtown Taipei. It was a public event without any charge. Anyone could sign up and participate. The volunteers that day included college students, scientists, doctors, journalists, engineers, etc. None of the volunteers were well acquainted with each other and about half of them were attending a Cofacts' meetup for the first time. The Cofacts team never reviewed, screened, or selected editors. One only needed to register on Cofacts' website with a social media account like Facebook or Google in order to access its database and compose fact-checking responses. Cofacts also set up a Facebook group for editors to exchange ideas and tips. Editors were encouraged, but not required, to post rumors that they had no clues or their draft responses for peer review. As the entire process took place online, attending a meetup was not mandatory. However, offline gatherings were crucial for Cofacts to build a community and recruit new editors.

The Cofacts team knows that the biggest challenge of its system lies in the editor part rather than the chatbot part. Cofacts describes its job as "a chase between rumors and fact-checking" as rumors are pouring in every single day that

easily devour editors' time and energy. While there are 1.5 thousand registered editors, only a few dozen of them debunk rumors on a regular basis. Recruiting more editors and pushing for continuous contribution is the most important yet difficult task for the Cofacts team, and editor meetups are one of the solutions. Offline gatherings are an effective way to increase fact-checking rate in a short period of time and to boost editors' engagement. Person-to-person interaction also helps ease new editors' anxiety about technology and facilitate exchanges of tips and domain knowledge.

After a short introduction of how to use Cofacts' database, we were divided into four teams to compete for debunking rumors. The prize that day was a box of fried chickens. My team comprised two medical students, one scientist, and two engineers in addition to myself, an anthropologist. Fact-checking can be a monotonous and tedious job, but with passionate companions and a tempting reward awaited ahead, it could also be fun. With our laptops logged into Cofacts' website, we embarked on an expedition amid rumors.

Rumors in the database covered all sorts of topics, ranging from hoax to conspiracy theories, from folk remedies to fabricated official announcements. In the vast sea of rumors, I picked up one to give it my first try: "Watch this video. Korean restaurants make vegetables with chemicals! How dare you still go to South Korea and use South Korean products. You'll die eating these poisons!" followed by a YouTube link of a three-minute clip from a Korean TV show. Although I didn't understand the language in the clip, it seemed to be about introducing something interesting rather than a disclosure of a business secret. However, to write a fact-checking response required more than a gut feeling. There were three steps to complete a response: first, choose a category from four options: "contains true

information," "contains misinformation," "contains personal opinions," and "not related to fact-checking;" second, write a short paragraph of explanation, which cannot exceed 140 characters; and last, include reference links. These three steps were designed to ensure that all responses were mobile friendly and could be held accountable.

The Cofacts team also provided an online editor tutorial, including a step-by-step instruction, a guideline of composing responses, and dozens of fact-checking examples. Following the tutorial, I began by analyzing the message: Which statements were put as "facts" but might be questionable? Which were the author's personal opinions? What might be the source of this rumor? Why did users think this message was suspicious? And, as the tutorial put it, "what are the *keywords* in the message that can be used for *search*" (emphasis added by the author). I chose "South Korean restaurants," "vegetables," "chemicals," "poison," and tried different combinations on Google Search. With several clicks, new tabs of web pages opened one after another, queuing in my browser and waiting to be checked. I navigated between different pages, and finally, after several searches, I found a post on a news website that used the same video clips to introduce food models in Japan. Bingo! This was exactly the source I was looking for. But then writing was another challenge. In 140 words, I had to make an argument and put on links of references to convince users. When thinking there would be hundreds of thousands of people reading my response and taking it as a fact, I couldn't help but take extra caution as if I am writing a research article (even my academic writings have never been seen by so many people!) Eventually, it took me around twenty minutes to compose my first response.

Most rumors in the database were much more challenging than this one. They could be a mixture of factual and false information, a conspiracy theory, a fake story that was disguised as personal experience, or something that needed expertise or domain knowledge to discern. Health-related rumors, which range from unverified food remedies to fake science studies, occupy a big chunk of the database. In the meetup, I constantly turned to my teammates who were medical students for advice. We made jokes but also searched for answers together. In the lonely and self-doubting process of fact-checking, working with a team was a comfort and an encouragement. After immersing ourselves deeply in rumors, we had lost track of time. The host announced the end of the contest. The winning team was honored in front of a screen that showed a big “123,” the number of total rumors we all together debunked in the meetup. Fried chicken arrived fresh and hot, and they were just enough for everyone to get a bite. The contest was never really meant for competition but only for fun. We convened as a huge group, chatting, eating, and exchanging thoughts about online rumors with new friends.

Haraway (1988) reminds us that all knowledges are situated and embodied. Knowledges build upon shared language and bodily practice in webs of connections. ““Situated knowledges are about communities, not about isolated individuals. The only way to find a larger vision is to be somewhere in particular” (590). In Cofacts, fact-checking responses are produced through the embodied techniques of “googling” — an improvised coordination among hands, eyes, mind, keyboard, screen, database, and the Internet. Such bodily and cognitive techniques of using platform technologies combine with the network ideology of openness form the material-semiotic foundation that makes Cofacts the wisdom of the crowd. But merely googling is not enough to reconstruct facts, crowdsourcing fact-checking is to

admit the limit of one's knowledge and to seek help from others; to reject authoritative judgements and to make all voices heard and contestable. This practice is never isolated and virtual. It is always connected, and requires mindful care and bodily engagement in search of facts. In this sense, crowdsourcing fact-checking is indeed an epistemological challenge that responds to post-truth.

A Wikipedia of Online Rumors

Crowdsoucing fact-checking is what makes Cofacts different from other fact-checking organizations. While most fact-checking organizations, like the Taiwan Fact-Checking Center , hire professional journalists and researchers to debunk rumors, Cofacts delegates this task to online volunteers. Seeing itself as a platform rather than an organization, Cofacts does not want to play the role of "arbiter of truth." Liang explains, "Cofacts is not a place of absolute truth; instead, it is a platform to display various 'facts,' including fact-check reports made by other organizations…...We believe in the free market of speech. Our goal is to become a Wikipedia of online rumors."

Liang's statement resonates with Linus' Law, one of the FOSS doctrine — "given enough eyeballs all bugs are shallow." The idea is that volunteers' fact-checking responses may be flawed, incomplete, or imperfect, but if there is a community of fact-checkers continually working on providing better responses, the quality of the database will improve. It is in this sense that Liang refers to Cofacts as "a Wikipedia of online rumors." By calling on Wikipedia, Liang not only points to the collaborative approach of knowledge production, but also its Neutral Point of View (NPOV) policy. On Wikipedia's NPOV page, it states that that "all encyclopedic content on Wikipedia must be written from a neutral point of view (NPOV), which

means representing fairly, proportionately, and, as far as possible, without editorial bias, all the significant views that have been published by reliable sources on a topic" (Wikipedia n.d.). This position of neutrality is not a naive belief of objectivity. As tech scholar Joseph Michael Reagle (2010) points out, NPOV "recognizes the multitude of viewpoints and provides an epistemic stance in which they all can be recognized as instances of human knowledge — right or wrong. The NPOV policy seeks to achieve the 'fair' presentation of all sides of the dispute" (11). In a similar vein, Cofacts claims itself as a platform of different viewpoints rather than an authoritarian voice of facts. What users receive from the chatbot is not a final fact-checking report, but multiple responses that form a growing conversation between different perspectives. Cofacts' users can rate these responses or even add a new one. As one of the editors Butterfly says, "This is no more the era that truth is confirmed by authority. The more people to help, the better."

To better achieve NPOV, Cofacts designs the categories of rumors in a way that does not fall into the true-false dichotomy. Cofacts' four categories of rumors — contains true information, contains misinformation, contains personal opinions, and not related to fact-checking — use rather indecisive language to replace "facts" or "lies" so as to allow room for different voices. Editors can mark a message mixed with facts and lies as "contain true information" or "contain misinformation" according to their sources of references and judgements. The Cofacts team does not review editors' responses. Nevertheless, as the team told me, in their observation, editors tend to be strict and only mark messages as "contains true information" when they cannot find any fallacies.

Another important feature that also resonates with NPOV is the category of "contains personal opinions." When Liang announced the addition of this "contains personal opinions" category in August 2017, he wrote:

> Since May, we have noticed there are some difficult messages. These messages are mostly personal opinions. Because they do not claim objective facts but only express personal opinions, it is hard to mark these messages as true or false…...They are a big challenge to our editors because on the one hand, editors usually do not agree with the points made in these messages, yet on the other hand, there is nothing to be debunked…...We cannot ask our editors simply to ignore them. Editors all work independently; if one editor ignores a message, it will remain in the database, and another editor will encounter it again. New editors might feel frustrated if most of the unchecked rumors are all personal opinions. As we rely heavily on volunteer editors, this is an urgent issue to be resolved…...So we think, if it's impossible to ask editors to ignore them, why not allow editors' viewpoints to be expressed so that people can exchange different ideas and users can make more informed judgements?[5]

Unlike the other categories, marking a message as a personal opinion does not need to provide any "evidence." Instead, editors are asked to include references of different "viewpoints." This category is often applied to messages that use

[5] Johnson Liang, "[2017/8/16] New Response Category 'Contains Personal Opinion'," Cofacts, Medium, August 16, 2017, https://medium.com/cofacts/2017-8-16-%E6%96%B0%E5%9B%9E%E6%87%89%E5%88%86%E9%A1%9E-%E5%80%8B%E4%BA%BA%E6%84%8F%E8%A6%8B-%E5%8F%83%E4%B8%8A-f96d92a9965f.

personal stories to make arguments, making it hard to be checked for authenticity. Most of these messages relate to highly-controversial topics in Taiwan such as same-sex marriage or political consipiracies. Hence, marking a message as a personal opinion, editors can then raise different perspectives in their responses. This category also explains why Cofacts calls these volunteers “editors” instead of “fact-checkers” because their main job is to curate and organize online fact-checking information for users.

Cofacts refuses to be viewed as a third-party fact-checker and insists on acting as a platform of different viewpoints. In fact, professional fact-checkers from other organizations also write responses and link their reports to Cofacts so as to reach a wider population. Liang describes Cofacts as “a free market of speech” where everyone can express their own ideas. “The central idea of this project is to let ‘different voices’ be heard. In my opinion, from online rumors to fact-checked responses, from personal opinions to editors’ perspectives, these are all different voices. I think people believe in rumors because they either have no access to or are reluctant to hear different voices. Even if one wants to learn more about what others think, the environment of LINE makes it difficult,” says Liang.[6] In other words, the mission of Cofacts is to connect voices blocked by chat room bubbles. The Cofacts team believes that once people are informed by different perspectives, they can make better judgments on truth and lie.

However, positioning Cofacts as a platform is problematic, and indeed can be dangerous. While platforms often describe themselves as decentralized networks that facilitate social interaction across temporal and spatial barriers, they in fact have “a strong tendency toward monopoly” (van Dijck, Poell, and Waal 2018, 38) as their

[6] Cofacts’ interview by students of the Department of Communication and Technology, National Chiao Tung University, April 6, 2018. Full transcript, accessed on August 21, 2020, https://hackpad.tw/ep/pad/static/X1i6gJNdsZH. All translations by the author.

success relies on “network effects” — “the more numerous the users who use a platform, the more valuable the platform becomes for everyone else” (Srnicek 2017, 44). These platforms give users free access and employ datafication mechanisms to turn users’ digital footprints into profitable datasets, a practice that fosters information manipulations to serve economic or political aims (van Dijck, Poell, and Waal 2018; Zuboff 2019). Without changing such a business model, it is no wonder that the companies that make these platforms have failed in fighting online rumors. Acknowledging the problem of platforms, the Cofacts team maintains that it has no intention to profit from its database, never tracks and stores users’ digital footprints, and everything Cofacts produces is under open licenses. Yet still, its market analogy of fact checking reminds us of the unsettling relationship between open source and neoliberal democracies, which, as Nathaniel Tkazc (2015) warns, generates new forms of closure, such as asymmetrical distributions of agency.

Can a platform solve the problem of another platform? The Cofacts team has no answer to this question and is still exploring its possibilities as well as limitations. In a 2018 interview, the Cofacts team was asked what if the system is hijacked by malicious editors or bot armies. They honestly answered that they haven’t had any solutions: “We are as vulnerable as PTT is, since we do allow all to become editors. It is very difficult to balance between inclusion for everyone and the prevention of malicious intent.”[7] Apparently, inclusion has been regarded as more important than the prevention of trolling at the moment when there was still a lack of editors and the system was not yet a target of trolls.

A few cases in 2019 and 2020 finally pushed the team to come up with a standard procedure for content removal. The first case happened in May 2019 when

[7] Cofacts’ online interview by Nick Aspinwall, October 11 to 22, 2018, accessed August 21, 2020, https://docs.google.com/document/d/112floc_56IaTe5J5s6hu8GFifkt5DgReLZU_e4bv80k/edit.

the responses to one hoax message was spammed. While there was a short discussion on what to do with these spam messages, no conclusion was drawn. Soon afterwards, a better response was up-voted to the first place and outpaced the spam. Then in early 2020, there was an improper response that used a swear word to curse users and did not fact-check the rumor in question. This time, the team removed the response and published a policy on content removal. However, the policy still did not detail what kind of responses will be removed but only specified the procedure for removal. This fact-checking platform, like its social media counterparts, is reluctant to make explicit definitions on what is okay and what is not.

"Currently, we only react when things happen. We will prefer an automatic solution that does not rely on human moderation. Otherwise, a Wikipedia-style committee might be necessary for content moderation…...Nevertheless, if one day Cofacts corrupts, all our data and codes are open source, and anyone can fork them to build a new version of Cofacts that uses whatever methods to defend against trolling," says Liang. The strength of Cofacts is exactly its limitations. Although crowdsourcing makes fact-checking efficient, timely, and decentralized, collaborative efforts can be hijacked by malicious users, and this fact-checking platform can easily turn into another site for rumor distribution.

From Recursive Public to Split Publics

For Liang, not everyone shares the same skills of engaging in the "free market of speech." "Many users are still not familiar with googling for more reliable information. In LINE's closed network, misinformation is easily forwarded and spread around. This chatbot offers a service for those who know how to forward messages

but are not skilled at googling to check the credibility of online information."[8] Under this rhetoric, "facts" are to be "googled" and fact-checking relies on the ability of "using" the Internet. People who know how to navigate, search, and evaluate online information can become a Cofacts editor. Others cannot. Receivers of online rumors are thus divided into two groups: younger generations who are "digital natives" and take the Internet as an interactive platform; and older generations who are "digital immigrants" and see the Internet merely as another channel of information input. However, this "digital natives vs digital immigrants" division is subjective and arbitrary, and most of the time, it is a rhetorical strategy to show one's technological confidence in relation to age.

The dichotomy of young versus senior, digital natives versus digital immigrants can be found in Cofacts' event page, where it writes: "By participating in Cofacts' editor meetups, you are helping our seniors who are not familiar with high-tech products to improve their media literacy."[9] Or, in the third meetup — which took place on the traditional Double Nine Festival, a day when people honor the elderly and practice filial piety — Cofacts posted: "According to tradition, we ought to wash our mothers' feet on the Double Nine Festival. But today, we should debunk rumors for them." It is also common in conversations with other editors that they talk about receiving rumors from their parents or senior relatives, and how they tactically use Cofacts to debunk rumors without "hurting their emotions." There is a widespread belief that senior family members are the innocent forwarders and victims of online rumors given their lack of knowledge and skills in navigating the World Wide Web.

---

[8] Cofacts' interview by students of the Department of Communication and Technology, National Chiao Tung University, April 6, 2018. Full transcript, accessed on August 21, 2020, https://hackpad.tw/ep/pad/static/X1i6gJNdsZH

[9] Cofacts 20th Editors Meetup, accessed on August 21, 2020, https://cofacts.kktix.cc/events/cofacteditor20.

However, while seniors might be late comers to social media, they are never passive receivers and victims. “Senior images” (*zhangbei tu*), a unique Internet phenomenon in Taiwan, demonstrate this point. “Senior images” are a type of image macro that are produced by and distributed among seniors in LINE chat rooms. These images are amateur works. They are mostly beautiful scenery and flowers, using free online materials or their own photographs, and are superimposed by brightly coloured texts of greetings, blessing, encouragement, or inspirational quotes (see figure 2). Senior images are also called “good morning images” (*zaoan tu*) as these images are often distributed early in the morning by seniors to their families and friends. The origin of senior images was said to be in a community computer class, where seniors learned basic computer skills like typing, drawing, and photo-editing. Nowadays, seniors can produce them simply with mobile apps. I’ve seen my mother’s friend use a photo retouching app to add a filter, words, and some cute stickers onto a photograph they took in just a few seconds, and was surprised by her skillful retouching techniques. The phenomenon of senior images shows that seniors are never passive receivers of online information; instead, they actively engage in the new social life enabled by digital technologies with new skills they learn day by day.

Figure 2: Senior Images. The one on the left says “Good morning. Thank you. Have A Wonderful Day.” The one on the right says: “Good morning. Happiness is when someone cares about you. Warmth is when someone sends you a greeting.”

Seniors images are memes for seniors; they are like “(post)modern folklore, in which shared norms and values are constructed through cultural artifacts such as Photoshopped images or urban legends” (Shifman 2014, 15). While memes for younger generations are about fun and laughter, for older generations, these senior images are about care and connection. If we are to argue that seniors are more prone to forward rumors, which we never have a decisive evidence to confirm, then it is care and connection that makes seniors the potential forwarders. Contrary to the public discussion on the malicious intention behind fake news, the motivation of forwarding rumors often comes from love and care. As a matter of fact, most rumors in the Cofacts database share similar rhetoric that combines a language of authority and a language of care. On the one hand, they are often wrapped as expert advice or official announcements, for example: “a doctor says that drinking tea on a regular basis can help prevent cancer” or “a new speed limit on highways will be effective from the 20th this month.” On the other hand, they usually begin or end with “this is a kind reminder,” “my dear friends,” “pray for you,” “share with your loved ones” etc., making the act of forwarding a gesture of care. Forwarding rumors is therefore a way to reconnect beloved ones in the digital space. Ironically, the generosity of care precipitates the spread of online rumors.

It is not care that divides digital natives and digital immigrants. What this division reveals is the intergenerational conflict that has been aggravated over the past decade in Taiwan. From the late 1980s to early 2000s, Taiwan experienced

rapid change in political and economic spheres. Politically, after the end of martial law in 1987, Taiwan gradually transformed from a one-party military dictatorship to a multi-party democratic polity. At the same time, a new Taiwanese identity across ethnic lines soared over a Chinese identity especially among younger generations (Chen et al. 2017). Economically, however, the glory of being one of the Asian Tigers in the 1960s and 1970s started to decline. Since the late 1990s, economic stagnation has struck Taiwan and resulted in a widening gap of income inequality. The conjunction of political liberation and economic stagnation at the turn of the century shaped the generational gap. The digital immigrant generations, who are baby boomers, were growing up in an authoritarian regime during the Cold War. Stability was deemed more important than any other political values. It was also a time when Taiwan experienced rapid economic growth. If one kept silent on politics and worked hard, one would be rewarded with a well-off life. In contrast, the digital native generations were born into a democratic and wealthy Taiwan, and then, when they were ready to develop a career, waves of financial crises hit the country. Low salaries and rising housing costs put them under heavy pressure (Lin 2015). Working hard no longer promised a good life. They were desperate and angry, and were more willing to take to the streets to fight for rights, equality, and justice.

The intergenerational conflict has been shown in various social debates from pension reforms, to same-sex marriage legislation and the anti-nuclear movement. Besides debates in the parliament and rallies on streets, the homestead becomes another center of conflict. The disparity of values and worldviews between generations leads to intimate tensions, quarrels, and even fights between parents and their children and has torn apart many families. During these social debates, information is divergent and confusing, and rumors are rampant. People share

unverified information and rumors to strengthen their beliefs, to find allies, and to convince the other side. Often, the introduction of Cofacts is not simply to bring facts onto the table, but to push forward one's original perspective with the endorsement of the chatbot.

With Cofacts' technological mediation and crowdsourcing approach, digital natives are claiming their power of speaking from their parents and the patriarchal state. By pointing out what is true and what is false through the chatbot, they reject the authoritarian voice of seniors. As one of the editors told me, "I was troubled by all the rumors forwarded by my parents to our family group. But now, with Cofacts, I can send back the right information and correct them without hurting their feelings. I don't need to say they're wrong. I only need to forward what the bot says." In this way, the bot becomes the agent of these young people to challenge the patriotic hierarchy at home and in the society. The bot is not any sort of authority; it is collective and decentralized, co-produced by loosely-connected young people who take faith in the power of open collaboration. In this sense, crowdsourced fact-checking is both a political and epistemological reconfiguration of what fact is and who has the right to produce it.

However, as Dean Jackson (2018) points out, "effective disinformation campaigns usually draw on preexisting divides within target societies and produce content for which there is societal demand." When fact-checking is used as a tool of resistance, it won't help mitigate the digital as well as social divide between generations. Even Cofacts shows the ambition to build a recursive public by emphasizing open collaboration, its insistence on being a Wikipedia-like platform and the dependency on technological mediation through a chatbot and "googling" leads

to asymmetrical distributions of agency, and turns the recursive public into split publics that shape the political environment in which rumors proliferate.

Conclusion

On September 23, 2020, the World Health Organization (2020) published a statement on “Managing the COVID-19 infodemic,” in which it raised a warning that “an infodemic” — an overabundance of information that “undermines the global response and jeopardizes measures to control the pandemic” — has taken place alongside the Covid-19 pandemic. From “post-truth” to the “infodemic”, online rumors seem to have become more rampant, harmful, and harder to debunk. All sorts of conspiracy theories circulate alongside rising Covid-19 cases, some of them leading to racial discrimination and even hate crimes against Asians in North America. Among these stories, “Covid-19 leaked from a Chinese laboratory” was disputed by scientists and the liberal press. Social media platforms also banned any post related to this theory. However, after a year, U.S. president Joe Biden ordered a renewed investigation into the origin of the novel coronavirus and indicated that lab leak theory remains one possibility. Facebook soon announced a change of policy that it will no longer take down posts claiming Covid-19 is man-made. Members of the scientific community, the press, politicians, and social media companies — those who used to be the speakers of facts — are no longer firm and steady. This capricious state of facts is where we are now.

Crowdsourcing fact-checking is to accept this indecisive, easily-changing, and vulnerable condition of facts and to provide an alternative way to re-construct collective knowledge without resorting to authorities. I argue that crowdsourcing fact-checking is a special kind of situated knowledges, which are, as Haraway

reminds, embedded and embodied. The embodied practice of “googling for facts,” the delegation of truth-telling through a chatbot, and the building of a Wikipedia of rumors all register a techno-political discourse of openness that challenges the conventional knowledge-making practices by experts, authorities, and the powerful. The acts of pointing to something as “fake” and constructing others as true are always political as they mobilize people, information, and power to accomplish certain aims. They also rely on certain technologies to realize — in this case, a chatbot, a database, and a crowdsourcing technology. Through technological mediation, Cofacts invokes a crowd who participates in a shared language and politics that resists the black-box production and chatroom-to-chatroom transmission of online rumors while cultivating a recursive public that embraces the ethos of openness. However, Cofacts’ dependence on technologies sets up obstacles for people who have low digital capability like seniors to take part in. Even more, the open language it adopts ignores the social and affective needs of care that underlines the practice of forwarding rumors. Cofacts’ crowdsourcing approach cannot address the epistemological disparity between generations and might turn its recursive public into split publics that aggravate social conflicts in a “post-truth” society.

My aim of this article is not to deny the effectiveness of fact-checking or to claim truth no longer exists. Fact-checking is one of the few weapons we have now to tackle online rumors, and we ought to give it the credit of doing a hard, boring, and often unrewarding job. Different methods of fact-checking, such as professional fact-checkers, automated screening, or crowdsourcing, have their advantages and a strategic combination of them may make up for the shortage of the other. Moreover, I admire the open value Cofacts pursues and appreciate how they not only debunk

online rumors, but also confront the shaky epistemological foundation of post-truth with possible alternatives. The aim of this article is to send a reminder that fact-checking is itself an ambiguous tool that is shaped differently in different socio-political contexts. It can provide corrections that help slow the spread of rumors, but it can also produce meaningless noises or even make people lost in the maze of conflicting facts, values, and meanings. Only by situating fact-checking in its broader social, political, and cultural contexts can we capture its complicated dynamic with rumors and begin a search for possible alternatives.

References Cited

Aral, Sinan. 2020. *The hype machine*. New York: Currency.

Arendt, Hannah. 1967. Truth and politics. In *Truth: engagements across philosophical traditions*. David Wood and José Medina, eds. Pp. 295–314.

Babakar, Mevan, and Will Moy. 2016. The state of automated factchecking. *Full Fact* (blog). https://fullfact.org/blog/2016/aug/automated-factchecking/.

Benkler, Yochai. 2006. *The wealth of networks: how social production transforms markets and freedom*. New York ; London: Yale University Press.

Boyd, Danah. 2017. Did media literacy backfire? *Journal of Applied Youth Studies* 1(4): 83.

Boyer, Dominic. 2018. Our post-post-truth condition. In *After practice: thinking through matter and meaning relationally*. Jörg Niewöhner, ed. Pp. 83–90.

Chen, Fang-Yu, Wei-ting Yen, Austin Horng-en Wang, and Brian Hioe. 2017. The Taiwanese see themselves as Taiwanese, not as Chinese. *Washington Post,* January 2, 2017. https://www.washingtonpost.com/news/monkey-cage/wp/2017/01/02/yes-taiwan-wants-one-china-but-which-china-does-it-want/

Coleman, Gabriella. 2013. *Coding freedom: the ethics and aesthetics of hacking*. Princeton: Princeton University Press.

Durkheim, Emile. 1982. *The rules of sociological method: and selected texts on sociology and its method*. Steven Lukes, ed. W. D. Halls, tran. New York: The Free Press.

Fassin, Didier. 2021. Of plots and men: the heuristics of conspiracy theories. *Current Anthropology* 62(2): 128–37.

Feldman-Savelsberg, Pamela, Flavien T. Ndonko, and Bergis Schmidt-Ehry. 2000. Sterilizing vaccines or the politics of the womb: retrospective study of a rumor in Cameroon. *Medical Anthropology Quarterly* 14(2): 159–79.

Graan, Andrew, Adam Hodges, and Meg Stalcup. 2020. Fake news and anthropology: A conversation on technology, trust, and publics in an age of mass disinformation. *PoLAR Online* (blog). February 16, 2020. https://polarjournal.org/2020/02/16/anthropology-and-fake-news-a-conversatio

n-on-technology-trust-and-publics-in-an-age-of-mass-disinformation/.
Graves, Lucas. 2016. *Deciding what's true: the rise of political fact-checking in American journalism*. New York: Columbia University Press.
———. 2018. Understanding the promise and limits of automated fact-Checking. Oxford: Reuters Institute for the Study of Journalism. https://reutersinstitute.politics.ox.ac.uk/our-research/understanding-promise-and-limits-automated-fact-checking.
Haraway, Donna. 1988. Situated knowledges: the science question in feminism and the privilege of partial perspective. *Feminist Studies* 14(3): 575–99.
Hassan, Naeemul, Mohammad Yousuf, Md Mahfuzul Haque, Javier A. Suarez Rivas, and Md Khadimul Islam. 2019. Examining the roles of automation, crowds and professionals towards sustainable fact-checking. In *Companion Proceedings of The 2019 World Wide Web Conference*. Pp. 1001–6. New York: Association for Computing Machinery.
Hassan, Naeemul, Gensheng Zhang, Fatma Arslan, Josue Caraballo, Damian Jimenez, Siddhant Gawsane, Shohedul Hasan, Minumol Joseph, Aaditya Kulkarni, and Anil Kumar Nayak. 2017. Claimbuster: the first-ever end-to-end fact-checking system. *Proceedings of the VLDB Endowment* 10(12): 1945–48.
Ho, Karen, and Jillian R. Cavanaugh. 2019. What happened to social facts? *American Anthropologist* 121(1): 160–67.
Howard, Philip. 2016. Is social media killing democracy? *The Oxford Internet Institute* (blog). 2016. https://www.oii.ox.ac.uk/blog/is-social-media-killing-democracy/.
Jackson, Dean. 2018. How disinformation impacts politics and publics. *National Endowment for Democracy* (blog). May 29, 2018. https://www.ned.org/issue-brief-how-disinformation-impacts-politics-and-publics/.
Jasanoff, Sheila, and Hilton R. Simmet. 2017. No funeral bells: public reason in a 'post-truth' age. *Social Studies of Science* 47(5): 751–70.
Karanović, Jelena. 2012. Free software and the politics of sharing. In *Digital Anthropology*, Heather Horst and Daniel Miller, eds. Pp. 225–41. London; New York: Berg.
Kelty, Christopher M. 2008. *Two bits: the cultural significance of free software*. Durham: Duke University Press Books.
King, Gary, Jennifer Pan, and Margaret E. Roberts. 2017. How the Chinese government fabricates social media posts for strategic distraction, not engaged argument." *American Political Science Review* 111(3): 484–501.
Lee, Yimou, and I-hwa Cheng. 2019. Paid 'news': China using Taiwan media to win hearts and minds on island. *Reuters*, August 9, 2019. https://www.reuters.com/article/us-taiwan-china-media-insight-idUSKCN1UZ0I4.
Lessig, Lawrence. 2001. *The future of ideas: the fate of the commons in a connected world*. New York: Vintage.
Lin, Thung-hong. 2015. Causes and consequences of increasing class inequality in Taiwan. *Taiwan Economic Forecast and Policy* 45(2): 45–68.
Lowrey, Wilson. 2017. The emergence and development of news fact-checking sites. *Journalism Studies* 18(3): 376–94.
Mair, Jonathan. 2017. Post-truth anthropology. *Anthropology Today* 33(3): 3–4.
Marres, Noortje. 2018. Why we can't have our facts back. *Engaging Science, Technology, and Society* 4: 423–43.

Monaco, Nicholas J. 2017. *Computational propaganda in Taiwan: where digital democracy meets automated autocracy*. Oxford: Oxford Internet Institute.
Nadler, Anthony, Matthew Crain, and Joan Donovan. 2018. Weaponizing the digital influence machine. New York: Data & Society Research Institute.
Nyhan, Brendan, and Jason Reifler. 2010. When corrections fail: the persistence of political misperceptions. *Political Behavior* 32(2): 303–30.
Paz, Alejandro. 2009. The circulation of chisme and rumor: gossip, evidentiality, and authority in the perspective of Latino labor migrants in Israel." *Journal of Linguistic Anthropology* 19(1): 117–43.
Reagle, Joseph M. 2010. *Good faith collaboration: the culture of Wikipedia*. Cambridge, MA: The MIT Press.
Reuters Institute for the Study of Journalism. 2020. Digital News Report 2020. Oxford: Reuters Institute.
Shifman, Limor. 2014. *Memes in digital culture*. Cambridge, MA: The MIT Press.
Shirky, Clay. 2008. *Here comes everybody: the power of organizing without organizations*. New York: Penguin Books.
Srnicek, Nick. 2017. *Platform capitalism*. Cambridge: John Wiley & Sons.
Stalcup, Meg. 2020. The invention of infodemics: on the outbreak of zika and rumors. *Somatosphere* (blog). March 16, 2020. http://somatosphere.net/2020/infodemics-zika.html/.
Stewart, Pamela J., and Andrew Strathern. 2004. *Witchcraft, sorcery, rumors and gossip*. Cambridge, UK: Cambridge University Press.
Surowiecki, James. 2005. *The Wisdom of Crowds*. New York: Anchor.
The World Health Organization. 2020. Managing the COVID-19 infodemic: promoting healthy behaviours and mitigating the harm from misinformation and disinformation." September 23, 2020. https://www.who.int/news/item/23-09-2020-managing-the-covid-19-infodemic-promoting-healthy-behaviours-and-mitigating-the-harm-from-misinformation-and-disinformation.
Tkacz, Nathaniel. 2015. *Wikipedia and the politics of openness*. Chicago; London: University of Chicago Press.
TWNIC. 2020. *2019 Taiwan internet survey.* Taipei: Taiwan Network Information Center.
van Dijck, José, Thomas Poell, and Martijn De Waal.2018. *The platform society: public values in a connective world*. Oxford: Oxford University Press.
V-Dem Institute. 2019. *Democracy facing global challenges: V-Dem annual democracy report 2019.* Gothenburg: V-Dem Institute.
Wardle, Claire, and Hossein Derakhshan. 2017. Information Disorder: Toward an interdisciplinary framework for research and policy making. Council of Europe.
Wikipedia. n.d. Wikipedia: neutral point of view." *Wikipedia*. https://en.wikipedia.org/w/index.php?title=Wikipedia:Neutral_point_of_view&oldid=1028265652.
Wong, Winnie Won Yin. 2017. Speculative authorship in the city of fakes. *Current Anthropology* 58(S15): S103–12.
Zimmer, Ben. 2010. Truthiness. *The New York Times*, October 13, 2010. https://www.nytimes.com/2010/10/17/magazine/17FOB-onlanguage-t.html.
Zuboff, Shoshana. 2019. *The age of surveillance capitalism: the fight for a human future at the new frontier of power*. New York: Hachette Book Group. https://www.amazon.com/Age-Surveillance-Capitalism-Future-Frontier/dp/1610395697.