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**Bored ghosts in the dating app assemblage: how dating app algorithms couple ghosting behaviors with a suffuse mood of boredom**

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## **Bored ghosts in the dating app assemblage: how dating app algorithms couple ghosting behaviors with a mood of boredom**

Research on ghosting has focused on individual user experiences, psychological dispositions, and attachment styles. We add to this scholarship by broadening the level of analysis to encompass what we call the “dating app assemblage” – entailing users, moods, and algorithms. Through in-depth interviews and the “walkthrough” method, we argue the dating app assemblages of Tinder and Bumble foster boring textual exchanges conducive to ghosting (cutting off communication without notice) and flaking (cancelling dates at the last minute) by algorithmically creating unequal engagement. This makes it hard for users to find substantial relationships, but it aligns with the exigencies of data-driven capitalism, where more social relations can be sold when they often disappear.

Keywords: mobile technology; interactivity; media studies; social media; dating apps

### **Introduction**

Ghosting – or cutting off communication with someone without letting them know why – has been found to correlate with the rise in dating apps (LeFebvre et al., 2019). Popular accounts have described ghosting on dating apps as annoying, traumatizing, and yet inevitable (Hosie, 2021; Murray, 2021). This leads to various media outlets continually offering advice to dating app users on how to deal with and/or avoid being ghosted (Spira, 2020). It is important to investigate ghosting on dating apps because online dating has quickly surpassed most other ways of finding a significant other, with over forty percent of couples finding each other online by 2017 (Rosenfeld et al., 2019). Furthermore, most of online dating now occurs on dating apps.

Research on ghosting has detailed negative emotional impacts of being ghosted (Koessler et al., 2019; Navarro et al., 2020; Timmermans et al., 2020), coping mechanisms of the ghosted (Timmermans et al., 2020), and the correlation between psychological traits and being ghosted

(Powell et al., 2021). However, studies have not examined ghosting in the specific context of dating apps, except for Timmermans et al. (2020) and Halversen et al. (2021). Timmermans et al. (2020) found that being ghosted negatively impacts psychological well-being, while Halversen et al. (2021) found that when women disclose more information to their matches on Bumble, they are more likely to ghost them by deleting their accounts rather than simply ignoring the matches (Halversen et al., 2021).

While not examining ghosting on dating apps specifically, one study has pointed out a correlation between the rise in ghosting and the widespread adoption of dating apps (LeFebvre et al., 2019). Relatedly, research on online dating behavior has shown that even though the majority of dating app users seek serious long-term relationships (Carpenter and McEwan, 2016; Hobbs et al., 2016; LeFebvre, 2018), dating apps seem to engender hostile interactions, such as rampant instances of trolling and sexist messages (Ging and Siapera, 2018; Hess and Flores, 2018; Lee, 2019; Shaw, 2016; Thompson, 2018). This hostility is quite different from the market mentality that scholars have noted of dating website users – a tendency of users to rationally maximize their romantic fortunes through a detailed set of pre-set criteria and desired questionnaire responses (Heino et al., 2010; Illouz, 2007).

To examine factors influencing user behavior on dating apps and dating websites, some research has pointed to their algorithms. But because online dating companies do not fully reveal how their algorithms work, studies have focused on what users believe about them. On the one hand, dating site algorithms have been found to increase user confidence in the compatibility of their matches (Tong et al., 2016). Increased confidence in matches has also been found to increase personal disclosure between matches, in turn increasing the likelihood that these matches will turn into successful dates (Sharabi, 2020). User beliefs about matching algorithms

on dating websites are common and understandable because dating site companies often tout their algorithms as providing quality matches through compatibility questionnaires or personality tests.

On the other hand, because much less information is available about dating app algorithms, findings about what users believe about algorithms on dating apps have been mixed. While some research has shown that users tend to be unaware of how dating app algorithms function (Sharabi, 2020), other studies have shown that when users are aware, they are uncritical of the problematic biases that such algorithms perpetuate (Narr, 2021; Parisi and Comunello, 2020; Wang, 2020). Users have also been shown to develop many ways to game Tinder's algorithm, leading scholars to claim that the algorithm and users co-evolve, both utilizing the conventions of data science to create data cultures (Albury et al., 2017). Yet, another study shows that many users do not feel agency within this dynamic: they suspect Tinder's algorithm to be calibrated to make it hard for them to find quality dates, which they believe is meant to entice them to pay for special features (Courtois and Timmermans, 2018).

Studying user beliefs about algorithms on dating sites and apps is important because these beliefs influence how users interact with dating platforms and with one another. But because of the opaque nature of algorithms on dating apps, extant research needs a better understanding of these beliefs. Further, most of the extant research on ghosting and dating app user behaviors has focused on individual traits, without considering algorithmic affordances. We thus move beyond the individual level of analysis to examine ghosting in what we call the "dating app assemblage."

By dating app assemblage, we mean the amalgam of behaviors, perceptions, interface protocols, material hardware, algorithms, moods, and emotions that dating apps bring together.

Because non-human entities – moving interfaces, dynamic algorithmic sorting, mobile hardware, real-time feedback, etc. – are increasingly lively and coupled with human feelings, emotions, and behaviors on social media, media scholars have used the word “assemblage” to indicate this entanglement (Hayles, 2017; Sampson, 2016, 2020). Using the word “assemblage” rather than “network” for these interconnected actors foregrounds the processual nature of these entanglements within digital spaces, where dynamic algorithms foster habitual engagement by spreading “contagious experiences” (Sampson, 2020: 131). Studying the dating app assemblage thus allows us to examine ghosting as a part of the culture, practices, and rituals that dating apps foster as they link users with computational infrastructures rather than seeing ghosting as a phenomenon that can be understood solely through the lens of user characteristics and psychological dispositions. In this study, we focus specifically on user behaviors, beliefs of algorithms, interface protocols, and algorithmic affordances.

Methodologically, current studies examining ghosting have employed questionnaires (Halversen et al., 2021; LeFebvre et al., 2019; Powell et al., 2021; Timmermans et al., 2020). While this method typically allows for large sample sizes and generalizability, it does not demonstrate in-depth the nuances of how a phenomenon occurs in real life (Charmaz, 2006; Jørgensen, 2016). Given the need for an extensive examination of ghosting that goes beyond individual users, this paper addresses two research questions: **RQ1:** How does ghosting occur in the dating app assemblage?; **RQ2:** How does ghosting impact the dating app assemblage?

## **Materials and Methods**

Because we wanted to examine in-depth the nuances of how ghosting unfolds in the dating app assemblage, we took an exploratory approach. To do this, we drew on our 48 in-depth interviews using grounded theory (Charmaz, 2006). Our interviews also featured the “media go-along”

method (Jørgensen, 2016), where users are questioned while navigating their dating apps. Because dating app platforms are proprietary, it has been recommended that scholars use a combination of methods to triangulate findings, as there are limitations to using each method in isolation (Kitchin, 2017). We thus additionally employed the “walkthrough” method (Light et al., 2016) – which entails analyzing promotional materials, official statements, online forums, and blogs – in order to uncover the operating model and affordances of dating app algorithms and user beliefs about them.

### ***In-depth interviews and grounded theory***

The findings below are derived from 48 in-depth interviews taken in 2017-2018 as part of a larger exploratory study on online dating. IRB approval was given by The Human Research Protection Program (HRPP) at CUNY with protocol number 2016-1431. The interviews were conducted after respondents signed the consent form. They took place in bars and coffee shops in New York City at the respondents’ convenience. The interviews were semi-structured with open-ended questions to allow respondents to expand upon their unique experiences. The interviews took on average 56 minutes, ranging from 22 minutes to over two hours. All interviews were recorded and transcribed. Respondents’ identifying information was changed to protect their privacy.

The interviews were conducted, coded, and analyzed iteratively in 3 phases, following the principles of grounded theory method (Charmaz, 2006). The sample of Phase 1 interviews (12 respondents) began with one of the authors’ network of connections in real life and on Facebook and snowballed from there for Phase 2 and 3. This was done because the author wanted to specifically interview those using dating apps to look for committed relationships (purposive sampling) and to recruit trust-worthy and reliable participants. Because the study was

exploratory, the interview questions in Phase 1 were general questions about respondents' experiences and issues using dating platforms. Using the incident-by-incident coding method to analyze the interviews, the author developed a list of open codes representing the various topics and issues about online dating that respondents discussed (Charmaz, 2006). One of these open codes concerns how respondents felt that they started out excited about online dating but then became disillusioned over time. Because there was little data on how this excitement loss unfolds on dating apps, Phase 2 of interviews (15 respondents) was conducted. Analysis in this phase revealed that part of this loss of excitement was because dating app users soon felt that the texting process on dating apps was rather boring. They also felt the connections they were making were by nature flaky and could disappear at any time without notice, i.e., ghosting. Thus, Phase 3 of interviews (21 respondents) was conducted to focus on the specific themes of texting, boredom, flakiness, and ghosting on dating apps for the purpose of theoretical sampling required in grounded theory (Charmaz, 2006). The interview process ended when theoretical saturation was reached (Charmaz, 2006) – when no new or relevant data in a category or linkages among the categories emerged during data coding.

Most of the respondents (forty-four) were single and using dating apps at the time of their interviews. The four respondents not using dating apps were in committed relationships with people they had recently met while online dating. The most common apps used by the respondents were Bumble and Tinder. The average age was 32 years old, ranging from 20 to 56. The majority (forty-one) of the respondents were working in NYC, while three were students and four were unemployed. There were 18 men, 30 women, 29 White, 19 people of color, 27 straight, and 11 non-straight respondents. Five respondents were working in the online-dating industry: analyzing data, consulting app creators, coaching online daters, making a documentary about



online dating, and marketing a dating website. The respondents were diverse in nationalities, such as Spain, India, England, Australia, Peru, Sweden, China, and Japan.

### *Media go-along portion of the interviews*

About two-thirds of the respondents agreed to participate in a mediated portion of the interview, where respondents were asked to use the dating app they had recently been using the most while the author observed and asked questions. This procedure largely follows the ‘media go-along’ method, where the researcher both follows and directs respondents as they navigate the app in question (Jørgensen, 2016). This technique is especially useful for studying mobile phone apps because it allows respondents to lead the researcher to places they may not otherwise have recalled. It also allows the researcher to subtly point respondents towards places of interest (Jørgensen, 2016). During this part of the interview, the respondents were asked to use the dating apps as they would normally use them. At the same time, the author would ask the respondents to explain why they were making the choices they were making in swiping, initiating, and responding to messages. This media go-along method allows the researcher “to be present with participants in places that are spatially charged” and thus likely to “produce authentic accounts of experience ... tied to those places” (Jørgensen, 2016). In other words, the researcher gains access to the users’ affective responses by being with them in the digital spaces under investigation (Jørgensen, 2016). The affective response generated by this research method allowed us to investigate feelings users had while using dating apps that would not have been accessible using a survey design or standard interview setting.

### ***Walkthrough Method***

Because we wished to examine the dating app assemblage, we additionally employed the

“walkthrough method” (Light et al., 2016), which involves analyzing official statements, promotional materials, online forums, and blogs, to better understand the affordances, vision, and operating mode of dating apps. We focused on the most commonly used apps by our interview respondents –Tinder and Bumble. Since interfacial affordances of dating apps have been detailed (Duguay, 2017), we paid particular attention to the algorithmic affordances of Tinder and Bumble. Specifically, we analyzed the official statements these companies had given about their algorithms. Furthermore, because these companies revealed rather limited information about their algorithms, we additionally analyzed online forums and blogs to approximate user interpretations of how these dating app algorithms were working. Specifically, we analyzed user posts on Reddit forums and personal blogs dedicated to discussing Tinder and Bumble. Although Reddit users skew male and young, we decided to use them to complement our respondents who primarily did not understand the algorithms being used (Clement, 2020). Because Reddit users are technologically savvy, they gave us a deeper understanding of how users think of dating app algorithms (Sattelberg, 2019). Performing the walkthrough method allowed us to uncover the ideal users implied by the design of these platforms, as well as the way users perceived the algorithms governing their engagement (Bucher, 2017; Light et al., 2016).

## **Results**

We present our findings in two parts. First, our interviews show how ghosting on dating apps often occurs out of boredom, how the dating app assemblage is marked by a boring mood, and how ghosting impacts the dating app assemblage, leading to a heightening of this suffused mood of boredom. Second, our results from the walkthrough method show that dating app algorithms and users’ cynical beliefs about them are likely to contribute to this mood of boredom.

## *Findings from our interviews*

### *How ghosting occurs in the dating app assemblage*

**Bored and generic texting.** We found that respondents often used dating apps when they were bored, in the hope of alleviating that boredom. For instance, Tom recounted (in all the interview quotes below, respondents' words are in regular text, interviewer's are in bold):

I got to the point where in like a few days I had like 50 something matches. And it was like this is getting exhausting just to like scroll through who I want to talk to. [...] I'll just keep them there, I don't care. [...]but then] I'm like you know what I'm bored, I'll just go scroll through and like, and I'll message them. And sometimes I get a response. We'll have like a five message conversation and then like nothing. If there was a conversation at all. Some people we did have conversations, you know. – **Are you saying something about them or are you just sending random messages?** – Sometimes I say “Hey”, “Hey, what's up?”, “Hey, let's hang out”, you know, those are like generic. – **You say that?** – Sometimes, those are like generic, and I do those betting they will fail. And they do. (24, Black, gay, man)

This quote shows that for many users, boredom was part of the reason to engage in texting their matches. Even though the main objective of our respondents was to find a serious, long-term partner, their boredom often acted as a major factor in initiating their activities, such as texting. This example also shows that often when users were bored to begin with, they sent generic texts to their matches. These then usually led to short-lived conversations or complete silence.

**Ghosting out of boredom.** We further found the most common reason respondents gave for ghosting matches was that their matches became boring. For instance, when asked to show a typical conversation she had with someone on a dating app, Jenny directed the author to a long message chain with someone. It is so long that the author summarized it in the quote below:

**Nice smile, talking about the march, where they live. He's very happy to be without roommates. You're not as impressed. Now we're going back to the weekend. Wow, OK, there's about fifty different messages there back and forth.** – Yeah, and then I decided he was boring. I said, “man these things are always so boring.” (25, White, straight, woman)

A few messages later Jenny said, “why do we even bother with these things, lol?” To which her match responded, “OK, let's get a drink.” This is the last text in the exchange. As an explanation for why she stopped responding, Jenny told the interviewer, “but then it's almost too late,” implying that she was already bored by the time a date was suggested.

*Ghosting out of boredom even by those who consider it to be inconsiderate.* Furthermore, while many respondents were uncomfortable with the fact that matches on dating apps can ghost them at any time, they admitted to ghosting boring matches themselves. For instance, Alicia observed:

I guess if you meet, I don't know, you meet someone out at a party or something, and they are like, “let's get together,” it didn't feel as flaky. You know, it didn't feel as like you're talking to someone and you're messaging them, and they just disappear. And I've done that too, you know? I've been messaging with someone, and then I'm just ... like, “I'm bored with this.” I've done that too. I've done that recently. Where I was just like, “do I want a reply? I will reply.” And then it's like, “well I don't want to meet this person.” And then you just stop replying. (38, Black, straight, woman)

Relatedly, while Jenny found ghosting to be inconsiderate, she felt it is ultimately necessary in certain cases. After recounting her bad experience of running into an angry and hostile match whom she had previously told she was not interested in meeting again (she found him uninteresting), Jenny concluded that, although directly rejecting her match was more considerate to him, ghosting him would have been less troublesome for her.

[...] My girlfriends were like, “no you’re supposed to, this is how you do it, OK. They message you, and then you write one-word answers.” So you’re responding, but you kind of ghost them out a little bit and just go like, “Oh!”, “Haha”, and stuff like that until it just like fades. I’m like, “That’s ridiculous. It’s a waste of his time. It’s a waste of my time. Why would I do that to someone.” I feel like what I did was more courteous. – **Yeah.** – But apparently not. I should have listened to my friends. (25, White, straight, woman)

### *Mood of boredom in the dating app assemblage*

Besides finding that dating app users often ghosted people out of boredom and did so even when they thought it is inconsiderate, we found that this mood of boredom suffused the dating app assemblage because of the way users texted each other.

Particularly, many respondents felt that the texts they received were unengaging and impersonal. For instance, Alicia recounted:

Tinder I found so strange. Like, when I first started using it, I was like, “What is this?” Like, you’d ask someone a question and they would respond but not ask a question. So you’d say like, “Oh where was that photograph, where were you visiting?” [and they’d say] like, “Paris”, [and] that’s it. Then my friend told me, I was like, “What is this?” and she’s like “They all do that”. She showed me her Tinder, “look at this”, and she is doing the same thing. She’s asking a question, and the person is responding but they are not engaging. (38, Black, straight, woman)

Furthermore, many respondents also felt that the texts they received were unoriginal and uninteresting. For instance, Rose observed:

I started getting a lot of like kind of gross messages. At first I was like, “this is so fun and funny” but it got old really fast, I don’t know. – **What kind of messages?** – Like “wanna fuck?” and like “show me your tits?” and you know. Or just like the way somebody would start a chat would be like “tell me your wettest fantasy” or something. It’s like “eww” or like sometimes I would think that was fun but then like to me that’s like a funny fun joke for like a second, and then it’s just boring. (30, White, straight, woman)

Despite the sexual nature of some of the messages she receives, which she found off-putting or even funny at times, Rose soon grew bored with them. This example also suggests that many users found their matches' texts boring because most messages, offensive or not, were often too similar and unoriginal.

Taken together, the two examples above show that for many respondents interacting with their matches felt mundane because the messages they received were often banal, impersonal, and did not reciprocate the interest they showed to their matches. This posed a problem for them because many of them viewed texting as the main way for them to find out more about their matches before setting up dates.

However, even when respondents happened to have more tailored, interesting, and engaging conversations with their matches, they still often felt uninspired because many of those conversations did not lead to anything. For instance, Ada described her experience when she had started telling her matches that she was reading a book in the hope of initiating more interesting exchanges:

If it works, it works in the short-term. They ask you, “what are you reading?” And they recommend you a book, but it never guarantees that they're going to turn into a date. It just keeps it alive a little bit. You feel good about yourself for exchanging a few sentences with a stranger and then – **And that's it?** — Yeah.” (38, White, straight, woman)

This shows that while many users, like Ada, participated in the texting process on dating apps, they did not feel hopeful. They expected their excitement, if any, to last only a short while as they have learned most of their interactions are unfruitful anyway. This also suggests that because of this reason, many users felt jaded and bored from their interactions on dating apps.

*How ghosting impacts the dating apps assemblage*

**Frustration and disappointment.** Many respondents were frustrated with getting to know many users that inexplicably stopped responding. For instance, Sara conveyed her exasperation with this behavior when asked if she was having success on any of the six dating apps she was using. She said,

Most of the time it doesn't go anywhere. It doesn't get to that point because the odds are so low. They ghost. I get ghosted. A lot of ghosting. You know what that is? Ghosting? – **Yeah. They start talking, and then they don't respond when you text them.** – Just MIA. Disappear. Disappear. Text them, emails, whatever. It's just too busy, falls off, doesn't happen. There's too many options, and I am not chasing. I'll give it a couple of times. But if you're not, I'm not. I'm done. I'm not chasing. (49, White, straight, woman)

The respondents also suggested being ghosted was disappointing because of the time and energy they had invested in matches that ended up vanishing. For instance, Jean, who was new to dating apps, expressed her frustration with a match that stopped responding after a promising exchange:

This is the first person that I sent a message to, and it's like obviously I'm learning, right, because it is really.

**Do you mind if I read it?**

No, go for it.

[Interviewer reading Jean's message to her match] **Your photos are stunning (yes, I stalked your Instagram account). Would love to see how you plot out the plan. I just got back from Bali and it's a strong contender for me. Do you like dogs? Mostly asking because mine is a big part of my life.**

[Interviewer reading the response from Jean's match] **Hey there. I haven't quite figured out the island dweller life yet, but Bali sounds like that's as good a place as any to do it. Love all dogs. What is yours named? Have you had her or him for a while?**

**That's alright. That's a pretty good response.**

Yeah, but then, look. I responded to him

[Interviewer reading Jean's message] **His name is Bob. Full name is Beautiful Bob. He is a character. Hunting dog in Brooklyn. I've had him for more than 2 years, since he was 6 weeks old. Looks like you must travel a lot for work. What was your last trip?**

And then he never responded. Maybe he doesn't like Beautiful Bob. Maybe he thinks my dog's name is cheesy. (34. White, straight, woman)

This example shows the kind of creativity and energy users put into their messages, as well as the intimate information they reveal about themselves. Many exchanges go on like this for fifty or so messages before dying off. Part of the learning Jean alluded to in this quote is that seemingly promising conversations can end at any moment.

*Loss of excitement heightening the boring mood.* The two examples above also show that because being ghosted feels disheartening, users over time either become apathetic – like Sara, refusing to chase after people who stop responding, or self-conscious – like Jean, ruminating and speculating about what they might have done that made their matches lose interest. Others learn matter-of-factly that most connections on dating apps are short-lived, and thus do not allow themselves to expect anything more. For instance, Ada's quote in the mood of boredom section above shows that while users feel excited when texting their matches at first, they soon lose that sense of excitement when they realize that most conversations, even ones that seemed interesting, engaged, and personal, turn out to be nothing more than just conversations. These examples taken together suggest that users over time become disillusioned with the process and this disillusionment leads to an overall heightened mood of boredom suffusing the dating app assemblage.



*Flaking and flakiness in the dating app assemblage*

**Flaking out of boredom.** In addition to ghosting, we found that flaking (i.e, not going through with planned dates) is another common phenomenon experienced by users on dating apps. Like our findings on ghosting, while many respondents did not enjoy people flaking out on them, they also admitted to doing the same, often due to a lack of excitement about the date. For instance, Alicia recounted:

I actually was not even really feeling it [that day] so I was kind of hoping he wasn't going to show up. I was like praying, I was like, "please, I hope this person doesn't come!" And then he didn't [show up], and I was like, "really! Who does that?!" And so, I sent him a message, and I was like, "I'm here, I'll wait for a few minutes. I don't know what's going on." And then I didn't even wait for a few minutes. I just left because I really just wanted to get out of there. (38, Black, straight, woman)

Echoing a similar sentiment, Diana described how she often cancelled plans made on dating apps due to her excitement for them dwindling over time:

I do a lot of anticipating [for dates], so like now I'm going [to have a date] next week, and I'm kind of planning it now. And then when the moment comes, I just can't be bothered, so I ditch a lot. I was going to go on a date with someone tonight, and then I was just like "I can't." And so I came here. (23, Arabic, heteroflexible, woman)

**Inherent flaky and unreal nature of dating app connections.** In addition, many respondents pointed out that connections made through dating apps, compared to those originating in real life, have an underlying degree of flakiness to them, which they then alluded to as a likely cause of the rampant ghosting on these apps. For instance, Alicia observed:

There is so much flakiness. Like so much flakiness, it's really unbelievable. You could be going back and forth with someone and [...] unless that person is sitting across from me, I'm not sure it's going to happen. You know what I mean? (38, Black, straight, woman)

Some respondents even claimed the inherent flakiness of connections on dating apps made them feel the people they were dating were unreal unless enough time and interaction had been invested. For instance, Charlotte said:

Like you're not a real person until you get into it a little bit more. The three guys that I'm seeing right now all have nicknames, they are not real people. (29, White, straight, woman)

### ***Findings from the walkthrough method***

#### *Official statements by Tinder and Bumble about their ranking-based, interaction-focused algorithmic systems*

Every dating app orders recommendations using a proprietary algorithm. This makes it hard to know exactly how they work. But in contrast to algorithms on dating websites – which suggest matches based on the detailed inputs users deliberately give – algorithms on dating apps recommend users based on swiping ratios and interaction patterns (Fellizar, 2015; *Tinder*, 2019).

Over the time when interviews were conducted, for instance, Tinder admitted that it ordered the profiles that users swiped through according to an elo-inspired “attractiveness” scale based on the ratio of “likes” to “dislikes” users received (*Tinder*, 2019). Instead of “attractiveness,” Bumble devised an algorithm to privilege users who display “thoughtfulness.” Bumble’s CEO claims that this algorithm discerns which users “engage thoughtfully, have positive and meaningful interactions with ... matches, and haven’t been reported for inappropriate behavior” (Fellizar, 2015). Through releasing these official statements, Tinder and Bumble seemed to claim that their algorithms at the time showed people of similar attractiveness

or thoughtfulness ratings to each other – thus, in a way, focused on compatibility when recommending matches to users. However, dating app users on Reddit forums and the blogosphere had their own cynical interpretations of these algorithms. We detail their perceptions in the next section.

### *Users' cynical beliefs of algorithmic systems discerned from forums and blogs*

For instance, the following Reddit post is indicative of the doubts users felt about Bumble's algorithmic system:

The first couple days I just right swiped away. Seemed like a goldmine when I got 10+ matches the first day. Only 2 or 3 that I was legit interested in, but still, if that kept going, I'd be sure to have some luck with it, right? Now, it's been 5 days of no matches, so clearly, they put a block on my profile and it just won't show. I even tried swiping left a bunch, to offset the ratio, and then actually went thru and selectively swiped but still nothing. Also, I messaged the app support and they claimed my account was fine, but I don't think they can see the algorithm has rendered my account unviewable. It'd [be] nice if they could mention that it would happen before ruining the app for you.

This quotation is a good example of the cynical beliefs held by dating app users that we discovered by analyzing the subreddits of Bumble and Tinder. In general, users felt that the algorithmic matching system was working in an unsatisfactory way: they suspected their lack of matches had something to do with the algorithm. Changing one's swiping strategy was seen as a possible way to get the algorithm to increase one's chances of being matched with quality dating prospects. However, as indicated in this quote, it made little difference, which further exacerbated the user's cynicism about the algorithm.

In addition, some users suspected that their lack of matches on dating apps was caused by the profit motive of dating apps. The following comments from Tinder's Reddit forum show how

cynical users felt about this algorithmic system: “it’s the guaranteed mathematical end result of any system with microtransactions and a profit motive;” and “they could defend this manipulation in court ... by blaming the ‘bugs.’”

Analyzing personal blogs, we found further cynical sentiments by users regarding dating app algorithms: they assumed that higher ranked users would be more privileged by the algorithm. This contrasts with what the dating app companies claimed – people of different ranks would be treated largely the same – being suggested to other people with similar ranks to them. For example, a blog claimed that Tinder’s “attractiveness” ranking “used a specific algorithm to rank you among the Tinder users. If your Elo score was high, you would get more matches” (Arch, 2020). More specifically, users believed a low ranking assigned by the algorithm would place them towards the bottom of the stack of profiles that others swipe through, making their profile invisible to many potential matches, in turn reducing the number of matches they would obtain (Arch, 2020; Farfields, 2022). The flip side of this invisibility would be an increased exposure to potential matches that users believed was given to users with high ratings. And while Tinder announced in 2019 that it had switched to a more sophisticated matching system (Tinder, 2019), users generally believed little had changed. For example, Arch (2020) said, “the Elo score and the new ranking system are almost the same. Despite Tinder officially announcing it as a completely different thing, there’s nothing to suggest that’s the case.”

Taken together, these blogs and Reddit posts indicate users had a negative, untrusting view of the dating app algorithms: they are profit-driven and generate unequal interaction patterns. Combining our interview and walkthrough findings together, we theorize that user perceptions about dating app algorithms contribute to a mood of boredom exacerbated by rampant practices of ghosting and flakiness, which we discuss in depth next.

## Discussion

In this section, we first discuss how our findings are interconnected. Then we discuss how our findings relate to (1) theoretical accounts of affective assemblages in data-driven capitalism, (2) theoretical accounts of boredom on social media, online games, and smartphone apps, and (3) empirical accounts of dating apps by critical media scholars. Next, we show how our findings contribute to the literatures that examine ghosting and communication strategies on dating apps. And finally, we conclude this section by outlining practical implications, limitations, and avenues for future research suggested by this research.

Our interview findings show that ghosting, flakiness, and boredom are interrelated. Boredom often drives users to initiate texting their matches on dating apps. But when users are bored to begin with, they tend to send boring texts, which creates even more boredom. This heightened boredom, coupled with the inherent unreal-ness of connections on dating apps, drives ghosting and flaking. Users also become disheartened by the number of matches they spend time and energy getting to know, only to be ghosted soon after. They gradually become disillusioned as they understand their matches tend to stop responding or flake out at the last moment. Many users ghost and flake on matches themselves, despite believing it is inconsiderate to do so, because the responses they receive are lacklustre and unengaging. Over time, they increasingly go through the motions of texting and planning dates, not because they are excited about their matches, but because they are bored. And instead of revealing intimate information and asking interesting questions to get to know their matches, they send the same unoriginal “hi’s” and non-engaging responses they receive. The whole process breeds and feeds on boredom as it suffuses the dating app assemblage.

Taken together, the results of our grounded theory analysis of the interviews allowed us to uncover a multi-dimensional concept of boredom from the perspectives of the dating app users. Specifically, the concept of boredom that arises from our interview analysis includes three components regarding the usage of online dating: its cause, its process, and its outcome. The first component – cause – refers to boredom being the factor that often impels respondents to use dating apps. The second component – process – refers to the boredom that respondents feel while using dating apps. More specifically, it involves respondents’ perceiving either the textual exchanges in general, the discussed topics in the text messages, their matches’ messaging styles, or their matches’ personalities as boring, unengaging, unoriginal, uninspired, monotonous, and generic. The third component – outcome – refers to the loss of excitement and heightened boredom that respondents feel when they gradually realize over time that many of their connections on dating apps do not lead to anything more than merely short-lived textual exchanges – i.e., the often disappointing outcome of dating app usage.

Further, from our walkthrough method, we theorize that users’ cynical interpretations of the algorithmic feedback loop partly cause and exacerbate the mood of boredom we find on dating apps. While users of dating apps rarely know precisely how their algorithms work (Sharabi, 2020), we show, through an analysis of dating apps’ official statements, Reddit posts and blogs, that many users believe algorithmic systems on dating apps are likely to privilege people that are already receiving lots of matches and messages. These users speculate that because dating app algorithms employ interaction metric rankings to determine how quickly people are recommended to others, they create a feedback loop where a select few “attractive” or “thoughtful” people garner the majority of matches and messages. These users further believe

these ineffectual algorithms are employed by dating apps to get as many users as possible to pay for special features.

As users have little faith in the algorithms of dating apps, we argue users will want to establish rapport with matches to ensure they are quality matches before setting up dates, but this desire is thwarted by the bland exchanges and ghosting prevalent within the dating app assemblage. The cynical view of dating algorithms and the boring mood suffusing dating apps are thus likely to impact each other recursively. Users wish to vet their matches themselves because they are sceptical of dating app algorithms. But their attempts to do so often end up with somebody being bored and/or ghosted. This leads to disappointment, jadedness, and further cynicism. This heightened cynicism then likely leads to reduced effort in conversation, causing boredom to spread contagiously throughout dating app assemblages. Thus, synthesizing findings from our interviews and the walkthrough method, we argue that the perception that dating app algorithms foster unequal engagement creates an affective mood of boredom. This boredom on dating apps suggests they may induce a different mindset than dating websites, which scholars have claimed induce a market mentality in users because of their elaborate filtering mechanisms (Heino et al., 2010; Illouz, 2007).

Theorists critical of data-driven capitalism often write about pre-conscious, embodied feelings generated by digital media as “affect” to describe how algorithms couple with human feelings (Chun, 2016; Dean, 2010; Sampson, 2020). This coupling is said to entangle users and machines in assemblages that foster contagious affective moods, such as anxiety, boredom, or euphoria (Chun, 2016; Dean, 2010; Sampson, 2020). These moods are said to compel users to habitually engage precisely when they make it harder for users to achieve their goal (Dean, 2010; Sampson, 2020). Thus, our study contributes to this body of work by showing that its theoretical

arguments regarding the affective moods of digital media – which focus on evidence from Twitter, Youtube, and Facebook – apply to dating app assemblages as well.

Our results suggest that an affective mood of boredom that makes it more difficult to achieve users' goals on dating apps is likely to generate profits because users will have to keep returning to the app to satisfy their desires. This is especially true because users feel as though there is no alternative to the manipulative algorithms dating apps employ. As one Reddit user put it, this manipulation is “the guaranteed mathematical end result of any system with microtransactions and a profit motive.” Because of this seeming inevitability of algorithmic manipulation, users are less likely to seek better platforms than to redouble their efforts to get the dating apps they are using to work. Dissatisfaction from boring textual exchanges may thus drive engagement on dating apps, leading users to habitually tap the app in the hope of an anticipated response and, if none are found, to text someone new to dispel the sting of disappointment. Thus, while theorists critical of data-driven capitalism have detailed how engagement is generated by inequality within affective assemblages (Chun, 2016; Dean, 2010; Sampson, 2020), we show how these affective dynamics function within the dating app assemblage, which previous studies have not discussed.

The boring mood on dating apps that we find in this study also echoes what critical theorists have noted about apps on smartphones – from addicting games to social media platforms such as Snapchat and Instagram – over the past five years: they entice users to alleviate boredom through online engagement (Paasonen, 2021; Pettman, 2016). But while this may lead to temporary satisfaction, this engagement eventually becomes repetitive and boring in itself (Paasonen, 2021; Pettman, 2016). Moreover, instead of disengaging from social media once it becomes boring, users engage even more fervently to try to alleviate this boredom (Dean, 2010).



Social media is thus said to cultivate the “digital ‘unbored’” – users who seek instant gratification through online engagement to dispel the boredom such engagement actually leads to (2018: 94). Relatedly, in the context of online dating websites, Aho (2016) describes a process of “self-forming boredom,” where the emptiness one is hoping to escape by chatting with multiple dating prospects turns out to be unfulfilling itself. We extend this research by focusing on dating apps rather than dating websites, other social media, or other mobile phone apps.

In particular, we show that ghosting leads to boring exchanges and boring exchanges lead to ghosting in a recursive feedback loop. This feedback loop captures users in a counterproductive, dysfunctional search for intimacy: it generates cynical engagement where users do not feel their messages will lead to the substantial connections they seek. And this cynical engagement becomes a self-fulfilling prophecy, as it leads to lacklustre exchanges that users send knowing that they are unlikely to lead to desired connections. As Tom recounts, he often sends boring messages when he’s bored, “betting they will fail. And they do.” These boring exchanges that users expect to fail become contagious within the dating app assemblage, leading to a perpetual cycle of searching for new people to text, feeling good about “exchanging a few sentences with a stranger” (Ada), and then ghosting or getting ghosted by them. The fact that these connections are ephemeral means users are likely to return to the app when their connections ghost or flake out on them. Dating apps are thus likely to capitalize on the cynical engagement of users seeking connections that are hard to find. Indeed, if engaging with multiple matches is unfulfilling, as Aho asserts, we argue it is even more unfulfilling when matches tend to vanish without notice.

Empirical accounts of dating app algorithms have argued, as we do, that many processes – from material hardware to algorithms – assemble to influence the culture of dating apps

(Albury et al., 2017; Bivens and Hoque, 2018; Courtois and Timmermans, 2018; David and Cambre, 2016; Duguay, 2017; Hess and Flores, 2018, 2018; Lee, 2019; Pruchniewska, 2020). Many of these studies also show that the ephemeral connections fostered by dating apps contribute to the toxicity of hookup culture (Hess and Flores, 2018; Lee, 2019; Thompson, 2018). We do not focus on hookup culture in this paper, but the boring mood that we show makes it difficult for users to find long-term, substantial connections may contribute to the pernicious dynamics these scholars have found.

The cynical view of algorithms that we find of dating app users aligns with what other researchers have found of Tinder users: that they believe its algorithm is primarily calibrated to get users to purchase special features (Courtois and Timmermans, 2018). Prior research has also shown that when online daters are cynical about algorithms, they tend to offer less personal information to their matches (Sharabi, 2020). We add to these findings by arguing cynical views of algorithms contribute to boring textual exchanges that spread throughout the dating app assemblage.

Previous studies on ghosting have focused on the individual users (LeFebvre et al., 2019; Navarro et al., 2020; Powell et al., 2021). We contribute to this literature by examining ghosting within the dating app assemblage. We show that ghosting contributes to an overarching mood of boredom suffusing the dating app assemblage and vice versa. We further argue that these are exacerbated by users' cynical interpretations of the dating app algorithms. As previously discussed (see introduction), examining the dating app assemblage is important because people's behaviors are not only driven by their own traits and beliefs but also by the environment within which they operate. Without understanding the effect of the latter, the analysis of ghosting on dating apps is incomplete. Furthermore, examining the "assemblage" allows us to investigate the

way affects (emotions, feelings, and embodied responses that users are not necessarily consciously aware of) spread (Sampson, 2020).

Previous research examining ghosting on dating apps has found that being ghosted is more painful for people who have been ghosted a lot, who knew their ghostee for a long time and in person, and who did not expect to be ghosted (Timmermans et al., 2020). Our study complements this research by showing that while many of our respondents talk about ghosting prior to meeting in real life, making it likely that the painfulness of being ghosted was less intense for them, their perceptions of ghosting and being ghosted contribute to a particular experience of boredom that suffuses the dating app assemblage.

Our focus on the dating app assemblage also allowed us to infer an inherent conflict of interest between the dating app users that are looking for a long-term relationship and the dating app companies that are looking for profits. On the one hand, feeling bored and being ghosted seems to induce users to use the app even more to find a better match, which likely helps dating app companies generate money. On the other hand, this is unlikely to motivate these companies to change the way they design their apps to better serve their customers. Thus, this dynamic is likely not a flaw from the perspective of the dating app companies. However, we do not speculate on the intentions of these companies here, as this is beyond the scope of this article.

Unlike our study which highlights the boring nature of the dating app assemblage, several studies have examined a more strategic aspect of the dating app user experience. Specifically, users have been shown to engage in creative communication strategies and tactics to achieve their specific dating objectives. For instance, Ward (2017) found that many users construct and experiment with their profile – through photos and bio text – to present an ideal yet still authentic version of themselves. On the other hand, Markowitz and Hancock (2018) found that dating app

users sometimes lie to create an illusion of common interests or shared relationship goals so that they would more easily obtain dates. Interestingly, users in Hong Kong have been shown to engage in certain tactics to connect with prospective partners who hold similar political views as them (Chan, 2021). Our findings complement this body of research by showing that for many users (such as our respondents), despite the substantial effort they put in polishing and strategizing their text messages, many of their connections still vanish unexpectedly. We further conjecture that user strategies of unforthcoming communication on dating apps that other researchers have found likely contribute to the culture of ghosting and flakiness that our study highlights.

There are some practical implications of this study for users and designers of dating apps. For users, understanding that ghosting, flaking, and boredom is prevalent within the dating app assemblage may enable them to see it is not their fault that they are having difficulties using dating apps. For dating app designers, understanding some of the shortcomings in recommending users according to engagement patterns alone could encourage them to devise systems that cultivate exciting rather than boring engagement.

Like all research using in-depth interviews and grounded theory, this study has some limitations. We acknowledge that the results from our relatively small sample size cannot be generalized to all dating app users. It should be noted however, that the goal of exploratory qualitative research using grounded theory is not to test theories or provide population inferences but to theorize on phenomena discovered by the researchers (Glaser and Strauss, 1967). As such, this method is focused on theoretical sampling rather than representative sampling (Charmaz, 2006). That said, more research is needed to validate our results. Future studies should use a different method, such as questionnaires and a larger, random sample. Future studies could also

use other forums besides Reddit to complement our findings on how users understand the algorithms of dating apps. While this paper focused on the most popular dating apps today (Tinder and Bumble), there are dating apps that likely function differently. For instance, Hinge is ostensibly designed for more serious daters and employs a more sophisticated algorithm than Tinder and Bumble. Future research can examine whether dating apps like Hinge provide users with a more exciting dating experience. Further, future studies could also compare the ghosting experiences of users already in committed relationships found on dating apps to that of those still single and using dating apps to look for significant others. In addition, because most of our respondents were straight, it would be interesting for future research to examine whether different sexual orientations affect dating app interactions. Relatedly, because most of the respondents discussing boredom and ghosting in this study were females, future research should explore if there are any gender differences in relation to messaging patterns and related dynamics.

While our interviewees come from many different nationalities, which makes our sample more representative, the fact that they were all living in NYC, might affect their dating experiences. The population size of NYC may have played a role in exacerbating the ghosting phenomenon that we find in this study. Thus, additional research is needed to examine if this phenomenon holds for other population sizes of cities.

### ***Conclusion***

In this paper, we go beyond the individual level of analysis to examine how ghosting occurs in and influences the dating app assemblage. Focusing on the dating app assemblage is important because the mood, etiquette, and culture on dating apps cannot be thoroughly understood through a focus on individual user traits and beliefs alone. To understand the dating app assemblage, we

analyze and triangulate in-depth interviews of dating app users, official statements and promotional materials by Bumble and Tinder, and Reddit posts and personal blogs about these two platforms. Through this analysis, we show that boredom, ghosting, and flakiness on dating apps are interrelated and argue that these phenomena can be partly attributed to user perceptions surrounding dating app algorithms. We then posit that because matches ghost, it is hard for users to find quality dates, which leads them back to the app to find other matches to message. They do this while being cynical about the chances those messages will lead to anything. This ultimately generates more cynical engagement for apps as users perpetually search for substantial connections that are hard to find. This cycle of cynical engagement caused by a boring mood suffusing the dating app assemblages aligns with the need of data-driven capitalism to generate more and more engagement. In short, engagement increases on dating apps because the matches pursued on them tend to vanish as quickly as they appear – like ghosts.

### **Declaration of Interest**

The authors report there are no competing interests to declare.

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