

Programming Sex, Gender, and Sexuality: Infrastructural Failures in the “Feminist” Dating App Bumble

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ABSTRACT

Background Bumble is a self-declared “feminist” dating app that gives women control over initiating conversations with potential matches.

Analysis Through a material-semiotic analysis of Bumble’s software and online media about the app, this article critically investigates how gender, sex, and sexuality are produced and given meaning by Bumble’s programmed infrastructure.

Conclusions and implications Since the epistemological underpinnings of Bumble’s design centre gender as the solitary axis of oppression, the authors argue that the app’s infrastructure generates an ontological relationship between gender, sex, and sexuality that narrows the capacity to achieve its creators’ stated social justice objectives. Several infrastructural failures are detailed to demonstrate how control and safety are 1) optimized for straight cisgender women, and 2) contingent on the inscription of an aggressive form of masculinity onto straight male bodies.

Keywords Computer science; Electronic culture (internet-based); Sociotechnical; Feminism/gender; Technology

RÉSUMÉ

Contexte Bumble est une application de rencontres prétendument « féministe » qui donne aux femmes le pouvoir d’initier des conversations avec des compagnons potentiels.

Analyse Cet article effectue une analyse sémiotique matérielle de Bumble et de commentaires en ligne sur cette application dans le but d’examiner comment l’infrastructure programmée de Bumble produit le genre, le sexe et la sexualité et leur donne du sens.

Conclusions et implications Bumble a une perspective épistémologique selon laquelle le genre est la seule source d’oppression. Or, d’après les auteurs, ce point de vue encourage un rapport ontologique entre genre, sexe et sexualité qui entrave la capacité des créateurs à atteindre leurs objectifs de justice sociale. Cet article recense plusieurs échecs infrastructurels de l’application afin de montrer comment le contrôle et la sécurité 1) conviennent principalement aux femmes cisgenres hétérosexuelles et 2) supposent une masculinité agressive inscrite sur des corps mâles hétérosexuels.

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Mots clés *Informatique; Culture électronique (sur internet); Sociotechnique; Féminisme/genre; Technologie*

App design, identity, and social justice

Aggressive, hypersexualized messages and unsolicited, explicit pictures are simply par for the course for many people who use online dating services. Yet these negative experiences are not distributed equally. Instead, they cluster around particular identities (e.g., feminine-identified, racialized, and/or gender non-conforming users), and the design of the platforms themselves contributes to this inequality (Noble & Tynes, 2016; Srnicek, 2017). Amid this troubled dating and hookup landscape, an app called Bumble was developed, born out of a desire to “chang[e] the rules of the game” (Bumble, n.d.).¹ Described by the company as “100 percent feminist” (Yashari, 2015), Bumble’s design is geared towards engineering social changes related to equality. One major modification to the typical dating app infrastructure aims to achieve this goal: ensuring that “the woman always makes the first move” (Bumble, n.d.). According to the company, this adjustment has “successfully shaken up traditional gender roles in heteronormative dating” (Bumble, 2017). Given this self-proclaimed feminist design and orientation toward social justice—which is also, ultimately, a strategic marketing plan aimed at positioning Bumble as unique within a busy dating app marketplace—we were curious about the meanings conferred to gender, sex, and sexuality through the programmed infrastructure of this app.

Bumble is a product of multiple forces, including an app start-up culture oriented toward growing a stable and marketable user base (Burgess, 2016); mounting pressure to increase the diversity of the tech sector (Gunn, 2016); greater awareness of online harassment (Scott, 2016); and public discourse about “safe” spaces both on and offline (Duguay, 2017). The recent #MeToo movement has also sparked interest in Bumble as “a particularly enticing asset to own right now” (Sherman & Picker, 2018, para. 5), given Bumble’s high growth rates. In December 2015, one year after Bumble’s initial launch, one million registered users were recorded; by July 2017, the app had more than 18 million (Bumble, 2017; Sola, 2017).² Bumble entered the apps market in the midst of a climate of user discord. As explained in Bumble’s (n.d.) FAQ, “We based our concept on the feedback from tons of women who were tired of being spammed with annoying messages.” This feedback mirrors experiences described by users of Tinder and other dating apps. Women have been sent explicit pictures, received aggressive messages, and experienced harassment by men (Titlow, 2016). Yet the extent of this problem is even broader: queer, non-binary, and transgender users have borne the brunt of transphobic and misogynist comments and other threatening actions (O’Hara, 2016), and trans women in particular try to dodge invasive questions from men inquiring about their physiological makeup, which ultimately produces a hostile and unsafe environment (Lang, 2016). Reporting mechanisms are also imperfect: trans users have been accused of being misleading on their profile pages by other Tinder users who can easily flag anyone believed to be acting inappropriately, resulting in a ban of that user. In 2015, multiple users used Twitter to draw awareness to this issue, revealing the rampant transphobia that exists in dating and hookup spaces (Villarreal, 2015).

Dubbed the “anti-Tinder app” or “Feminist Tinder,” Bumble was designed and marketed in the shadow of Tinder (Alter, 2015a). This is not surprising given that three of Bumble’s four owners developed Bumble after having left high-profile positions at Tinder: Whitney Wolfe (who now goes by Whitney Wolfe Herd) and Chris Gulczynski were two of Tinder’s several co-founders, and Sarah Mick was Tinder’s VP Design. Bumble’s majority shareholder financier (and fellow co-owner) is Russian billionaire Andrey Andreev, who owns 79 percent of the company. While Gulczynski and Mick’s departure has been described as “quiet,” Wolfe’s exit was directly associated with a sexual harassment and workplace abuse lawsuit (Frankel, 2015). This article examines how these dynamics contributed to the labelling of Bumble as feminist and discursively support the programmed moves by the company to modify courtship practices through identity-based infrastructural design practices.

Many dating and hookup apps have piqued scholarly attention alongside Bumble, including Tastebuds, Tinder, Her, Grindr, and Coffee Meets Bagel. By examining specific apps in detail, scholars have been able to investigate how app design is influenced by pre-existing apps (Murray & Ankersen, 2016); how geo-social apps can disrupt our understanding of intimacy (David & Cambre, 2016); and how dating apps tend to cultivate toxic masculinity (Hess & Flores, 2016). Users of dating apps ultimately want to meet up in person and, when they do, they expect their date will match the profile they have been inspecting. In this vein, Duguay (2017) has explored Tinder’s strategies for establishing authenticity in the industry. This article builds on this work by using the case study of Bumble to explore identity regulation through the built environment programmed into app infrastructures.

Our study draws on work from communication studies, human computer interaction, science and technology studies, and queer and feminist research. Beginning with a commitment toward theorizing systems of power as co-constructed with material relations of technical artefacts, sociocultural processes, and people (Gillespie, Boczkowski, & Foot, 2014; Parks & Starosielski, 2015), we are interested in the values and norms that are programmed into software (Balsamo, 2011; Kitchin & Dodge, 2011; Noble, 2013; Sweeney, 2016) and the world building capacities of these programming choices and practices (Brock, 2011; Haraway, 2016). From these perspectives, we see technology as “never merely technical or social” (Wajcman, 2010, p. 149) and recognize technological design as a social and political act that is both influenced by surrounding sociocultural and political-economic contexts and actively involved in constructing such contexts. Recognition of the mutual shaping of identity and technology influences our analysis (Wajcman, 2010). Scholars such as Oudshoorn, Saetnan, and Lie (2002) have examined the emergent dynamics of gender within and through various artefacts, concluding that “objects can become gendered because innovators anticipate preferences, motives, tastes, and skills of the potential users, and the cultural norms in society at large ... [and] artifacts that incorporate a gender script can shape and define the agency of women and men” (p. 473). We are also inspired by Cheney-Lippold’s (2017) work in relation to technological formations of race and algorithmic identity. His examination of the manufacture of “race” through algorithms, has increased understanding of the different ontological version of “race” that is generated by technolo-

gies. As Cheney-Lippold (2017) argues, “Much like the social constructions of gender, race, sexuality, and terrorist, the datafied world is not lying in wait to be discovered. Rather, it’s epistemologically fabricated” (p. 45). These categories are “corrupted” by a priori epistemological conditions. Extending Cheney-Lippold’s (2017) arguments about data and algorithms in relation to the technical infrastructure of apps, we investigate how Bumble’s owners have operationalized their social justice objectives within Bumble’s programmed infrastructure and, in doing so, have imposed epistemological conditions and ontological restrictions on the categories of “gender,” “sex,” and “sexuality” that are generated by the app. In this way, our intention is to think through the generation of meaning that is installed in Bumble’s software and the making of difference within this alternative space.

It is not our primary aim to assess whether or not Bumble is feminist. This is because we are committed to recognizing the existence and value of multiple feminisms (Hayden & O’Brien Hallstein, 2012), and we are not interested in merely passing judgment on a specific “feminist” approach, as though a “better” feminist approach to technological design would resolve the infrastructural failures uncovered here. That said, it is important to recognize the specific version of feminism—like that advanced by Bumble, as we describe in this article—that has managed to gain traction in the mainstream technology sector.³ According to Bumble’s Wolfe, “What we are trying to be is the radical first step, because if someone doesn’t then nothing will change. Bumble is about establishing equality” (quoted in Ellis-Petersen, 2015, para. 23). Bumble’s Mick framed the design process as an ethical imperative: “When you’re creating an app and have the option to make it for something more than hooking up, you should do that. I think of myself as a feminist and I think about social issues. So when we started Bumble, we thought about making something that can do more” (quoted in Morris, 2016, last para.). While developers may speak as though technology can independently determine social outcomes, we are—like many other scholars—wary of technological solutionism (Morozov, 2014). Certainly, Bumble’s owners saw an opportunity to offer a technologically based solution: “We were trying to solve a real-world problem,” explains Wolfe (quoted in Ensor, 2015, para. 3). As researchers, we resist “platform for change” narratives and techno-utopian efforts to resolve complex social issues through technological tweaks alone. Instead, we gravitate toward questions about the conditions and relations generated in and through socio-technical infrastructures. From this perspective, design is understood as a process of change, according to Dombrowski, Harmon, and Fox (2016), “not just in the creation of new material artifacts, but in the ways that new technological objects afford new practices, social habits, and ways of living and interacting” (page 656).

Instead of assessing how “feminist” Bumble is, we offer Bumble as a case study in a broader investigation of efforts by tech companies to seek social change and ask specific questions about the identity categories that are created along the way. This article examines how Bumble’s creators’ stated social justice objective—establishing (gender) equality—has been operationalized through design choices and investigates the identity categories generated as a result. Since the epistemological underpinnings of Bumble’s design centre gender as the solitary axis of oppression, it is argued that

the app's infrastructure generates an ontological relationship between gender, sex, and sexuality that narrows the capacity to achieve social change. By design, the conditions for gendered interaction within Bumble were manipulated—most explicitly through the “ladies ask first” strategy—yet these programmed decisions were infused with epistemological understandings of gender, sex, and sexuality that themselves function to sustain power relations. An intersectional lens highlights the further entrenchment of power imbalances and the violence that can occur from a social justice orientation that focuses on only one axis of identity (gender) without recognizing the other intersecting identities that are commingled with it (sexuality, race, etc.).⁴ This article details several infrastructural failures that demonstrate how control and safety is 1) optimized for straight cisgender women, and 2) contingent on the inscription of an aggressive form of masculinity onto straight male bodies.

Methods

This project used a material-semiotic analysis informed by feminist technoscience studies (Murray & Ankersen, 2016) to examine Bumble's software and affiliated documentation (user interfaces, technical affordances, Terms and Conditions, Privacy Policy, Help and About pages, and Bumble's press kit), as well as mainstream and trade press articles about the app and the company. In the analysis that follows, we turn to interviews posted by various online media, including news outlets, blogs, and forums, to incorporate commentaries by Wolfe and other Bumble owners and users, and to contextualize our inquiries about the foundation of Bumble and the ways in which it has become known as the “Feminist Tinder.” To determine intended users and sites of use, we analyzed Bumble's software as well as Bumble's press kit. This analysis was informed by Suchman's (1994) acknowledgement that characterizations of users comes about through market analysis and related operations. In examining the technical infrastructure of Bumble, combined with the app's website, we investigated how “good” and “bad” behaviour are defined and made meaningful, and how certain identities emerge while others are obscured or written out of the app altogether. In turn, our reading of Bumble's press kit and software documentation, as well as online media discussing Bumble's algorithms and users, helped us to uncover built-in assumptions and logics.

This project builds on Hoque's initial examination of Bumble, which included analysis of 25 profile images (which we chose not to use for this article); online searches for articles about Bumble (with search terms such as “dating apps,” “masculinity,” “gender and technology,” “violence, queerness, and dating apps”); use of the app to determine functionality (downloading the app, creating profiles, and navigating through the app); analysis of who is included and excluded through the app's interface and the implications of specialty programs like VIBee. Together, Hoque and Bivens examined the affiliated documentation noted above, extended the online search with terms like “lesbian,” “gay,” “heterosexual,” “trans,” “cis,” “race,” “homophobic,” “transphobic,” “racism,” “feminist,” “BFF,” “VIBee,” in conjunction with “Bumble” and/or “dating app.” We also re-examined the app's infrastructure for identity-related gaps. The next section offers crucial background about Bumble, including how it works and has been marketed.

Bumble's feminist birth in the dating app ecosystem

In 2014, Bumble entered a market that had mainly catered to a male-centric audience, with apps like Grindr, Hornet, Scruff, Growlr, Romeo, and Jack'd available for gay, bisexual, and bi-curious males.⁵ Tinder, released in 2012, led the pack of geo-enabled dating apps that hoped to emulate the success of Grindr. Bumble's arrival was quickly situated as a "female-focused dating app" (Wolfe, 2017, para. 4) that offered an alternative to "other, more shallow apps" that were "full of creepy guys and cheesy pickup lines" (quoted in Bell, 2014, para. 3).

Asserting uniqueness in a marketplace is a common strategy, even if the app's interface design is quite similar to other popular apps. For users previously exposed to other social networking apps, Bumble works in a familiar way in terms of developing profiles and reviewing matches. The user navigates the dating pool by using a left-swipe to reject a prospective match or right-swipe to accept. If two users indicate an interest in one another, a match is made and both users are notified. From the minute the match occurs, a clock starts ticking. The "lady" then has 24 hours to reach out to her "gentleman" match via the chat interface. If a conversation is not initiated, the match expires. These 24 hours thus constitute the window of control afforded to female Bumble users.

The "ladies ask first" feature helps distinguish Bumble as an alternative to other dating apps and underscores the company's desire to address gender inequality. Through this feature, Bumble was positioned as Tinder's opposite: fighting back against sexism operating within Tinder, within the dating world, and even within the technology industry more broadly. Through a flattened lens, feminism can similarly be equated with tackling gender inequality, a task deemed best suited to a woman. A feminist-inspired design spearheaded by Wolfe completes the strategy, with gender figuring as the central and solitary axis of oppression to be dismantled.

By representing the company in most media coverage, Wolfe has been functioning as the public face of Bumble. This is important in terms of optics: a woman's face permits the company to be perceived as female owned and aligned with feminism. Images of Wolfe operate as a stand-in for "feminism" and for a broad, public understanding of feminism as solely addressing issues related to women. These issues play into one another, supporting the perception of Bumble as feminist and, in doing so, helping it become feminist at the same time. Additionally, the story of Wolfe's exit from Tinder easily met mainstream news values, with many journalists framing the story as a vulnerable White woman facing sexism as she navigates a position in senior management at a technology company. Text messages sent between Wolfe and male colleagues at Tinder at the centre of the harassment dispute were revealed. After mentioning the sexual harassment one journalist wrote, "[I]t's no surprise that Bumble is the first app to take such a vocal stand against the men who use dating apps to routinely abuse women online" (Paiella, 2016, para. 4). This coverage inadvertently supports the narrative of Bumble as a feminist app, with Wolfe moving on from a male-dominated company to start her own, 90 percent female team (Chilcott, 2017). An intersectional lens would, alternatively, highlight other marginalized identities that feminism may seek to serve. Coined by Crenshaw (1989), intersectionality refutes the notion that

identities function one-dimensionally. Instead, multiple identifiers place people within the socio-economic-political grid of a specific society. From this vantage point, Wolfe-as-representative occupies a set of privileged categories, including White, upper-class, and heterosexual. Critical whiteness studies (e.g., DiAngelo, 2011) also point to the ways in which Wolfe's whiteness, and those of her co-owners, permitted her to see women as a single category with gender rising to the surface, while her own race remained unnamed and irrelevant.

Bumble was also explicitly marketed as a technological solution to dating woes. In general, app designers tend to identify perceived problems that their app can resolve. For example, Tinder was "inspired in part by [then CEO Sean Rad's] own experiences of being too worried about rejection to approach groups of women in person" (Mulkerrins, 2017, para. 18). In the case of Bumble, the problem was men's aggressive responses, understood in relation to men's fear of rejection and (false) interpretation of women's moves to initiate dates as desperate. Wolfe describes this dynamic in an interview:

I've spoken to a lot of men about this ... and they say to me, "When a girl makes the first move, I like it but I also think, what's her past? Why is she doing that?" I can tell you personally that I'm quite extroverted, I'm quite confident—and a lot of my friends are too. So I'm not allowed to text first? Why can I not approach a guy? I'm not desperate. (quoted in Luckhurst, 2015, para. 10)

From a marketing perspective, Wolfe's reasoning plays into the construction of Bumble as unique among dating apps. Bumble is an alternative socio-technical reality where women can be confident and men can interpret their confidence anew. From a design perspective, Wolfe's comments reflect "I-methodology," or "a design practice in which designers consider themselves representative of the users" (Oudshoorn, Rommes, & Stienstra, 2004). Wolfe's own intersectional identity position—White, straight, upper-class, cisgender—informs how she relates to potential users and how she imagines the changes she wants Bumble to create in the world: "I could travel the world, I could start companies, but I was not allowed to strike up a conversation with the cute guy in my class at college? ... If I make the first move, I'm perceived as a crazy girl, just for going after what I want. That's not fair" (quoted in Mulkerrins, 2017, para. 5).

It is important to note that our study revealed no mention of Wolfe or her colleague's attempts to research the problem of men's aggressive responses in any systematic way. As such, their informal methods likely functioned to both reinforce gender as the primary identity category of concern and conceal identity categories in which Bumble's owners enjoy a privileged status. Considering race specifically, the voices of women of colour may have been left out unintentionally, given that, as DiAngelo (2011) writes, "[M]ost whites live in racial segregation every day, and in fact, are the group most likely to intentionally choose that segregation" (p. 62). In the end, Bumble was consistently positioned as the nicer alternative to Tinder, offering access to a better dating pool. Of course, when enough users believe that Bumble's dating pool is "better," the company's capacity to monetize the app increases.

Bumble's intended user

Bumble's Brand Deck, part of the company's press kit, is a great source of insight into the type of user that is most valuable for the company. The cover page is a partial image of a White woman's back. Her face is turned to the side, and she expresses a sultry look by wearing dark eyeshadow and pursing her mouth slightly open while lowering her eyelids and gazing in the direction of the title phrase: "Make the first move" (Bumble, 2017). In a two-paragraph description of the "target user," gender is the only identity highlighted, via the persistent use of feminine pronouns. An ideal performance of femininity is also emphasized in the constructed category of "Queen Bee." The description notes that the Queen Bee is a woman who

walks into a room, [and] appeals to everyone she meets. She's cool, kind, friendly and inclusive. She is sophisticated but funny. She can fit in with any crowd. She's fearless and outspoken, but because she doesn't take herself seriously—and never engages in politics—she can pull off being opinionated. (Bumble, 2017)

Femininity is carefully contained here, with the container stretched but not reformulated. The Queen Bee can be progressive without being interpreted as too forward, disruptive, or sexually promiscuous. She can accept that Bumble forces her into the (traditionally masculine) driver's seat in terms of initiating conversations and then contort herself back into a socially acceptable version of femininity. Beyond gender, her other intersecting identities (e.g., race, sexuality, education) are left unmarked. Their lack of articulation denotes their insignificance.

Given this target user description, Bumble's owners expect Queen Bees to attract other users, male and female alike. Once a large enough user base has formed, monetization strategies can be implemented. In-app purchases have been one such strategy, and it was recently reported that "[m]ore than 10% of Bumble's users pay \$9.99 for a monthly subscription to access perks like extra time to decide whether a suitor merits a message," which is significantly more than the 5 percent of Tinder users who opt-in to a similar service (O'Connor, 2017, para. 10).

The socio-technical modification that Bumble frequently advertises is named "The Bumble Effect":

Bumble was born out of a desire to reinvent the antiquated rules of dating to empower women to control the conversation when dating and networking online. Bumble has made it necessary and acceptable for women to make the first move, and this is extremely significant because **prompting conversation has led to the highest post-match chat rate in the industry.**

Because of the unique model of putting women in charge and employing robust reporting, Bumble has incomparably low reports of harassment and abuse. Bumble is a safe platform for people to connect in dating, friendship and soon-to-be-Bizz. Things truly change when women are in control. (Bumble, 2017, boldface original)

Given the emphasis in this text on the "post-match chat rate," Bumble is clearly speaking to potential investors in the company and calling in advertisers who will appreciate

Bumble's unique position in the market. The company has worked hard to build its brand, complete with "hives" and "bees," billboards that broadcast "empowerment" slogans (e.g., "Be the CEO your parents always wanted you to marry"), and experiential marketing that focuses on hosting events (O'Connor, 2017).

Bumble's cultivated uniqueness is driven by this gendered initiation feature that guarantees women a degree of control, yet the built-in ideas about safety are tied to a specific epistemological understanding of how gender, sex, sexuality, and race function. Bumble consistently blurs these identity categories by presupposing that, for instance, male bodies are the carriers of masculine traits and their masculine gender performance is equated with their sexual preference (i.e., women). As Butler (1990) explains, when an opinion is formed about a person through a reading of their sex and gender, certain assumptions are made about their sexuality, which in turn form the "heterosexual matrix." For instance, a masculine gender automatically indicates a male biological sex and a sexual interest in females. The heterosexual matrix generates silos of masculinity and femininity (as opposed to a spectrum of gender existing in a state of fluidity) and renders heterosexuality as the only viable possibility.

Within this heterosexual matrix, Bumble provides a play space where, much like the ballrooms of the nineteenth century Regency era, women are deeply tied to a particular performance of femininity while men are offered an opportunity to be gentlemanly. Inherent to this equation is the assumption that masculinity associated with male bodies is threatening. Conversely, femininity is attached to female bodies and is always at risk. Ultimately, these assumptions about gender performativity dictate what the app's infrastructure ought to fix and how safety and control are manipulated. As Wolfe (quoted in Fellizar, 2015) explained: "On Bumble, we're trying to give women a boost-up to come to an equal playing field so men don't feel the need to be the aggressive hunter and the women don't feel like they have to play the damsel-in-distress and wait for the men to come to them" (para. 10).

Clearly Wolfe is addressing stereotypical, heteronormative, and raced gender relations, and Bumble's design is meant to offer a socio-technical patch, but in this attempt, masculinity is configured as a predictable site of violence that requires management (Kaufman, 1987). As Wolfe stated (quoted in Ellis-Peterson, 2015), "I can't speak on behalf of the entire male population, but in my experience when a man feels rejected, or fears being rejected, they respond with aggression. So if we eliminate the rejection, what is there to be aggressive about?" (para. 23). The logic of Bumble relies on policing the male body as if it always exists in an intrinsically brusque and brash state of being, only capable of performing a savage performance of masculinity. Through this lens, males are by nature uncivil and incapable of comportment. This is a very narrow construction of masculinity. Meanwhile, female bodies and feminine characteristics are situated as more genteel. Despite historical and contemporary (racist) renderings of aggression onto Black male bodies, it appears as though all men are similarly inclined in Bumble's construction. Yet it is White women's bodies (despite remaining unnamed as such) that would more likely be imbued with genteel, innocent qualities. Indeed, social constructions of pure White womanhood are only possible because of the existence of racist stereotypes that position White women in binary opposition to sexually

aggressive and available constructions of women of colour (Gilchrist, 2010; Jiwani & Young, 2006).⁶ It is White women who would more often be interpreted by men as desperate for initiating conversations. This ontological rendering of gender requires a scale that generates differences between masculinity and femininity (mapped onto differentially raced male and female bodies) and relies on these differences to make sense of the social justice objective of equality.

The assumption that guides the “ladies ask first” logic and the introduction of the timer also relies on a particular conceptualization of White femininity and White female bodies as reluctant or hesitant. The technical infrastructure is designed to push the female outside of her comfort zone. As Wolfe explains, “It’s not [a] biological imperative that says men have to ask us out, it’s social conditioning. And we can change it” (quoted in Chilcott, 2017, para. 21). Again, Bumble’s feminist orientation surfaces, and the objective of equality hinges upon reversing conventional gendered power dynamics while racialized and sexualized power dynamics are left unchallenged. Still, both men and women are aware that women are forced, by design, to break the rules. Instead of reformulating a new version of femininity, Bumble’s infrastructure builds a static and narrow understanding of gender, which is directly tied to respective female and male bodies (and is therefore ultimately cisnormative).

Creating a safe space is another element of Bumble’s equality objective. As Diamond (2015), a straight White female user, described it, “The best thing about Bumble is ... I easily avoid those horrendous first Tinder messages that ask me for threesomes or whether I like dragons, and if I do, whether I want ‘these balls dragon’ across my face” (para. 7). These are the undesirable messages Bumble was designed to tackle. Wolfe explains that the sexism and misogyny distilled through socialization—“You must let him be the aggressor ... you must let him make all the moves ... and you need to sit pretty”—“has translated into the digital sphere” but can be altered (quoted in Fishburn, 2017, n.p.). Yet this alteration would mean a shift for women who also fear rejection: “I would never chat a guy up or ask for someone’s number, I couldn’t deal with the rejection, so this [Bumble] was way out of my comfort zone” (Smith, 2016, para. 13). Diamond (2015) said she was forced to realize “how hard it really is to reach out first,” which helped her understand “why some guys crack and say disgusting things.” Yet her experience of control quickly ended: “[A]fter sending the first message as the female, everything went right back into the male’s court. He asked for my number. He asked me out. (He also stood me up 20 minutes before we were supposed to meet)” (Diamond, 2015, para. 19). Ultimately, while Bumble helped Diamond (2015) feel “a little bit more in control,” she concluded that Tinder is actually “more of a feminist online dating choice, as everyone has equal opportunity to send messages and because it includes all genders and sexual preferences” (para. 21).

Bumble’s “view from somewhere”: Generating cisnormative and heteronormative relations

Identifying unintended users—those bracketed off to the side or omitted from the software entirely—helps to reveal the “view from somewhere” (Haraway, 1988) installed in Bumble’s infrastructure. This “view” refers to the inevitable bias that stems from the subject position and situated knowledge of any software designer. This sec-

tion considers two examples that demonstrate the cisnormative and heteronormative design logics that constitute Bumble.

The first example relates to Bumble's log-in procedures. The only way to sign up for the app is by using your Facebook log-in information. As Bumble's (n.d.) FAQ explains, "This is important not only because it makes your signup process super fast, but it also ensures that information is genuine and reliable." Here we can see how Bumble's equality objective becomes operationalized as safety, which means ascertaining the "authenticity" of users (Haimson & Hoffman, 2016). Yet Bumble was not interested in extracting all of a user's Facebook data. Names and ages were seen as mandatory information to collect from Facebook. Job and school information was important, but a user's gender was not. Despite Facebook's custom gender, which permits users to enter their preferred phrasing in a text box, Bumble users are only offered two gender options (male and female). Additionally, a user can only alter their gender once. Supported by a cisnormative logic, Bumble retained regulatory control over gender by dislocating it from the digital delegation process. While cisgendered users' (and designers') privilege permits them to remain blind to the binary world created by Bumble, others can face direct consequences of this exclusionary logic. Emotional distress can result from a binary gender identification requirement (Haimson, Brubaker, Dombrowski, & Hayes, 2015), and transphobic reporting and messaging may flourish in a space where the only valid gender identity is binary.

The second example is informed by early critics of Bumble who noticed that the unique "ladies talk first" feature is only available for heterosexual users. In same-sex matches, either party can initiate a conversation as long as it occurs within 24 hours of the match (otherwise the connection disappears). According to one user, "[T]he bottom line is that while LGBT people can download, match, and interact on Bumble, it doesn't appear to have been designed *for us*" (Safari, 2014, last para., italics original). Bumble's (n.d.) FAQ does not shy away from noting who its unique feature was intended for: "Since this concept was designed to correct an issue with opposite sex dating, we've removed that functionality and restriction from any same sex connection." The "better" dating pool that Bumble seeks to offer and monetize is a heterosexual pool. As one commentator described it, "Bumble's big feminist twist—only girls can send the first message—is rendered irrelevant by lesbianism. Lesbianism: where girls always have to send the first message. Feminists be copying" (Curran, 2017, para. 6).

This is another example within Bumble's infrastructure where gender, sex, and sexuality are conflated. Femininity and masculinity only emerge as important identifiers and predictors of aggression within a heterosexual context. As soon as homosexuality emerges in the app, the design strategy shifts. Same-sex users are (presumably) not at risk from aggressive formulations of masculinity. Since Bumble is operating in a cisnormative universe, there is no conception of different performances of gender being attached to differently sexed bodies. For instance, there are no distinctions between femme, or butch, or dyke lesbians. Neither are there distinctions among gay users. If masculinity is attached to the proclivity for aggression, fears of rejection, and hypersexuality, this is only within a cisnormative and heteronormative epistemological understanding of dating and hookup practices. An alternative design strategy here, for

example, would be to force femme lesbians to initiate conversations just as straight women are forced to with the “ladies talk first” feature. For the time being, instead of attempting new design solutions within Bumble, the company has decided to invest in a separate app called Chappy, which is set to serve gay men (Tepper, 2016).

Designing safety and risk

As already demonstrated, Bumble’s owners have an intended user in mind when developing safety mechanisms: women, and, to be more precise, White cisgender heterosexual women. Bumble’s infrastructure has largely focused on creating safety by giving this particular subset of women control over initial contact. As explained by Wolfe, this reversal of stereotypical gender roles ought to encourage better behaviour among men in and of itself: “Remove that rejection and replace it with flattery—a woman has messaged them—and it leads, generally, to better behaviour” (quoted in Mulkerrins, 2017, para. 10). From this perspective, both men and women can potentially benefit from the app. This section discusses two final examples that demonstrate epistemological limits and the corrupt categories that result.

As Bumble has continued to develop, new features continue to be added. One of these is the BFF feature, introduced in March 2016. This popular acronym stands in for the phrase “best friends forever” and is available to any user, regardless of their gender or sexuality. Yet, since a heteronormative logic dictates the design of this feature, friendship is impossible between male and female bodies. As a result, a female user cannot match with a male BFF, nor can a male user be matched with a female BFF. Overall, the BFF feature—described by Wolfe as “for girls in cities to find friends” (quoted in Milligan, 2016, para. 14)—appears to be “heavily geared toward women,” especially given “the [Bumble] BFF Instagram account’s penchant for all things pink and traditionally feminine” (Kircher, 2016, para. 1).

Consistent with the binary logics embedded in much of Bumble’s infrastructure, users cannot simultaneously seek out BFFs *and* romantic or sexual partners. Yet it appears that this restriction has only been adequately tested for heterosexual users: lesbian users have described how Bumble has mistakenly included straight women seeking female BFFs in their pool of prospective matches. In an article in *New York Magazine*, Kircher (2016) explains her own experiences alongside several anecdotes from other lesbian Bumble users:

As a gay woman, I have my account set to display “Only Women,” so my profile on Bumble shouldn’t be shown to any women using BFF and I shouldn’t be shown theirs. (Sorry ladies, but I’m not here to make friends.) Yet I keep matching with women who, it appears, *are* looking for female friends, rather than looking for female, well, *friends*. (para. 4, italics original)

Importantly, this design failure is not simply an annoyance—it places queer women in danger. In fact, if we assume that this problem is not restricted to women but likely emerges for gay male users as well, then all queer users are at increased risk. The concern is that a queer user’s sexual identity will become known to heterosexual users without the user’s knowledge or consent. We found a story from a straight Bumble user who anticipated a BFF match when meeting up with a woman and only

later realized—through post-meeting clarification text messages—that the two were mistakenly matched by Bumble (Hensler, 2016). Due to this error, and given that dating apps like Bumble rely heavily on location data to create matches, queer users can be inadvertently exposed to straight users who are simply searching for a BFF. Living in a heteronormative society, queer users are naturally aware of the risks imposed by exposing their non-normative identity online (e.g., profile descriptors or images), but infrastructural failures like this one—where an allegedly secure same-sex-only space is actually vulnerable to leaks from other sets of users—is not likely to be on their radar. Once the problem is revealed, however, it is not surprising, as Kircher (2016) describes here:

It's unclear whether this is a glitch or a larger technical oversight—or, maybe, both ... While Bumble welcomes users of all sexual orientations, the crux of the app's design (women messaging men first) is engineered around heterosexual power dynamics. It wouldn't be terribly shocking to find that the nuances of the types of potential relationships between women were just overlooked. Especially given that much of the dating-app scene doesn't fully acknowledge them anyway. (para. 7)

Blinders stemming from the heteronormative epistemological position undergirding Bumble's attempts to generate safety contribute to the existence of this type of "glitch." Straight people do not have to worry about their sexual identity being exposed.

Since Bumble's major socio-technical patch—the "ladies ask first" feature—only resolves initiation rituals, Bumble also created the VIBee program, to monitor and regulate post-initiation behaviours. Explaining these features through a "positive reinforcement strategy" (Walsh, 2015), Wolfe says, "We want to reward those users who have been good members of the community" (quoted in Alter, 2015b, para. 5). Launched one year after Bumble's original release, in 2015, the VIBee program depends on an algorithm that tracks behaviour metrics. VIBee members are then shown only other VIBee members as potential matches. The program offers "an elevated Bumble experience" and is for Bumble's "best-behaved users": "Think of it as a curated digital social club. We've personally selected like-minded, outgoing, kind individuals for you to meet" (The Beehive, 2017, para. 1).

Bumble's uniqueness relates to the guarantee of safety on the platform, which is achieved by programming what Cheney-Lippold (2017) refers to as "measurable types" (p. 19) that determine good and bad users. According to Mick, Bumble's head of product and design, "We were able to look into user activity and see who was consistently responding to messages, people who have never been reported for inappropriate behavior, people who made sure their profiles were a fun reflection of themselves, etc" (quoted in Alter, 2015b, para. 7). These user activities comprise a set of information that is generated by programming decisions—the measurable type of good and bad is "based exclusively on what is available to measure" (Cheney-Lippold, 2017, p. 24). These types are also actionable in that users can gain entrance to VIBee if they are good or be excluded if they are bad. Cheney-Lippold (2017) would call this an "algorithmic interpretation" (p. 24) by the app's software, and, based on our analysis, "what is available to measure" is dependent on the ontological constitution of the software's

identity categories. Given its proprietary nature, only some information is available about the algorithm that drives the VIBee program. Users struggle to see the measurable type (and turn to sites like Reddit to discuss it; see, for example, Viconahopa, 2017), but are not granted access to the inner workings of the algorithm, which is a critique of algorithmic worlds more broadly (Pasquale, 2015). Yet these measurable types “determine the discursive parameters of who we can (and cannot) be” (Cheney-Lippold, 2017, p. 48), and they are themselves “epistemologically fabricated” by design decisions that are married to the ontological rendering of identity generated by Bumble’s software.

Conclusion

Bumble’s feminist social justice objective is (gender) equality, which is operationalized as increased control and safety within a heteronormative dating and hookup world. Marketed as an alternative, cleaned up space, Bumble seeks equality by decisively and explicitly handing over control to straight cisgender female users for the initial activity of deciding who to converse with. Based on our analysis of Wolfe’s interviews, there is an expectation that this move will single-handedly create a safer and more equitable space because of self-selection bias (“better” men will join) and by strategically removing male experiences of initial rejection. Other features, like the VIBee program and standard reporting mechanisms, are incorporated as additional socio-technical features that support identity regulation. Yet the overall focus on control and safety is narrowed by an epistemological lens that prioritizes gender as the sole axis of oppression while marking other identity differences as insignificant. Bumble’s identity-based infrastructural design practices have been filtered through a racialized and gendered lens, which has ontologically mapped gender, sex, and sexuality as a heterosexual matrix that is supported by invisible manifestations of whiteness. Masculinity is only viable for male bodies that are sexually attracted to female bodies, which are, in turn, the only legible containers for (White) femininity and opposite-sex attraction. As a result, heteronormative and cisnormative relations emerge when the app’s infrastructure generates gender, sex, sexuality, and race as an ontologically dependent system.

In a recent interview, Wolfe remembers “stumb[ing] upon Bumble’s secret sauce” by musing about Cinderella and “a Sadie Hawkins dance,” and asking, “What if we could hardwire that into a product?” (quoted in O’Connor, 2017, para. 23). The journalist then sums it up: “It was the kind of brilliant tweak that comes from someone who understands the target demographic because they’re in it” (para. 23). Amid “platform for change” narratives and rampant technological solutionism, it is important to analyze the corrupt categories that are produced and the social consequences for the target demographic and everyone else. Viewing Bumble’s objectives through these a priori epistemological lenses, one sees how control and safety are optimized for straight White cisgender women and at the same time fail them by narrowing the category of gender into a static understanding of masculinity and femininity. Despite a desire to reconfigure gender within traditional courtship rituals, Bumble’s built environment has done little to inspire new ontological formulations of gender. Instead, the narratives around the male body that emerge when exploring the logic behind the “ladies ask first” design, and the expectation that males will react in anger due to their

fear of rejection, buttress homogenous visions of masculinity in which the male body becomes linked indelibly to specific configurations of masculinity. This narrow conception of gender restrains our attempts to negotiate alternative pathways of formulating and playing with identity within Bumble's manufactured world.

When an intersectional lens is replaced with a solitary focus on one axis of oppression, infrastructural failures are bound to occur. The major infrastructural failures we investigated stem from binary logics: 1) dislocating gender from digital delegation to administer a binary; 2) rescinding the "ladies talk first" feature for non-heterosexual users; and 3) exposing queer users through the same-sex BFF feature. By legitimizing straight White cisgender women as worthy of control and safety mechanisms, all other users were put at risk. Marginalized groups cannot be asked to wait—and accept increased risk—while identity categories are dealt with one at a time. Identities always interlock and intersect; they cannot be pulled apart from one another. As Carby (1982) explains, women of colour "can point to no single source for [their] oppression" (p. 111). Making universalizing assumptions based on one category while insisting on seeing only one small piece of that identity position is extremely problematic (Moraga, 2000). Designers motivated by good intentions and social justice objectives ought to be mindful of such infrastructural failures, including increased risks for marginalized bodies, and the ontological (re)generation of oppressive identity categories. Perhaps if we expand our strategies for social change beyond a narrow focus on marketable products that offer technical tweaks, we might be better positioned to achieve them.

Notes

1. Launched in December 2014, Bumble is a GPS-based social networking and dating application (or "app") for use on Android and Apple mobile devices. The app is free to use but also includes in-app purchases.
2. Although we were unable to access premium data sets that could reveal more detail about Bumble's download rates and demographics, App Annie's free online service offered a snapshot of ranking information by country as of February 2018. Within the iPhone's "Lifestyle" apps, Bumble was ranked in the top 100 in 214 countries, and in the top 10 in the United Kingdom, United States, New Zealand, Canada (#3), Ireland, and Australia.
3. Thank you to Dr. Sarah J. Jackson (Northeastern University) for this feedback during a presentation about this article at the International Communication Association.
4. Use of the term "violence" here is intended to recognize the ways in which mainstream feminist efforts have been exclusionary to the point of actively advocating for practices that enact violence against specific groups of people. Consider just one example in the Canadian context: the coercive sterilization of Indigenous women and people with disabilities (Leung, 2012; Stote, 2015). At the same time, we recognize that there are important discussions surrounding the elasticity of the term "violence" that scholars must grapple with, and we are interested in and involved in these debates (e.g., Bivens, 2018). In the context of sexual violence, for example, discussions relate to umbrella terms such as "rape culture," the range of acceptable sexualized activity (e.g., sexting), and the carceral and punitive responses that are deployed (Karaian, 2017; Khan, 2014; Khan, 2016).
5. The Match Group controls 64 percent of the dating apps market, including ownership of Tinder, PlentyofFish, and Match.com (Wood, 2015).
6. This remark clearly generalizes all women of colour despite the different racial stereotypes that render, for instance, Black women as "Jezebels," and "bad" Indigenous women as "squaws."

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