Saying No to "Yes Means Yes": Limitations of Affirmative Consent for Mitigating Unwanted Behavior Online According to Women and LGBTQIA+ Stakeholders

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Abstract

Affirmative consent—or "yes means yes"—was initially devised to mitigate sexual violence stemming from misunderstandings of consent. More recently, HCI research has considered adapting affirmative consent to mitigate nonconsensual acts online. Given that affirmative consent has historically been under-adopted and critiqued as unrealistic in its original context of in-person sexual activity, it is imperative that users be involved in producing guidance for affirmative consent practice in computer-mediated contexts. We report a focus group study about affirmative consent in VR dating with 16 stakeholders identifying as women and/or LGBTQIA+ (demographics at elevated risk of nonconsensual acts). Findings suggest that affirmative consent may be obsolete: participants elucidated several reasons why affirmative consent is impractical, if not impossible, to practice in virtual environments. Participants offered provocations to guide creation of new, inherently computer-mediated consent models for mitigating unwanted acts, posing significant opportunity for HCI to have public health impact.

CCS Concepts

• **Human-centered computing → Empirical studies in collaborative and social computing**.

Keywords

Consent; Affirmative Consent; Consent Models; VR Dating; Cross-Reality; Social VR; Online Dating; Sexual Violence

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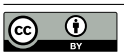

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1 Introduction

Content warning: This paper discusses forms of sexual violence including rape.

The absence of consent defines various interpersonal harms including sexual violence, sexual harassment, child abuse, and intimate partner violence [14, 27, 44]. There are a wide variety of nonconsensual acts facilitated by technology such as the nonconsensual sharing of nude imagery (revenge porn) [4, 60, 66], online and VR harassment [24, 45, 91, 99, 116], and unwanted physical sexual contact between online daters [33, 50, 105, 114]. There are also a variety of computer-mediated solutions to nonconsensual acts, broadly organized around detection and moderation of perpetration [67, 72, 108], support for victims during and after harm [6, 71, 82, 98, 119], and evasion of threats (e.g., safe routes) [1, 3, 141].

While (lack of) consent is a defining element of interpersonal harm, there is a dearth of technological solutions that scaffold consent itself—how it is given and received [146]. This is a conspicuous gap because public health research has shown that interpersonal harm, such as sexual violence, can occur without conscious intent for harm due to the misinterpretation of a partner's consent through implicit—and unreliable—signals [64, 86].

The foundation of any designed intervention into consent practices is a consent model: prescriptive rules for how consent "should" be given and received. The consent model that has arguably been given the most attention in HCI is *affirmative consent* [66]. Distilled in the phrase "yes means yes," affirmative consent shifts responsibility towards confirming the consent of one's partner before an act begins, rather than on clarifying one's own refusal [68]. It has been broken down into core concepts [66, 103] including: consent must be enthusiastically or *voluntarily* given, *informed* with accurate information, *specific* to a particular act, *reversible*, and *unburdensome* to perform. Affirmative consent was popularized in the early 1990s to mitigate sexual violence on college campuses [20, 46, 63] and has since been strongly advocated in HCI research for "consentful technology" [77] broadly construed, and for specific social computing contexts. These include sexual activity between online daters [146, 147] and between human and sex robot [127], interactions in social VR [34, 121, 145] and sex-themed video games [88], as well as mitigating revenge porn on social media [60, 66].

The popularity of affirmative consent in HCI is somewhat surprising given historical under-adoption of the model by the general public for sexual activity [86, 106, 140] and critique of being awkward and unrealistic [48, 56]. Given that affirmative consent originated in 1991, it also makes no explicit mention of the role that technology does or should play in consent exchange. In light of these challenges, HCI researchers have recognized that new prescriptive guidance is needed for how computer-mediated affirmative consent should be designed for and practiced [66, 121, 127]. Researchers have proposed their interpretations of affirmative consent models and concepts for social media platforms [66] and sex robot interactions [127], and used findings from participatory design of sexual consent devices to argue that voluntary adoption of affirmative consent could potentially be improved by technology [146]. However, intended users have yet to be directly involved in creating prescriptive guidance for how affirmative consent should be practiced in computer-mediated communication.

We sought to co-produce prescriptive guidance for computer-mediated affirmative consent through a focus group study of VR dating with women and LGBTQIA+ stakeholders in the northern United States (N=16). VR dating has shown promise as a context for participatory design of consent technology by Zytko and Chan [145]. It was chosen here because it encompasses a wide range of interpersonal activities that may necessitate affirmative consent, and interaction capabilities that may be germane to affirmative consent such as audio, video, text, and avatar/bodily movements. We chose women and LGBTQIA+ stakeholders because they are disproportionately the victims of nonconsensual sexual acts [47, 85, 125]. Our core research question was: *How could, or should, affirmative consent be practiced in VR dating?*

Through reflexive thematic analysis, we found that women and LGBTQIA+ stakeholders were largely critical of affirmative consent, considering it impractical, if not impossible, to consistently practice in VR. They elucidated barriers to most of the core concepts of affirmative consent, for instance: *informed consent* is subverted by innovative forms of self-expression and avatar design that obstruct knowledge of "who" one is actually giving consent to, and gauging *voluntary consent* is unreliable without subtle body language that participants considered indicative of true comfort with an act. Their ideas instead manifested in provocations for abandoning affirmative consent and creating new models for consent exchange that directly acknowledge and prescribe the role of computer mediation. These include:

- Is verbal consent ("yes means yes") an obsolete gold standard for expressing consent in light of new interaction capabilities?
- Should system designers—not just the individuals partaking in an interaction—be given roles and responsibilities in consent exchange between their systems' users?
- How should consent be exchanged across virtual and physical realities, and across virtual and physical bodies?
- At what point can consent be considered adequately informed given the sheer amount—and debatable validity—of information available about a person online?

We conclude the paper by framing the potential obsolescence of affirmative consent as a positive development because it positions the HCI field for significant public health impact. Through UX methods that can include diverse stakeholders in the production of new computer-mediated consent models, HCI researchers may be able to address long-standing challenges in public health with the acceptance and adoption of harm-mitigative consent practices.

2 Related Work

This section starts by reviewing the complicated history of affirmative consent in its original context of sexual activity, followed by the role of affirmative consent in prior HCI research to lend context to our research question.

2.1 The Origin of Affirmative Consent

Affirmative consent originated in the context of sexual activity to mitigate sexual violence—or a sexual act without consent—such as rape. In the past, the burden of proving that rape had occurred belonged to the victim [2, 59]; rape was defined as sexual intercourse by physical force, and force was proven in court either by showing evidence of physical harm or a threat of force. Sexual violence can occur without physical force, and the Canadian Federation of Students brought awareness to this with the "No Means No" campaign [94], which allowed for a perpetrator to be punished in court if the victim had verbally refused their advances [63]. The "No Means No" campaign was well-intentioned, but not well-received—it was criticized for ignoring how difficult it is to say "no" to sex given social and gender norms [68], and the fact that many victims know their perpetrator personally [117]. In 1990, largely in response to the criticisms of the "No Means No" campaign, Antioch College instituted the first "affirmative consent" policy asserting, among other things, that the initiator of a sexual act was responsible for obtaining consent from the other person [63].

By 2016 an estimated 1,500 universities had enacted "affirmative consent" policies on campus [19] and two US states passed affirmative consent laws [46, 69]. Yet beyond the basic premise of shifting responsibility for consent from the recipient to the initiator of a sexual act, prescriptive guidance on *how* affirmative consent should be practiced remains vague and inconsistent. The practice of affirmative consent has most often been distilled in the slogan "yes means yes" [46], meaning that the recipient of a sexual act must overtly and unambiguously convey agreement to an act. Acceptable means of conveying "yes" are debated, most fundamentally over whether "yes" must be verbally spoken. For instance, New York's affirmative consent law allows consent to be conveyed through words *or* actions [46, 69], while California's law has been argued as more restrictive in its interpretation [68]. This debate is further complicated by the fact that verbal conveyance of "yes" is not the most accessible means of communication for everyone, such as sexual partners who are deaf or hard of hearing [78].

With the debate over what qualifies as "yes" notwithstanding, scholars and public health agencies have converged on a series of generally accepted core principles of affirmative consent practice, such as the FRIES acronym [102] that stemmed from the "Yes Means Yes" movement [46]: consent must be Freely given, Reversible, Informed, Enthusiastic, and Specific. Im et al. [66], when introducing affirmative consent to the HCI community, proposed a similar set of principles based on a review of affirmative consent literature across

multiple domains. They combined freely given and enthusiastic consent into one category ("voluntary"), and added a dedicated concept for "unburdensome." We adopt Im's concepts for our paper:

- **Voluntary:** consent should be enthusiastic as well as freely given, meaning it is free from coercion or influence of drugs and alcohol
- **Informed:** consent decisions should be accurately informed in a way the consenting party understands
- **Revertible:** consent can be revoked at any time during the act
- **Specific:** consent should be given to a specific act, not a series of acts with an ill-defined scope
- **Unburdensome:** asking for, giving, and denying consent should not be difficult to perform

2.2 Public Reception of Affirmative Consent

Prior literature generally finds that people do not practice the basic "yes means yes" premise of affirmative consent to sex, by which consent should be overtly asked for and received. With notable exceptions [97, 111], research commonly finds that young adults convey and infer consent implicitly [21, 54, 62, 65, 113, 124], with some literature suggesting that the most common interpretation of sexual consent is simply a lack of resistance to the other person's advances [62]. The literature also finds many reasons why one would not resist a sexual act that they actually do not want: fear of retaliation [30], socially learned perceptions of when sex is "supposed" to happen [16, 79, 100], and gendered scripts about who is supposed to want sex [79, 100, 139], among many others [95, 101, 123].

While affirmative consent was initially devised for college campuses, research finds that student leaders believe affirmative consent is unrealistic [35], and undergraduates believe it is awkward [124]. For example, students explain that obtaining verbal consent is embarrassing because it differs so drastically from the traditional practice of inferring and implying consent indirectly. Multiple studies find that undergraduate students also struggle to even define affirmative consent [17, 35, 84], which could prevent its consistent practice.

Criticism of affirmative consent has also come from scholars, primarily for failing to acknowledge cultural differences regarding sex, non-heteronormative sexuality, and gender roles in sex. Heise et al. note that it is difficult to provide a consistent definition of consent because all societies have "socially prescribed" and thus socially acceptable forms of nonconsensual sex [61]. For example, during apartheid, sexual violence was only prosecuted when the victim was a white woman [8], and was otherwise considered socially acceptable. Scholars have also argued that sexuality and gender norms have an impact on how people enact these practices, or if they even can [31]. Marginalized groups, such as the LGBTQIA+ community, report feeling that affirmative consent policies do not include them [36, 112]. Even those who have positive perceptions of affirmative consent still acknowledge challenges that may inhibit actual practice [39], which could be exacerbated in relationships that are non-heteronormative [112]. This may be due to sexual scripts related to gender roles [131, 139]. For example, men are often expected to initiate sex and women to receive such advances, thus leaving uncertainty with how affirmative consent should be practiced by same-gender partnerships.

2.3 Affirmative Consent in HCI

Despite affirmative consent providing no explicit acknowledgment or guidance for the role of computers in consent exchange, the model has nonetheless pervaded HCI research. Perhaps the most saturated research context is consent to personal data collection, such as consent popups on websites [83, 90, 120], as well as emerging contexts like IoT devices in the home [32, 38, 122]. Affirmative consent has been featured in legal regulations around data consent such as the GDPR through its necessitating that consent be a "clear, affirmative action" [109]. Yet HCI research has still identified myriad issues and obstacles with data consent practices and interfaces aiming to adhere to affirmative consent principles [73, 83, 90, 143, 144], leading to the creation of entirely new consent models specific to data collection (e.g., [51, 76, 80]).

HCI's study of affirmative consent to interpersonal behavior is in relatively earlier stages than that of data consent but can be situated among broader, more established HCI research areas around the positive and negative impacts of technology on sexual and intimate experience. Exploration of how technology can mediate affirmative consent practice can be contextualized—and potentially incorporated—with other known opportunities for novel online sexual acts. For instance, Internet-enabled sex toys allow formerly-impossible sexual experiences between remote [9, 53] and disabled [52] partners. Sex toys also complicate definitions of rape and consent by exposing users to rape by deception if the identity of their internet-enabled sex toy operator is misrepresented or if the device is hacked [126]. Exploration of sexual fantasies and intimate interactions—during which affirmative consent could be practiced—is also possible through virtual environments like Second Life [10–12]. Social VR further enriches intimate experiences in virtual worlds through the *"entanglement"* [74] (p. 161) of the physical body with one's virtual avatar; however, this embodied richness also puts users at risk of novel forms of harmful or nonconsensual behavior [142]. Importantly, technology mediates sexual experience across online and offline realms. Online dating is perhaps the most obvious example in its scaffolding of the discovery of geographically proximate partners for near-immediate sexual activity [43], rendering it unsurprising that dating apps contribute to approximately 10% of nonconsensual sex reports [115, 133]. Video games and virtual environments like World of Warcraft [96] are also known to support intimate experiences online between individuals who already know each other in the physical world and, conversely, the development of physical encounters and relationships between individuals who discovered each other in-game.

HCI research into consent to interpersonal behavior, while new compared to broader facets of computer-mediated sex and intimacy, has featured diverse contexts including online dating [37, 146, 147], sex-themed video games [88], robots for sexual [127] and non-sexual interactions [118], social media apps [66], and social VR [121, 129, 145]. Affirmative consent has an explicit or implicit presence in much of this literature. For instance, some researchers have proposed adaptations of affirmative consent to specific social computing contexts. Strengers and colleagues [127] used the FRIES

model [103] as the basis for their own TEASE model for consent between humans and embodied devices such as sex robots. Im and colleagues applied core concepts of affirmative consent to speculate on social media platform design [66].

HCI scholars have also critically analyzed technology that augments interpersonal consent exchange, which elucidates ways they enable their users to deviate from affirmative consent. Nguyen and Ruberg [88] critiqued sexual consent apps—through which individuals log their consent to sex through a mobile app—for failing to accommodate users who change their mind during sex (the affirmative consent tenet of revertible consent). They also reviewed consent mechanics in sex-themed video games [88], demonstrating that some of these mechanics—while well-intentioned—diverge from affirmative consent, such as by making the giving of consent intentionally burdensome to ensure an individual has thought through their consent decision. In an empirical study of sexual consent practices in online dating, Zytko and colleagues [147] found that some users infer and imply consent through indirect signals in dating apps, such as inferring consent to sex through emojis and physical revealing profile pictures. Relatedly, Dietzel found that some MSM dating app users interpreted their mere presence on a dating app as consent to any cybersexual activities that occur on it [37].

While no HCI research to our knowledge has directly investigated the feasibility of computer-mediated affirmative consent from the perspective of end-users, there is some evidence of challenges to its consistent practice online. Zytko et al. [146, 147] found that online daters who want to practice affirmative consent through dating apps struggle because attempts to practice it were misunderstood as sexual flirtation, or difficult to sustain across online and face-to-face interactions—failing to stop nonconsensual sex from occurring in some instances [147]. Dietzel found a similar pattern with some MSM dating app users in which consent to a physical act was explicitly negotiated online, but only implicitly confirmed or re-negotiated when the act occurred in-person [37]. Empirical research on consent practices in social VR [121] and participatory design of VR dating [145] also demonstrate how new interaction possibilities for consent, such as the visualization of personal space and thus the framing of consent as an act of literal boundary setting, create "complications that established concepts like affirmative consent cannot account for" [121] (p. 24).

Opportunities for computer-mediated affirmative consent will surely grow, especially for sexual experience given continual HCI research and design into sex technology [134, 135] spanning over two decades [10, 18, 28, 70]. To ensure that affirmative consent will—or can—be feasibly practiced in these high-stakes contexts, work is needed to bridge researchers' speculation on computer-mediated affirmative consent with end-users' direct perspectives on the model.

3 Methodology

We explored our research question through an IRB-approved focus group study with prospective VR dating users in a metro area of the northern United States who identify as women and/or LGBTQIA+ (N=16). Across multiple workshop sessions they discussed general opinions about affirmative consent, how technology could augment the practice of affirmative consent, and how affirmative consent compares to their personally-preferred practices for consent exchange.

3.1 Participants and Recruitment

We recruited participants who identified as women and/or LGBTQIA+ because these demographics are most often the victims of nonconsensual sexual acts and other behaviors, both in the physical world [47] and in computer-mediated contexts [105] including online dating [87] and social VR [121]. We required prior experience as users of either dating apps or social VR platforms to ensure some familiarity with the applicable technologies in this study. We did not require experience with VR dating apps in particular because they were only beginning to be publicly released at the time of this study (see the later subsection on data collection for how participants were primed on the state of the art of VR dating). Recruitment methods included messages on the research team's personal social media accounts, a university student mailing list, a sorority mailing list, and snowball sampling.

Of the 16 participants, 14 identified as women and 2 as nonbinary. Seven were heterosexual, four were bisexual, two were homosexual, one was pansexual, and two did not disclose their sexual orientation. Ages ranged from 19-26, aligning with the most common age group for online dating [7]. They identified as white/Caucasian (14), Black/African American (2), and/or Asian / Pacific Islander (1). Thirteen had experience as users of mobile dating apps, nine had experience as social VR users, and seven had experience with both. One participant did not have experience with either and participated at the behest of another participant (see next subsection for justification). Table 3 in the Appendix lists demographic details.

3.2 Precautions for Participant Care and Safety

To foreground participant care and safety in our study we consulted with a certified sexual assault nurse examiner (SANE) and multiple psychology researchers for methodological guidance, all of whom had expertise directly interacting with sexual violence survivors and/or conducting human subjects research about sexual violence. Their guidance pertained to study planning, meaning the consultants were not present in the workshop sessions themselves; however, the SANE consultant offered to provide sexual/domestic violence resource links should a participant request them (no participant expressed such a need).

We opted to conduct workshop sessions in groups, rather than individual interviews, to facilitate shared emotional and social support among participants. We also allowed participants to invite friends or trusted acquaintances who identified as women or LGBTQIA+ to further enrich a sense of safety and camaraderie. Group sessions were conducted in-person in the team's private research lab, with one instance in a participant's home (all participants in that case were in the same friend group). These locations were used to ensure privacy and comfort. To best inform decisions to participate in the research given the sensitive nature of the study topic, recruitment methods clarified that the study would involve discussion and design of VR dating, sexual harm, and consent. Participants were

reminded in each session that they could leave at any time and for any reason, or have the researchers leave.

3.3 Data Collection

Participants were split across four groups ranging from 3-5 people, with each group engaging in three 3-hour sessions. Activities relating to affirmative consent occurred in the first and second sessions (totaling 6 hours of engagement for each participant), whereas the third session is outside the scope of this paper.

VR dating primer: Participants were first presented with news articles about Tinder and Bumble's intent to "enter the metaverse" [23, 110] in the wake of the COVID-19 pandemic, as well as two primary approaches to VR dating app design exemplified by startup companies Planet Theta [138], Flirtual [75], and Nevermet [93]. In virtual dating environments, such as Planet Theta, users discover and interact with potential dating partners entirely in VR environments dedicated to romantic interactions. Flirtual and Nevermet, on the other hand, are mobile apps that match users based on profiles depicting their VR avatars rather than physical-world appearance, after which they can segue interaction to any number of third-party social VR environments for virtual dates. Participants were accordingly offered a demo of popular third-party social VR environments.

Nonconsensual acts to be prevented: Participants then engaged in discussion of the types of nonconsensual acts they deemed most in need of prevention in VR dating and subsequent dates in the physical world, which were typically informed by lengthy recounts of personal experiences in dating apps and social VR. Ideas were written on notecards and organized on a whiteboard. This served as a focal point for the next activity in which participants created and discussed scenarios of how they thought consent "should" be exchanged to the acts in the notecards to avoid harm.

Reflection on affirmative consent: The second session involved explicit introduction and discussion of affirmative consent in VR dating. After a presentation from the research team on affirmative consent and its core concepts according to FRIES [103], participants discussed their opinions on affirmative consent and as a potential basis for mediating behavior in VR dating per the scenarios created in the first session. This was followed by a reflection on how affirmative consent compares with participants' personally preferred consent models from the first session.

3.4 Data Analysis

Transcripts of the focus group sessions were subjected to reflexive thematic analysis (RTA) [137]. We chose RTA due to its flexibility in data sources that can be incorporated in analysis [25, 26] as well as its theoretical flexibility that accommodates both deductive and inductive analysis [137]. This allowed us to apply pre-existing conceptual lenses during analysis: the core concepts of affirmative consent per FRIES [103] and, later, Im et al. [66].

There are six steps to RTA [137]: (1) familiarizing with the data; (2) coding; (3) initial theme generation; (4) developing and reviewing themes; (5) refining and defining themes; and (6) writing results. Three researchers independently familiarized themselves with the data (step 1) through proofreading transcripts of the workshop sessions. Initial coding began (step 2) by the three researchers copy-and-pasting quotes from their individual reviews of each transcript into a shared spreadsheet with preliminary codes attached, which were predominantly semantic at this stage reflecting broad concepts related to nonconsensual acts, core concepts of affirmative consent according to FRIES [103], and ways technology could augment consent exchange. Through multiple collaborative coding sessions [137] codes were refined until an initial thematic map was produced (step 3) that had overarching themes pertaining to a) consent models, b) consent technology concepts, c) nonconsensual acts in computer-mediated contexts, and d) general VR dating opinions.

The thematic map was further developed and evaluated (steps 4-5) in a virtual collaborative white board through the web app Miro where quotes were represented as virtual post-it notes. At these stages more intricate conclusions in the data became apparent, such as participants' critique of affirmative consent as a general model, myriad barriers to the practice of of affirmative consent in VR, and open questions to guide the creation of new consent models. In step 5 we organized perceived barriers to affirmative consent through the lens of Im et al.'s core concepts of affirmative consent [66], instead of FRIES [103], because of the prominent role of "burden" in our coding and the direct acknowledgment that consent should be unburdensome in Im's core concepts. The themes were further elaborated through the writing of the findings for this manuscript (step 6).

4 Findings

While the intent of our research was to produce prescriptive guidance for the practice of affirmative consent in VR dating, themes from analysis demonstrated that participants were largely critical of affirmative consent. They elucidated reasons why four of the five core concepts of affirmative consent [66] are impractical, or arguably impossible, to consistently practice in VR. Examples include an inability to assess a user's physical-world identity and capacity to freely give consent online, and excessive burden that computer mediation places on specifying the acts consented to. See Table 1 for a summary of barriers to affirmative consent, which are unpacked in the following subsection.

In light of this critique, participants generally advocated for abandonment of affirmative consent and, instead, creation of new consent models that inherently acknowledge the ways that computers do, and could, mediate consent to interpersonal behavior. This advocacy took the form of open questions, or provocations, that serve to both 1) further articulate the perceived ineptitude of affirmative consent for computer-mediated communication, and 2) guide future researchers and designers in crafting new consent models. Table 2 summarizes these provocations, which are unpacked in the second subsection of the Findings.

4.1 Barriers to Practicing Affirmative Consent in VR

In this section we delve into participant-perceived barriers to practicing four of the five core concepts of affirmative consent [66], specifically: consent must be unburdensome, voluntarily provided,

Table 1: Barriers to practicing core concepts of affirmative consent in VR.

Core concept of affirmative consent	Barriers to practice in VR dating	Example of barrier
Voluntary: Consent must be enthusiastic and freely given	- Assessing enthusiasm through avatar - Assessing capacity to freely give consent	- Limited ability to assess enthusiasm through avatar's body language and facial expressions - Limited ability to assess intoxication
Informed: Consent decisions must be based on accurate information	Gauging "who" you are actually giving consent to	- Creative avatar designs do not reflect physical world appearance - New capabilities to misrepresent age - Requests for additional information about physical-world self could be privacy invasive
Specific: Consent is given to a specific act	Inconsistent interaction capabilities due to VR hardware	Inconsistent access to haptic feedback technology and avatar movement capabilities
Unburdensome: Affirmative consent should be easy to practice	VR adds complexity to a consent model that is already hard to consistently practice	Affirmative consent is not sensitive to cultural and linguistic differences

adequately informed, and specific to particular acts. Note: our findings did not identify barriers to the fifth core concept, revertible consent.

4.1.1 Adding Complexity to an Already-Burdensome Consent Model. Affirmative consent must be unburdensome and easy to practice [66]. Contrary to this principle, participants felt that practicing affirmative consent within in-person sexual contexts is already *"hard for people to follow"* (P10) and that incorporating it within VR would only add further complexity. Per P7: *"I think in general, like, obviously, these like, insane rules [to affirmative consent] are very important. And they should be talked about, and they probably should be talked about more. But like, not in theory, but like, in reality, these rules aren't very realistic."* As reflected in P7's quote, participants did value the basic intent behind affirmative consent; ensuring with certainty that a behavior is agreed to by one's partner. However, this value was overshadowed by what many saw as an excessive burden of actually practicing the model's core concepts. As a result, participants admitted to rarely using affirmative consent in their own interactions in online dating or social VR. P7 acknowledged this most bluntly: *"We barely can do them [the core concepts of affirmative consent] in real life, to be honest."*

Participants referenced personal experiences with online dating to articulate why affirmative consent is impractical to regularly perform. The most common of these involved claims that affirmative consent is insensitive to *"linguistic and cultural barrier[s]"* (P8). P8 gave an example related to differences in socially acceptable ways to inform consent: *"I found that some people from different cultural backgrounds will ask you for your last name or where you live or what your dad does as his job. And that I'm the only person in the entire country with my first and last name in that order. So that is a rather scary thing to be asked. And if, so I had this guy ask me for my last name, and I know that he wasn't trying to be, he, he wasn't trying to be harmful in any way. To him, it must have felt like a normal conversation. But even after I had [told] him no [...] he redirected and then later in the conversation he came back to that."*

Participants projected that such issues would only be exacerbated in VR dating where there are additional cues beyond text that could amplify confusion or offense across cultures. P4 discussed how cultural misunderstandings in affirmative consent practice could be intentionally exploited in VR. In their words: *"I was just gonna say something that I think might cause issues would be like, language barriers, and misunderstanding people. Because I know in like some countries like nodding your head means no, and so on. So like, I feel like that can cause problems, especially through like the VR headsets, if like, it looks a certain way, and like you literally just don't speak the same language. And maybe someone's like, going to take advantage of that. Because they're not necessarily saying no, in the way that they understand no to be."*

Some participants suggested that new *"rules"* for affirmative consent are needed to translate it to VR, but were skeptical given the view that no one has yet to *"figure out"* how to regularly practice its core concepts in the physical world in the three decades since its inception. P7 spoke to this potentially insurmountable challenge: *"But like, it's also because we haven't been able to figure out how to do it in real life. So how are we going to be able to figure out how to do it in this like, insane, virtual reality that we have, like, little experience with at this point? So it's sad to look at it that way. But I think it's realistic to say it's not realistic, right?"*

4.1.2 Challenges with Gauging if a Partner's Consent is Voluntary. Affirmative consent is voluntary, meaning agreement to an act must be enthusiastically given and freely given, the latter referring to the absence of force, coercion, and influence from alcohol or other drugs [14]. Because affirmative consent puts the onus on the initiator of an act to receive consent, some participants fixated on

how it necessitates being able to assess a partner's enthusiasm and capacity to freely give consent. They were unsure if either could be reliably assessed in VR.

Limitations in assessing enthusiasm through avatars. Participants believed that judging enthusiasm requires attention to social cues that are not reliably conveyed in VR. Facial expressions were a common point of discussion and were considered particularly challenging to assess because of technical limitations. Per P12: *"But like, enthusiastic, it's, I feel like it's hard to tell [...] because how do they do faces [in VR], like how accurate is that though? [...] So it's like, how do you make sure someone's giving enthusiastic consent?"* Other participants felt that body language such as posture or subtle bodily movements were necessary elements of enthusiasm that are typically absent or unreliably interpreted in VR. As P16 explained, *"You can't really tell if they're, like, fully into it or not [...] Some people could be saying yes, but that has a lot to do with, like, body language and everything. So how do you portray body language through VR?"*

This is not to suggest that participants viewed nonverbal cues as an exclusive means of exchanging consent information. Rather, they spoke of nonverbal cues as an essential supplement to verbal expressions of "yes" to ensure underlying enthusiasm. On the contrary, sentiments about technological limitations for nonverbal communication led some participants to recommend exclusive adherence to verbal consent, disregarding any additional information relevant to enthusiasm because of the potential for misinterpretation. In effect, these participants conceded that previously common notions of enthusiasm may need to be excluded from the assessment of whether consent is freely given online. As P1 put it, *"I think verbal consent should always be exchanged. I think that's an important thing in any sort of VR interaction. And then, yeah, I mean, that's a good point, like, until higher technology, where you can see movements more accurately, [other cues of enthusiasm] should not be considered."*

Some participants were quick to point out that verbal consent alone is not a reliable assessment of enthusiasm because of unfamiliarity with how a user typically speaks and the possibility of technology modulating one's voice. As P16 explained: *"It's hard to tell enthusiasm through technology, because, again, they could be using a voice filter, and you don't know what their voice sounds like, in real life. And like, again, like you can't really tell if they're, like, fully into it or not."*

Limitations with Assessing if Consent is Freely Given. The most common challenges mentioned to assessing if a partner could freely give consent involved suspected drug and alcohol use, in part because of a perception that partaking in VR interactions may be a popular activity to do while drunk or high. This usually took the form of open ponderings from participants about whether signs of intoxication in the physical world could be as easily noticed in virtual spaces. As P6 described: *"I was initially thinking like, could it be more difficult to tell if someone was drunk or high than if they were in person? [...] You wouldn't be informed about that. And then you couldn't give, like, consent, if you are obviously under the influence, but it would be kind of hard because you're being represented by an avatar. And obviously, if you are drunk to the point where you have like slurred speech and stuff, yeah, it could definitely be obvious. But if someone was just tipsy..."*

P6's mention of slurred speech was another point of discussion amongst some participants. While this may seem a reliable indicator of intoxication, at least one participant acknowledged that some people may have speech that sounds slurred for other reasons, and it would be hard to tell if intoxication is involved without familiarity with their normal voice: *"Like, obviously, like, someone could have slurred speech, but like, they could also just talk like that, like, you wouldn't be able to know."* One discussion about challenges with assessing intoxication ended with satirical musings about requiring drug tests or breathalyzer installations, but no practical solutions for assessing the freely given nature of consent.

4.1.3 *Challenges with Informing Consent: Who am I Giving Consent To?*

Participants commonly understood informed consent in VR dating to necessitate having an *"accurate representation"* (P6) of someone's physical self: the person behind the avatar. This was due to the supposed purpose of VR dating to be physical-world meetups. Participants considered physical-world identity to be relevant to cybersexual activities as well, particularly those involving penetrative acts through teledildonics (*"VR dildo"* per P14). Given creative freedom with avatar design and technical limitations to photorealistic avatars, participants were skeptical that consent decisions could adequately be informed. As P8 indicated: *"I think the informed part would also be very difficult to enforce in virtual reality settings. I've come across using apps like Tinder, someone says that they're 24, but then it's a picture of a man who's definitely well into his 60s. And if you were to take away that, that picture element, there would not be as many ways to safeguard against that."*

P8 points out that within other online contexts, such as dating apps, it is already hard to accurately understand someone's physical world self and make informed consent decisions. While VR does add richness to interaction capabilities relative to traditional mobile dating apps, it simultaneously degrades self-presentation of the physical world self due to avatars being the primary form of presentation. P8's mention of age also alludes to further concerns about intentional misrepresentation or disguise of one's physical-world self through avatar design that can misinform consent. Other participants went beyond avatar design and discussed how one's voice could be manipulated to *"prey"* on unsuspecting users: *"Another thing I thought of was like potential catfishing. [...] Like some, like 50-year-old is like, Oh, I'm 21 and you can make your voice. I'm sure you could like change your voice filters on VR and modulators."*

In addition to the implications of intentional misrepresentation on informed consent, other participants, such as P7, discussed how children may non-maliciously use similar tools to present in VR as adults: *"People and children are very curious. And it would be very easy for them to dress themselves up to look like [an] of-age avatar, and then go out and experiment and try to learn things about, you know, adult content."* Although participants imagined this type of self-presentation experimentation being done out of a genuine curiosity, they still feared how this could misinform consent and render them unwitting perpetrators of statutory nonconsensual acts.

Some participants felt that asking users about their physical world selves was the only way to inform their consent decisions. However, they considered this type of inquiry to itself be problematic because of its implications on privacy and comfort. Per P7: *"So*

like, let's say you're using a very, like, abstract avatar, that's like obviously human-looking, or maybe it is on the human side, but it's like clearly more aesthetically different. You might meet in private VR, and now you're like, okay, we're in like a dating, we're getting more comfortable with each other, like, what do you really look like? What do you really look like? Well, maybe someone's like expressing something or they're not comfortable with that. And like that, like, could make someone really uncomfortable." P7's quote illustrates a tension between creative self-expression in VR and a need to adequately inform consent decisions. Inquiring about what a user *"really"* looks like can force them into self-disclosures that could pose the risk of identity-based harm, whereas not asking for such information could lead to misinformed consent to online or face-to-face interactions.

4.1.4 Challenges With Gauging What Specifically is, or Could be, Consented to. Affirmative consent should be specific to a particular act. Participants indicated this can be an issue in VR where users may have inconsistent sense capabilities, such as through haptic feedback devices, and inconsistent avatar shapes and movement capabilities that may obstruct an understanding of what is—or even could be—consented to. P1 illustrated this through a hypothetical scenario in which a VR dater can alternate haptic feedback settings, therefore modulating whether physical touch could or should be specified in consent exchange: *"When you're fully putting on your VR set and your haptic gear [...] there's a couple of questions that are asked when you have to hook up the haptic gear. Like, do you want people to be made aware when you turn these settings on and off? Yes or no."*

Inconsistent interaction capabilities in VR present an additional cognitive burden to affirmative consent practice because one must remember their own interaction capabilities and inquire with their partner about their interaction capabilities to ensure mutual understanding of what is consented to. For example, two users may consent to their avatars hugging, but one may not realize their partner is also experiencing a physical sensation from the avatar contact. This coordination of the specific object of consent could be further complicated if users have avatars that deviate from a human form which makes it hard to precisely explain where to touch or not touch (such variability in avatar design is commonplace in social VR). Participants speculated on how this added complexity with affirmative consent exchange could be simplified with design, with one idea being to allow users to automatically broadcast to other users what their interaction settings or possibilities are. An added cognitive burden would remain, however, if users are inconsistent in their choice to broadcast such information.

4.2 Provocations for Adopting New Consent Models That Better Acknowledge Computer Mediation

In this section we delve into four provocations, or open questions, from participants that encapsulate their perspectives on why affirmative consent is ill-equipped to address the novelties of computer-mediated communication, and which should thus be prioritized during the creation of new consent models. See Table 2 for a summary.

4.2.1 Is Verbal Consent an Obsolete Gold Standard for Consent Exchange? The "yes means yes" slogan of affirmative consent necessitates that the initiator of an act must receive overt agreement—typically as a verbal "yes." Indeed, some participants in our study were supportive of such behavior, per P1: *"I think verbal consent should always be exchanged. I think that's an important thing in any sort of VR interaction."* VR affords other means beyond verbal speech that could be used to convey a clear "yes" to behavior, and perhaps even better than verbal dialogue given language and cultural barriers. However, participants went beyond this and questioned whether the acts of actively asking for and actively giving overt consent to an act—verbal or otherwise—are still necessary precursors to consensual experiences. Participants legitimized this question by voicing 1) possibilities for passive—as opposed to active—consent communication and 2) capacities to forcibly modify another user's behavior that is unwanted.

Regarding passive consent, participants imagined ways that users could preemptively announce consent through information around their avatar, thus alleviating the need for users in their vicinity to ask if they are open to certain types of interaction. This was framed as added content to personal space bubbles that are already commonplace in social VR. For instance, P10 discussed adding words around one's avatar that clarify their consent (or lack thereof) to being touched: *"I like made the little chart. Do you want to be touched? If you say yes, the screen will pop up [around your avatar] indicating that you are okay with it. And like it would show like with your avatar saying like, 'okay to touch' [or] DNT which was like 'do not touch.'"*

In other cases, participants questioned the importance of overtly expressing "yes" at all relative to capabilities that we coded as "making no"—features that augment users' abilities to abruptly stop a nonconsensual behavior towards them. Given challenges to specific and informed consent as previously mentioned in the findings, some participants crafted hypothetical scenarios demonstrating a preference for novel capacities not to give consent, but to react to a nonconsensual act through supreme control over their virtual bodily and space autonomy. These ideas pertained to removing the offending user from the virtual space or otherwise freezing or modifying the offending user's control of their avatar. For instance, P14 described the ability to *"slowdown"* and reposition an offending user's avatar: *"hotkey, hotkey, hotkey, that's like a slowdown [of their avatar movements] or [...] something that just like bounces the person off [from your avatar] for a second."*

4.2.2 Who is Responsible for Consent Exchange? Historically, prescriptive guidance for affirmative consent has only pertained to the individuals participating in an interaction (those who give and receive consent). Yet in contrast to physical world environments where the surrounding environment and our innate capabilities as humans are not designed by us, the environment and interaction capabilities within VR are fully customizable. This renders the possibility that application designers could be recognized as responsible parties within consent exchange.

Some participants pondered the notion of assigning system designers responsibility for helping users make informed consent

Table 2: Provocations for new computer-mediated consent models for interpersonal behavior.

Provocation for new computer-mediated consent models	Relation to affirmative consent	Basis of provocation
Is verbal consent ("yes means yes") an obsolete gold standard for expressing consent?	Affirmative consent is synonymous with "yes means yes" [46], often described as a verbal exchange.	VR poses new ways to passively convey consent information on a user's behalf, as well as new ways to modify or eject from unwanted behavior of others.
Who should be responsible for consent exchange?	Affirmative consent clarifies responsibilities to the initiator of an interpersonal act.	System designers, and the virtual environments they create, could be given roles and responsibilities in consent exchange between their users.
How should, or could, consent be exchanged across realities?	Affirmative consent traditionally implies interaction in a single modality at a single point in time, such as a face-to-face interaction in the physical world.	VR daters are expected to traverse interaction across virtual and physical reality, and across their virtual and physical bodies. This necessitates guidance on how consent may carry over or require different manners of exchange across modalities.
Can consent be "too" informed?	A core tenet of affirmative consent is that consent decisions be adequately informed.	Computer-mediated communication can afford a near-endless quantity of information about a person, creating tension between privacy, personal agency, and informed consent.

decisions. This dialogue gravitated to limitations of assessing enthusiasm behind a partner's agreement to particular acts (a condition of voluntary consent). Some participants extrapolated on a hypothetical capacity for VR environments to assess and convey enthusiasm behind users' consent decisions as a way to demonstrate how system designers could take responsibility. Per P16: *"So first, we have the enthusiasm meter. So it detects like your mood, body language, tone, and a response. Okay. So the different colors [in the enthusiasm meter] mean different things."*

Participants also discussed how system designers can—and perhaps should be required to—provide particular ways for users to express consent, especially those that go beyond innate human abilities. Some examples of this were rather simplistic, such as virtual checkboxes to demonstrate consent, whereas others were more abstract, such as affording avatar movement capabilities that could unambiguously convey consent through *"body language"* (P16) (although participants struggled to generate specific design ideas for what types of avatar movements or postures could reliably convey this). Other participants felt that VR offered completely new possibilities for representing consent that should be further explored by designers, as opposed to those reliant on our physical bodies, with space bubbles commonly cited as an existing example.

Furthermore, participants noted that VR daters may lack knowledge of "good" consent practices or how to correctly use features in a virtual environment for augmenting consent exchange. They reflected on the notion of making system designers responsible for preparing users to adhere to particular consent practices through education. Some imagined *"terms and conditions"* (P5) for how users should practice consent exchange, which varied in complexity from text-based forms that the user signs, to required listening of consent rules through audio that cannot be skipped. P16 described one such idea: *"So I think there should be some type of, like, form people fill out as well. Of like, okay, well, this is everything listed about consent, if you go against these rules, you'll be kicked off the app, okay."* Other participants imagined more active participation through educational courses that users would need to complete before entering the VR environment.

4.2.3 How Should Consent be Managed Across Realities? Like traditional mobile dating apps, participants recognized that VR dating is expected to entail interactions over virtual and physical modalities, such as when two users choose to traverse a virtual date into a physical-world meetup. Participants accordingly raised questions about the implications of consent exchange across virtual and physical settings, and across virtual and physical bodies, that were perceived as outside the scope of affirmative consent's core concepts. We illustrate two lines of this questioning below, which participants used to argue that consent models guiding computer-mediated communication should provide direct guidance on consent across realities.

Due to the embodied nature of interaction in VR, through avatar representation and movement, users can engage in many of the same acts and mannerisms online as they would in the physical world. Examples from participants included hugging and touching, as well as more graphic sexual acts. Participants discussed how some of these behaviors, even if explicitly consented to in VR, could

lead users to (mis-)assume consent to the same act on their physical bodies during a physical-world date. P7, for example, discussed how VR daters could be inadvertently harmed in physical-world meetups through assumed consent to physical touch that was previously consented to on avatars in the virtual environment: *"Touching in VR versus [physical] reality. [...] If you touch in VR, or if you like, held hands in VR, and you just assume now that we're meeting in public, we can also hold hands."*

Complexities with consent across virtual (avatar) and physical bodies were also posed for acts that occur exclusively in VR. A few participants fixated on situations where a user leaves their avatar unattended in a VR dating environment, posing questions about whether consent exchange still applies to acts performed on/towards their avatar if their physical body is not aware of such acts. P7 provided multiple examples to demonstrate this quandary: *"So I described the problem, which was like approaching someone in a public VR environment in a nonconsensual way [. . .] maybe they're in a messaging app [on their VR headset], like they're still they're opening up like their messaging app. So [the other person in VR] might not be able to see [that] you might have like obstructed vision. The other one, the second one would be like, someone is away from their headset entirely [...] like going to the bathroom. And the third one I had was, they just took [their VR headset] off for a brief moment and get a drink of water."*

4.2.4 Can Consent be "Too" Informed? Participants speculated on new types of information in VR for informing their consent decisions that are not traditionally available in the physical world, and which do not seem to be considered in affirmative consent. Whereas section 4.1.3 draws attention to the absence of consent-relevant information from the physical world in VR, this section draws attention to the potential for consent-relevant information in VR that would not be possible in the physical world and its implications on consent models. Affirmative consent literature does not clearly prescribe a dividing line between adequately and inadequately informed consent, which new computer-mediated consent models may need to address given the extent of information potentially available about a person online. Participants broached myriad examples of this, which we outline below, to collectively raise the question of what information is necessary in VR to qualify consent decisions as adequately informed, and at what point consent decisions can become "too" informed to the point of encroaching on privacy.

Gauging whether an interaction partner may cause harm (either intentionally or unintentionally) was integral to participants for informing consent in online dating. They imagined various ways that information about potential harm could be conveyed in VR dating environments, which usually relied on input from a user's prior interaction partners. P11, for instance, imagined a public rating system associated with each user's avatar that represents the number of prior consensual or *"safe"* interactions they had: *"You rate your interactions, so that you get like points for safe interactions [...] So it could be like ratings, kind of like up votes."* Some participants took inspiration from virtual service applications, like *"Uber"* (P5), to envision more elaborate records of prior interactions and nonconsensual acts. P10 described this in the form of user reviews: *"Having reviews on a person would be kind of nice, because then you would get like, information from other people who have been dates on with this person [...] this person was a bit like aggressive, stuff like that."*

Identity verification was another factor that participants considered vital to informed consent because it *"might make it harder to lie."* Participants discussed how VR environments could necessitate ways to verify a user's real name. P8 justified this through a hypothetical scenario with a restraining order: *"Because if I've got like a restraining order against someone [...] and they're using this virtual space, and now I have that opportunity to interact with their avatar and you don't know if [...] it's them. And then that opens this contact, contact that puts me back at risk of something happening."*

Throughout these examples of identify verification and prior interaction records, participants noted the implications on privacy, and misuse, that portray new ways of informing consent online as a double-edged sword. For example, P10 discussed the possibility of false reviews of prior interactions as a form of harassment or retaliation for a declined sexual advance, whereas P8 struggled to imagine how identify verification could be done in *"a noninvasive way."* Tension between information disclosure and privacy was urged to have deliberate consideration and prescription in consent models.

5 Discussion

Towards understanding how affirmative consent could be adapted to computer-mediated communication (CMC) for mass adoption, this paper reported a focus group study with women and LGBTQIA+ stakeholders in the context of VR dating. Participants largely said no to "yes means yes": they identified significant barriers to practicing four of the five core concepts of affirmative consent in VR dating (Table 1) and posed questions about consent in VR that affirmative consent appears ill-equipped to answer (Table 2). In this section, we first extrapolate the aforementioned challenges with affirmative consent to other contexts of computer-mediated communication. We then engage with the question of whether affirmative consent is "dead," or in other words: if future HCI research should continue attempts to translate affirmative consent to computer-mediated contexts, or if entirely new consent models should be formulated within HCI instead. Arguing for the latter, the section concludes by discussing how the provocations produced by participants (Table 2) could serve as a basis for involving diverse stakeholders in collaboratively producing new models for computer-mediated consent to interpersonal behavior.

5.1 Extrapolating Challenges with Affirmative Consent to Other Contexts of Computer-Mediated Communication

Participants elucidated several practical barriers to affirmative consent in VR dating (Table 1), such as limitations with reliably assessing enthusiastic consent of one's partner and adequately informing one's consent decisions given capabilities to disguise physical-world identity. Importantly, the criticisms of affirmative consent depicted by our participants can apply in other social computing contexts—such as social media and mobile dating apps—leading us to argue that barriers to affirmative consent are inherent to CMC in general rather than specific apps or technologies. We demonstrate

this by reflecting on the five core concepts of affirmative consent [66].

Voluntary: Consent must be enthusiastically and freely given. Gauging a partner's enthusiasm and capacity to freely give consent (e.g., if they are under the influence of drugs) is arguably more challenging through asynchronous modes of communication than in VR because of the reduction in social cues. While video/audio calls make such assessments more feasible, they are beholden to inconsistent internet connections and devices used, and such calls do not represent all of the ways individuals interact online.

Informed: Consent decisions must be adequately informed, which participants identified as a challenge in VR dating due to capabilities for creative online self-presentation. This could be argued as an outsized concern in VR given how other forms of CMC do foreground the physical self through user profiles [40], yet self-presentation of one's physical-world self can be inaccurately understood online [148, 149] or intentionally exaggerated and fabricated in almost any CMC context. This has been consistently demonstrated in the online dating literature over the last two decades [42, 49, 55, 57, 58, 89, 130], leading to the prevalence of romance scams [5, 29]. More recently, the proliferation of generative AI [128] has added new possibilities for self-presentation, for both positive self-presentation use cases and nefarious reasons such as scams. This further complicates the notion of truly informed consent online.

Specific: Im and colleagues have detailed several examples of challenges to specific consent in social media [66], such as specifying who can view or share one's photos or the type of content one consents to receiving in public and private messages. In mobile dating apps, issues with assuming and inferring consent to specific acts have been found, such as assuming consent to indiscriminate sexual acts through the mere presence of one's profile on a dating app [37, 147]. Participatory design research into dating apps as consent technology has found that online daters are uncomfortable with transparently discussing specific sexual acts to be consented to [146], and social VR research has identified challenges with specifying consent when the act (or object of consent) changes in an interaction [145].

Revertible: While our study did not produce findings about this core concept to affirmative consent, other CMC contexts and associated literature do recognize challenges with reversing one's consent decision [88]. Asynchronous communication in particular poses a significant challenge due to potential delays in receiving consent reversal (e.g., if a message is not seen in time) or, in worst cases, the complete inability to revoke consent. The latter is exemplified by the nonconsensual use of sexual imagery of other people [13] including revenge porn [15] and deepfake porn [132]. Youth are also subjected to receiving sexual imagery in a messaging interaction that was unwanted or not asked for [107], with little recourse in terms of consent.

Unburdensome: The practice of affirmative consent should not be difficult. While empirical research on the practice of affirmative consent in CMC is limited beyond the context of online dating, prior work into mobile dating apps shows that users who consciously try to practice affirmative consent to sex have found it difficult to consistently perform and sustain across virtual and physical meetings [37] due to awkwardness and sexual objectification ensuing from any attempt to transparently talk about sex [147].

5.2 Is Affirmative Consent Dead?: An Argument Against Adaptation of Affirmative Consent to Computer-Mediated Communication

Our participants were largely critical of affirmative consent in computer-mediated communication (CMC). Criticism of affirmative consent by those intended to practice it has also been a recurring theme in the public health and psychology literature regarding sexual activity [35, 62, 124]. Persistent challenges with adoption of affirmative consent to sex have been met with calls for improved sex education [92], in essence arguing that affirmative consent practice would be more widespread through improved awareness and understanding of the model. Our findings suggest that education would not be the answer to improving adoption of affirmative consent in CMC. Rather, the immediate challenge for CMC is making the practice of affirmative consent *possible*, let alone preferred. This is evidenced by our participants' criticisms of affirmative consent dealing more with the potential impossibilities of practicing its core concepts rather than only personal opinions about the model.

Practical challenges aside, the pursuit of adapting affirmative consent to CMC deserves pause to consider why we, as a field rooted in user-centeredness, are pushing for a consent model that has consistently received pushback and lack of adoption by its "users" in computer-*un*mediated situations, especially individuals from marginalized groups [36, 112]. The HCI field should consider alternative ways to create prescriptive guidance for computer-mediated consent exchange other than the adaption or translation of a consent model created outside of HCI and prior to public access to almost every form of CMC available today.

The literature on consent to personal data has reached similar conclusions about the repurposing of consent models outside of HCI, going so far as advocating for collective refusal of "individual consent" models [143], which includes affirmative consent. Such research has articulated new models for consent to personal data that are sensitive to the unique dynamics of social media platforms through a distributed consent model [80] and ubiquitous computing through a semi-autonomous consent model [51], amongst other examples [81, 89]. While these models pertain to consent between humans and machines rather than human-to-human, they demonstrate the feasibility of producing new consent models that directly acknowledge and utilize computer mediation.

5.3 Future Work: Towards Inherently Computer-Mediated Models of Consent Exchange

An alternative approach to adapting affirmative consent to HCI is to apply UX research and design methods to create entirely new models for computer-mediated consent to interpersonal behavior borne directly out of the voices and perspectives of diverse stakeholders. This does not necessarily require that all aspects of affirmative consent be rejected (our participants had no issues with the revertible consent concept), but rather a receptiveness to new principles and core concepts made possible by computer mediation. This could assume myriad methodological approaches such as focus groups,

participatory design, Delphi studies, and surveys to be most inclusive to the contributions of various stakeholder groups that have unique experiences with, and understandings of, consent exchange.

Our study's sample of women and LGBTQIA+ participants is not fully representative, posing opportunity for future work to involve additional stakeholder groups in the crafting of new computer-mediated consent models. Geographically, our study was limited to perspectives from the northern United States. Given cultural factors related to consent and sexual activity in other areas, particularly non-Western cultures [5, 136], future work should seek global voices outside of the United States. Relatedly, our study had limited representation of non-White participants. Expanding the geographic areas involved in consent model building could improve the diversity of ethnic representation. Our study also does not feature the perspectives of men. This was a deliberate choice in our method for participant comfort; however, this does not mean that men should be omitted in future work. The vast majority of perpetrators of nonconsensual sexual acts are men [117], meaning new computer-mediated consent models are unlikely to be successful at mitigating harm if men do not voluntarily adopt and practice them.

The provocations generated through our study (Table 2) would serve as excellent questions to center collaborative and inclusive activities for producing new consent models. To inform future research agendas, we articulate various ways in which the four provocations could be used to scaffold the participation of diverse stakeholder groups in co-producing new computer-mediated consent models for interpersonal behavior.

Provocation 1: Is verbal consent an obsolete gold standard for expressing consent?: The use of verbal communication ("yes means yes") as a gold standard for consent exchange is problematic from an inclusivity standpoint, as not all interaction partners are capable of communicating verbally. This is a known challenge for sexual partners with disabilities, such as those who are deaf or hard of hearing, who have created new ways to practice consent exchange using faculties other than voice, such as sign language on the body so that their consent communication can be felt rather than heard or seen [78]. These alternative consent practices demonstrate why stakeholders with disabilities should be involved in participatory design studies that seek to create new, inclusive standards for consent exchange that everyone can practice.

Provocation 2: Who should be responsible for consent exchange?: The potential for imposing responsibilities in consent exchange beyond immediate interaction partners greatly expands the types of stakeholders that could or should be involved in co-producing computer-mediated consent models. If system designers and developers are to be imposed responsibilities, for example, they could be involved in articulating design requirements for technology companies regarding consent exchange, such as required features or capabilities for asking for, receiving, and denying consent to interpersonal behavior—essentially providing guidance similar to the GDPR [109] for computer-mediated interpersonal consent rather than data consent. Participatory design studies could have system designers collaborate with potential or current users to synthesize the personal experiences of users with knowledge of technical capabilities by designers.

Provocation 3: How should, or could, consent be exchanged across realities?: The range of applications that are intended for, or support, users in traversing their online/virtual interactions into the physical world is ever-expanding, with mobile and now VR dating apps serving as just two examples. Future work can involve stakeholders with cross-reality interaction experiences in articulating guidance for how consent should be exchanged across virtual and physical realities. Such work can be focused on particular questions that lack answers in affirmative consent, of which there are many. For instance, can consent be exchanged online to a subsequent act in the physical world? If so, should there be prescribed behavior for re-confirming consent in the subsequent modality? Should behavioral expectations for consent exchange be different in virtual and physical modalities given the likely differences in communication possibilities between fully virtual and physical realms? Another consideration for study is how consent models can accommodate the inconsistent availability of technology for mediating consent exchange in physical environments. Compared to fully virtual environments, where users can be assumed to have relatively similar or identical interaction capabilities by way of simply being on the platform, interaction partners in the physical world may have very different types of devices. One could have an augmented reality (AR) headset whereas their partner could only have a mobile phone or a smartwatch (or no computing device at all). How should computer-mediated consent models prescribe behavior in light of unpredictable and unequal access to computing devices in the physical world?

Provocation 4: Can consent be "too" informed?: The point at which consent decisions can be considered adequately informed is increasingly debatable given the growing amount of information generated and collected about interaction partners in social computing platforms. Towards prescriptive guidance on the type and amount of information deemed essential to computer-mediated consent decisions, future work could study strategic self-disclosure of marginalized groups to understand the tradeoff between informing consent and protecting oneself from identity-based harm. Examples from prior work include transgender [41] and disabled [104] users' disclosures on dating apps and the self-presentation choices of men seeking men in socially conservative areas [22]. Research could also study stakeholders' past experiences with consent to computer-mediated communication to understand when they consider their consent to have been mis- or under-informed. These experiences could form a basis for elucidating the types of information most critical to perceptions of adequately informed consent.

6 Conclusion

Affirmative consent—and its slogan "yes means yes"—has been advocated across public health and HCI as a means to reduce the occurrence of interpersonal harm that culminates through a misunderstanding of consent to the respective act. However, affirmative consent has historically been under-adopted and critiqued as unrealistic for consistent practice. In an effort toward public acceptance, we sought to produce user-driven guidance for affirmative consent practice in computer-mediated contexts. Through a focus group study of affirmative consent in VR dating environments with 16 stakeholders identifying as women and/or LGBTQIA+, findings

suggest that affirmative consent is impractical, and arguably impossible, for consistent practice in computer-mediated communication. While women and LGBTQIA+ stakeholders are amongst the demographics most intended to be protected through affirmative consent, our study's participants largely advocated for abandoning the model and instead creating new consent models that inherently acknowledge and prescribe the role of computer mediation in social interaction. While this conclusion may appear sobering, the study emphasizes a unique opportunity for HCI researchers to have significant impact on public health through user-centered methods for producing computer-mediated consent models that are created with and for diverse stakeholders.

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A Participant Demographic Details

Table 3: Participant Demographics

Participant	Gender	Sexual orientation	Age	Ethnicity	Prior use of...
P1	Woman	Heterosexual	21	White	Dating apps and social VR
P2	Woman	Heterosexual	26	White	Dating apps and social VR
P3	Non-binary	Bisexual	21	White	Dating apps
P4	Woman	Bisexual	21	White, Asian	Dating apps
P5	Woman	Heterosexual	22	White	Social VR
P6	Woman	Homosexual	20	White	Dating apps and social VR
P7	Woman	Heterosexual	21	Black	Social VR
P8	Woman	Heterosexual	24	White	Dating apps
P9	Woman	Bisexual	25	Black	Dating apps and social VR
P10	Woman	Bisexual	19	White	Dating apps
P11	Woman	Not disclosed	22	White	Dating apps
P12	Woman	Heterosexual	21	White	Dating apps and social VR
P13	Woman	Not disclosed	22	White	Dating apps and social VR
P14	Non-binary	Homosexual	21	White	Dating apps
P15	Woman	Pansexual	22	White	Dating apps and social VR
P16	Woman	Heterosexual	21	White	Neither (participated for comfort of another participant)