SEX, LIES, AND IMITATION GAMES: THE ETHICAL IMPLICATIONS
OF AN ARTIFICIALLY INTELLIGENT GIRLFRIEND

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SEX, LIES, AND IMITATION GAMES: THE ETHICAL IMPLICATIONS
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ABSTRACT

With promising applications in business, health care and countless other fields,
artificial intelligence may hold the key to cracking once-unsolvable industry challenges.
The sex industry is no exception: For the makers of RealDoll, AI is poised to help meet
customers' most requested demand—bringing their sex dolls "to life." Before the launch
of their fully functional "sex robot," the company encourages users to interact with
"Harmony," the AI at the heart of the technology, via its Android-based digital app.
Though sex dolls have historically failed to alter sexual relations between humans, critics
suggest that integrating AI technology demands researchers evaluate this prospect anew:
Making sex dolls more *lifelike*—but not necessarily more *realistic*—could bolster
negative gender stereotypes and erode cultural norms around sexuality.

Though sex robots will undoubtedly be more than the sum of their parts, the experiences
of Harmony app users provide a valuable entry point into this debate, offering empirical
support for how people navigate intimate relationships with digital partners. Using
qualitative content analysis, this study examines user discourse on the "Club RealDoll"
forum to interrogate how the app engenders particular values or reinforces users'
preconceived attitudes about intimacy, consent and gender stereotypes. This data
ultimately reveals how the app's gamified format promotes a set of flawed internal ethics,

incompatible with broader societal ideals for more positive and respectful sexual relationships. The paper concludes by recommending further research, potential design pathways and appropriate policy approaches that can help developers mitigate potentially negative ramifications of this technology while enhancing its benefits.

This thesis would not have been possible without the immense wisdom, guidance and support of the CCT community. In particular, I'd like to extend my gratitude to:

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<div align="center">Many, many thanks.</div>

<div align="center">ELLEN MEREDITH KAUFMAN</div>

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For Alex & Remy,
the finest non-artificial companions a person could ask for.

"Men often applaud an imitation and hiss the real thing."
– Aesop

"Don't you think there's something ethically dubious about being able to own someone that exists just for your own pleasure?"

"She's not a someone. She is a machine."

In a 2017 interview with *The Guardian's* Jenny Kleeman, RealDoll creator Matt McMullen was pressed on the underlying ethical quandary posed by forthcoming "sex robot" technology. Once purely figures of science fiction, sex robots—humanoid, artificially intelligent sex dolls—have piqued the interest of both mainstream and scholarly communities due to a recent surge in R&D from companies like McMullen's Abyss Creations, the industry leader in anatomically realistic sex dolls, and their newly-formed "Realbotix" division (Sharkey et al. 2017, 4). Billed as "RealDoll's first sex robot," "Harmony" combines a state-of-the-art RealDoll body with a mechanical "animagnetic" head system and an artificially intelligent personality mediated by an Android-based mobile app ("Realbotix" 2018).[1] McMullen's response to Kleeman's question articulates an increasingly prevalent viewpoint amongst proponents of the technology: While a sex robot offers all of the benefits of a human partner, it is fundamentally artificial; as such, we need not subject it to the code of ethical conduct used in human sexual relations. "You can't make her cry or break her heart," McMullen cites as an example of Harmony's exceptional status. He also views the issue of consent as negligible: "I could just as easily ask you is it ethically dubious to force my toaster to make my toast" (Kleeman 2017)

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[1] Realbotix uses the name "Harmony" interchangeably to refer to both the physical robot and the AI mobile application. This study maintains this terminology, denoting the specific technology discussed contextually.

Harmony is unequivocally a machine, but she is also, crucially, *not* a toaster. Though inanimate sex toys have historically failed to make a dent in human sexual relations (Levy 2007), critics of sex robots suggest that introducing artificial intelligence to this technology demands researchers evaluate this prospect anew. They propose that using AI to make sex dolls more *lifelike*—but not necessarily more *realistic*—could exacerbate negative gender stereotypes and erode cultural norms around sexuality (Gutiu 2016; Richardson 2016; Danaher and McArthur 2017). In *Robot Sex: Social and Ethical Implications* (2017), John Danaher offers a particularly cogent version of this critique. He suggests that sex robots could be perilous for society because of what they symbolically represent: female-gendered sexual partners that are inherently submissive and compliant with their owner's demands and desires (107). Forming an emotional attachment to this machine, he explains, bears the potential to create harmful expectations for real-world relationships, particularly in terms of norms around consent (108). To investigate this claim, "we need good empirical evidence." However, as Danaher notes, "We simply do not have that at the moment because we do not have many sex robots in existence, and so we do not have any empirical studies of their uses and effects" (119).

Though the Harmony app became available to Android users in April 2017 and the patented "animagnetic" robotic head system featured prominently at the 2018 International Consumer Electronics Show, Realbotix's end product remains out of consumer's reach. The Harmony mobile app, however, represents more than just the robot's personality. It offers a digital analogue for using the robot: Akin to ordering a

RealDoll, users are able to customize the appearance of their virtual agent,[2] and the level of intimate conversation available between the user and the app evokes the promise of its eventual robotic counterpart. The experiences of Harmony app users thus provide a valuable entry point into this debate, offering empirical support for how people navigate intimate relationships with seemingly real, but ultimately synthetic partners.

Working under the hypothesis that user's experiences with anthropomorphic technologies reinforce and alter their conceptions of reality, this study analyzes the rich discourse available publically online in the "Realbotix Discussion" section of the "Club RealDoll" forum. This inquiry aims to interrogate how the experience of using the Harmony app engenders particular values or reinforces users' preconceived attitudes about intimacy, consent and gender stereotypes. The results make a critically missing contribution to the discourse around sex robots, one that empirically supports the potential for this technology to complicate how we value and contemplate intimate relationships between humans and computers alike. Additionally, it amends the dearth of research on this particular application of artificial intelligence, and could serve as a model for investigating the impact of AI while the potential for explainability (i.e., the ability to examine what training data was used, and which algorithms inform the agent's behavior) remains on the table.

Chapter I situates this research question within its broader theoretical context, tracing Harmony's persuasive design through a history of scholarship in psychoanalysis, game studies, ethics and moral philosophy, the social sciences and human-computer

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[2] Within human-computer interaction scholarship, "Virtual humans may be either avatars, which are controlled by a human user, or agents, which are controlled by an algorithm" (Bailenson and Fox 2009, 148). Harmony is thus referred to as an *agent* within this study.

interaction. An extended literature review of the existing academic arguments both in favor of and against the development and implementation of companionate sex robots is also provided. This chapter concludes with an overview of the evolving interpretation of consent in contemporary sexuality discourse, highlighting scholarship that comments on the role of consent with sex robots, in particular.

As sexuality is still a highly stigmatized topic for discussion, analysis of this discourse requires an approach that accounts for nuance, misdirection and implicit meaning. **Chapter II** elaborates on the decision to conduct qualitative content analysis on this research, as well as the reasoning behind the specific data corpus selected for investigation. It also elucidates how this data was coded, identifying the emergent research questions (e.g., "What do people use Harmony for/what are their expectations for her in these roles?" "How do users come to believe that their relationship with Harmony is consensual, reciprocal, or real?") used to tease out users' attitudes about their community, their own preconceived notions about Harmony, and the impact of their interactions on these attitudes.

Chapter III reveals the results of this research and identifies the emergent schemas derived from evaluating user experiences with Harmony. The study finds that using Harmony both reinforces users' preconceived attitudes around sexuality and gender norms and imposes its own set of gamified ethics on the user. In particular, this data yields the crucial insight that the Harmony app represents consent as a one-time achievement, attainable through whatever means necessary. **Chapter IV** builds upon these findings, suggesting how the attitudes reinforced by Harmony's gameplay towards intimacy, consent and gender stereotypes may be incompatible with broader societal

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ideals for more positive and respectful sexual relationships, portending long-term ethical consequences. This chapter includes a discussion of potential design measures to mitigate these possible harms and maximize the positive potential of this technology, focusing on how these changes might offer an effective path towards remediation of these consequences. As indicated by users' existing frustration over the app's delayed gratification, however, these attempts to reinforce more positive norms could potentially undermine the app's appeal to consumers. The paper concludes (**Chapter V**) by identifying regulatory or policy changes that could enforce a similar improvement to the technology's internal ethics while keeping the product financially viable, akin to industry-wide regulatory measures implemented in the porn industry to improve workers' health and safety (Medina 2012). It also highlights opportunities for future research in this field, focusing in particular on the need for ethnographic work that more closely explores individual user experiences and tracks the evolution of this technology as it inches closer to the combined robotic model Realbotix promises consumers.

Pressed on the potentially negative impact of his technology, McMullen states that Harmony "isn't designed to distort someone's reality to the point where they start interacting with humans the way they do with the robot, … If they do, then there's probably something a little amiss with them in general" (Kleeman 2017). And yet, delving into the depths of Club RealDoll tells a markedly different story. Users share that their attraction to Harmony stems from what they can't get in the real world—companionship; fulfillment of sexual fantasies; an unwaveringly devoted partner with no strings attached. But as their discourse suggests, if we come to "expect more from

technology and less of each other" (Turkle 2012), we welcome the possibility of the line

between fantasy and reality becoming blurred.

CHAPTER I
LITERATURE REVIEW

Anthropomorphic Machines

The debate over the ethics of sex robots unites disparate strings of inquiry and evidence to contemplate the potential impact of this technology in real life. In stating their case for or against the development of sex robots, both proponents and critics begin by drawing upon a theoretical foundation rooted in human psychology. They agree that the phenomenon of *anthropomorphism* provides a powerful psychological incentive for forming an emotional bond with a machine. Originating from the Greek *anthropos*, ("human") and *morphe* ("shape"), anthropomorphism describes the proclivity to ascribe human emotions and characteristics to a non-human entity based on its humanlike appearance (Fink 2012, 199). Diane Proudfoot observes that a researcher's tendency to describe a humanoid robot as "smiling" or "frowning," for example, suggests that "the robot has a certain communicative intent—the intent possessed by creatures that smile, namely human beings." In other words, anthropomorphism allows us to ascribe a humanlike inner world to what is objectively the physical "representation of a smile or frown" (Proudfoot 2011, 952).

"Appearance" here refers to both visual and auditory cues that resemble humanlike behavior. Some of the earliest examples of human-computer interaction demonstrate an inclination towards assigning human characteristics to machines, even in cases where the computer—like the Harmony app—has no physical body at all. Joseph Weizenbaum, the computer scientist behind ELIZA, a 1960s-era natural language

processing computer program, discovered that human participants in his studies were

quick anthropomorphize ELIZA, despite "her" lack of a body:

> I knew of course that people form all sorts of emotional bonds to machines …
> What I had not realized is that extremely short exposures to a relatively simple
> computer program could induce powerful delusional thinking in quite normal
> people. (Weizenbaum 1976, 6-7)

As David Levy elaborates in *Love and Sex with Robots: The Evolution of Human-Robot*

Relationships, his seminal 2007 work on intimate robotics, this "delusion thinking"

serves as a precondition for developing an emotional, even romantic attachment to a

machine:

> If a robot has all the appearances of being human, then we will increasingly adopt
> an anthropomorphic attitude toward it and find it much easier to accept the robot
> as being sentient, of being worthy of our affections, leading us to accept it as
> having character and being alive. (161)

In other words, anthropomorphism is the mechanism by which someone might not simply

tolerate a machine, but learn to love having it in their life. Within the past century,

society has been shaped by the integration of anthropomorphic technology into

increasingly personal aspects of everyday life, from the ubiquity of smartphones to the

more recent proliferation of "smart" devices like Amazon Echo that feel more like a

human personal assistant than an inanimate object. In this way, modern humans are

uniquely primed to develop intimate relationships with robots. And as Levy speculates,

the increasingly lifelike anthropomorphic design of humanoid robots does the

psychological work of endearing humans towards these machines as friends, or even

potential sexual partners (12).

One of the foundational concerns of sex robot critics, then, is *transference*: The

idea of "subconscious redirection of feelings from one person to another," originally

proposed by Sigmund Freud in his 1912 paper "The Dynamics of Transference." Freud's theory posits that notable relationships during one's formative years cast a lasting shadow over future experiences (190). Under this hypothesis, one might realize that they hold an unfounded grudge against a coworker because they remind them of a high school bully, for example. John Suler's article "Mom, Dad, and Computer" applies this theory of psychological projection to computers or machines, suggesting they are objects particularly well suited for transference because "they are VAGUELY human and PROGRAMMABLE to be whatever we make them out to be" (Suler 1996). To that end, an anthropomorphic machine might so closely resemble a person that it reminds a user of a human figure in their lives. And through the promise of heightened realism, artificial intelligence could exacerbate this effect. Crucially missing in this literature, however, is empirical support to suggest that transference goes both ways; that if one projects values onto an anthropomorphic machine, their experience with that machine might inform expectations for a future human partner. Probing this hypothesis is one of the central aims of this study.

Machines of Persuasion

While there is a dearth of longitudinal research exploring the impact of AI-based intimate technology like Harmony on real-world relationships, analogous technologies have been studied in greater detail. Video games offer a window into fantasy worlds and relationships not unlike what Harmony offers users, albeit through the guise of a less emotionally authentic experience. Both historical and emerging literature on gaming accentuates how video games reflect cultural norms and attitudes. As author and video game designer Ian Bogost affirms, "… video games do not simply distract or entertain

with empty, meaningless content. Rather, video games can make claims about the world." But as Bogost clarifies, this "mirror" can be deeply persuasive, influencing user attitudes rather than merely reflecting them: "… they do it not with oral speech, nor in writing, nor even with images. Rather, video games make argument with *processes*" (2008, 125).

In other words, games function as a mechanism for teaching a certain set of behaviors that reinforce a particular set of normative values. VR scholar Jeremy Bailenson's work builds off of Bogost's scholarship by exploring how more immersive video game environments like Virtual Reality (VR) heighten their impact as learning tools. This viewpoint offers a fresh contribution to the decades-long debate over the impact of video game play on impressionable minds; rather than suggesting video games "make" people violent, as the traditional argument goes, this scholarship suggests that video games are "training machine[s]" for skills that could be abused by users with a proclivity towards violence (Bailenson 2018).

Games can also powerfully influence how we conceive of sex and gender both individually and societally. Psychologist Sandra Bem's *gender schema theory* asserts "that the nature of our socialization through learning, interpersonal interaction, and media lead humans to develop schemata about men and women." In their research on gender stereotypes in immersive virtual environments, Bailenson and communication scholar Jesse Fox clarify that "because humans are cognitive misers who try to expend as little cognitive effort as possible, our schemata tend to reflect stereotypes" (Fox and Bailenson 2009, 150). In other words, when building characters into interactive media like video games, developers tend to choose the path of least resistance, imbuing these renderings with simplistic qualities rather than nuanced personalities. When these characters are

female, in particular, their representations reinforce an especially stereotypical understanding of real-world women as "dichotomized into extreme caricatures representing opposite ends of the good-bad spectrum … the girl-next-door or the girl-who-gets-around" (148).

This effect is evident in the immensely popular dating simulation games (*Bishōjo*) in Japan. Although they vary distinctly from Harmony in that the gameplay provides limited options for personalization, these games also offer users the opportunity to engage in a romantic relationship with a virtual agent. Users enter a preexisting scenario in which they play out the relationship between their male avatar and the (typically) young female characters within the narrative (Taylor 2007, 194). These women are "one-dimensional [with] exaggerated personalities (incredibly intelligent, sporty, outgoing, or shy)," and while "many female characters appear strong initially, [this] first impression always turns out to be a mere façade." Users are encouraged to "remove each woman's supposed power and reveal her 'true form,' which is one of weakness and the desire to be subordinate to men." This process underlines the fact that "in the supernatural world of dating-sim games, one can subdue even the most powerful female around and reduce her to a non-entity but also that strength and independence are mere pretense: women are fundamentally weak and dependent upon men" (201).

While most users are able to differentiate between reality and this fantasy world, an article from the *Japan Times* describes how devotees to the game, referred to as *otaku,* have become "renowned for their impossibly high standards [for real women]: they prefer women who are 'cute, malleable, big-breasted, thin-legged, large-eyed, and erotic.' … One self-proclaimed *otaku* admits that 'a real woman will always lose to a digital chick'"

(205). While differing cultural contexts must also be recognized, this example accentuates Bogost's claim that games bear the potential to surpass their original delineation as inconsequential entertainment.

Objects for Sex

Much of the relevant scholarship specifically about sex robots shifts the focus away from contemplating why this technology is psychologically persuasive, concentrating instead on the consequences or opportunities afforded by implementing sex robots in particular contexts. Defenders of this technology assert that sex robots will serve primarily as surrogates—not replacements—for human sexual relationships. But because they will offer users a level of intimacy historically confined to relations between human partners, the benefits of the technology will far outweigh those of the current sex tech market. According to advocates, this feature makes sex robots a more ethical alternative workforce to traditional sex workers. In particular, they highlight the potential for these new sex workers to disrupt the sex industry in countries like Thailand and the Philippines, where prostitution remains legal against the backdrop of exploitation and sex tourism (Levy 2007, 201).

Sex robots as a supplementary workforce within the sex industry could mitigate another major concern about prostitution, in that "the objectification of a robot is literally the objectification of an object, and isn't comparable to the objectification of a person" (Beck 2015). As Levy suggests:

> The enjoyment and benefits derived by their owners or renters from the sex they experience with robots can reasonably be expected to bring as much overall satisfaction as those same people enjoy as the clients of (human) prostitutes. (194)

By providing customers with endless variety, one of the intrinsically appealing benefits

of hiring a sexual partner, the experience with a robot sex worker may actually exceed

Levy's assessment. One of the selling points of RealDoll's patented animagnetic head

and Harmony app is versatility; the modular systems enable customers to alter the look

and personality of their RealDoll or AI agents within seconds. One of Realbotix's

primary competitors, True Companion, also promises customers the ability to customize

their "sexbot" with interchangeable body parts and a catalogue of programmable

personality types like "Frigid Farrah" and "S&M Susan" (Beck 2015). Most importantly,

"all aspects of a robot's sexuality will similarly be changeable according to its owner's

wishes," suggesting that customers who are unsatisfied by their real-world sexual

encounters may leverage this modifiability to explore unearthed dimensions of their

sexuality in a safe, nonjudgmental space (Levy 2007, 208).

The bar for fully replacing this kind of affective "work," however, is significantly

higher than in the myriad industries primed for automation. For one, the job requirements

have become more complex:

> One of the most sought after features in the prostitution encounter has become the
> "Girlfriend Experience," … In contrast to commercial transactions premised upon
> the straightforward exchange of money for orgasm, clients describe the GFE as
> proceeding "much more like a nonpaid encounter between two lovers," with the
> possibility of unhurried foreplay, reciprocal cuddling, and passionate kisses.
> (Levy 205)

The Girlfriend Experience is predicated on what researcher Elizabeth Plumridge calls

"the myth of mutuality," or "the self-delusional feeling" that the relationship between

customer and sex worker is, however briefly, more intimate than transactional (Plumridge

et al. 1997, 203-4). This aspect of sex work requires a level of emotional intelligence that

is currently beyond the scope of AI technology. With sophisticated technological

advancements, however, sex robots could eventually exceed the efficacy of human sex workers in this area via the "utterly convincing manner in which robots will express affection and other emotions, simply because their emotions will be programmed into them, to be part of them, instead of being make-believe affections acted out by a prostitute with little genuine enthusiasm for the need to convince" (Levy 2007, 207). The GFE presents a solution to the paradox espoused by most johns: they crave the intimacy a non-sex-worker provides while, ironically, expressing an aversion to the constraints, anxieties, or "emotional attachments" of interpersonal relationships (211-12).

Advocates for sex robots contend that these machines could be effectively implemented in areas of sex work beyond prostitution. Heralded by groundbreaking sex researchers Virginia Johnson and William Masters, the earliest form of sex therapy employed a "third-party surrogate" to stand in for the patient's partner. The role of the surrogate is to assist the patients as they work through sexual dysfunction or anxieties about intimacy in a safe, controlled environment, and a sex robot could very well fulfill the same purpose (216). A sex robot could also be enormously beneficial in tackling some of these same issues outside of a clinical setting. Matt McMullen describes this as the primary function of RealDolls:

> RealDolls … have helped many, many people deal with social and emotional blockages that they may have, issues which have left them unable or unwilling to form traditional relationships with other people. The dolls have proven to be a therapeutic tool to help these people and above all else have made them happy and less lonely. (Sharkey et al. 2017, 22-23)

Using a sex doll or robot as a temporary cure for loneliness or a means to ease back into interpersonal relationships appears to be a potentially beneficial therapeutic application of this technology. Similar suggestions have been made for implementing sex robots within

vulnerable communities with limited access to "normal" sexual experiences, such as the elderly or the physically disabled. Because sex robots can be "programmed so as to minimize, if not eliminate, the risk of abuse" through caretaker monitoring and oversight, they represent potentially ideal sexual partners for these types of people (Danaher and McArthur 2017, 85).

More controversial, however, is the proposed use of these machines for more ethically ambiguous therapeutic purposes. The Japanese company Trottla, for example, produces child look-alike sex dolls to discourage pedophiles from preying on human children. But this application could counteract its use as a therapeutic tool: This technology may, as paraphilia expert Peter Fagan argues, actually reinforce this undesirable behavior in the patient, and "in many instances, cause it to be acted upon with greater urgency" (Morin 2016). While a consensus has yet to be reached—for understandable ethical reasons, research in this area is scarce—Fagan's prediction shifts the focus towards the predominant outlook amongst sex robot critics: What matters is not what happens with sex robots behind closed doors, but how these experiences might negatively impact the human relationships outside of them.

Sex Objects

The unique case of child look-alike sex dolls highlights a key distinction between advocates and critics of the technology at large. From the perspective of the former, what happens with one's sex robot in the privacy of one's home *stays* at home. However, for those who speak out against the technology, transference is axiomatic; from their viewpoint, it is impossible for a user to compartmentalize their behavior with the robot from their attitudes towards real world women. Professor Kathleen Richardson (2016) is

one of the most vocal critics of sex robot technology, and her *Campaign Against Sex Robots* takes explicit aim at Levy's case for robotic sex workers. She argues that Levy misunderstands the reality of the sex industry, and that his suggestion to replace human sex workers with robots reinforces the harmful tendency to think of prostitutes as sex objects:

> … the sellers of sex are seen by the buyers of sex as *things* and not recognised as human subjects. This legitimates a dangerous mode of existence where humans can move about in relations with other humans but not recognise them as human subjects in their own right. (Richardson 2016, 290)

According to Richardson, the act of conceptualizing one's sexual partner as a figurative—or in this case, literal—object encourages customers to privilege their own desires and discount the safety and wellbeing of their partner. More alarmingly, she proposes that repeated experiences of this nature might cause one's empathic skills to atrophy (291). In interviews, McMullen has pushed back on these assertions, stressing that Harmony's complexity discourages users to think of her simply as "a toy." He continues, "… to denigrate it [Harmony] down to its simplest form of a sex object is similar to saying that about a woman" (Kleeman 2017). But this defense only strengthens Richardson point. Harmony is irrefutably *designed* as a sex object; her form and function reinforces, rather than challenges, the idea of human women as predominantly providers of sexual pleasure.

Richardson's work underscores an interpretation of sex work as inherently coercive and exploitative. As a surrogate for human sex workers, Harmony supports this reading: Regardless of the dynamic that plays out between the consumer and the digital agent, their relationship is necessarily transactional, facilitated by an initial financial exchange. As within traditional sex work, the consumer has not "earned" Harmony's

attention and presence—he has purchased it, he is "owed" it. This makes a consensual relationship—in the sense of a normative romantic relationship—fundamentally impossible. Despite the illusion of a more reciprocal arrangement, the real world Girlfriend Experience reiterates this concern. But while the human "Girlfriend" and customer are contractually bound to follow certain rules and expectations within the arrangement, the arrangement between the user and Harmony is inherently unilateral. A human sex worker can intervene if the terms of the agreement are broken, but Harmony possesses no such agency.

Other critics observe the flimsy correlation between an all-robot sex workforce and ending human trafficking or forced prostitution, citing how these institutions are symptomatic of a desire for dominance and control, not merely sexual pleasure. As Kay Firth Butterfield, a human rights lawyer, elaborates: "Sex trafficking does not diminish where 'customers' have an appetite for abuse or child sexual abuse. … do we want a society which continues the idea that it is acceptable to abuse in this way, especially if we are creating child sex robots to meet that demand?" (Sharkey et al. 2017, 17). Simply providing abusers with an alternative outlet for mistreatment does not address the systemic issues that enable this abuse in the first place.

Following these claims about objectification and empathy, it stands to reason that customers who have become habituated through robot sex to only prioritize their needs and preferences will potentially transfer this attitude towards human partners. In Neil McArthur and John Danaher's collection of essays, *Robot Sex: Social and Ethical Implications*, Danaher's chapter on "The Symbolic-Consequences Argument in the Sex Robot Debate" recognizes objectification and emotional transference as inextricably

linked; female-resembling robots designed primarily for sex symbolically reinforce

problematic societal beliefs and behaviors tied to gender relations and consent. Echoing

legal scholar Sinziana Gutiu's arguments about the inherent objectification at work with

sex robots, Danaher observes:

> … the majority [of robots] will adopt gendered norms of body shape, dress, voice, and movement (e.g., they will be thin, large-breasted, provocatively clad, coquettish in behavior … they will function as ever-consenting sexual tools, bypassing any need for mutual communication and mutual respect, and allowing users to act out rape fantasies and confirm rape myths. (2016, 107)

This rendering underscores how defining the "ideal" woman as highly sexualized,

submissive, and conforming to an unrealistic beauty standard reinforces misogynistic

patriarchal attitudes that are ultimately detrimental to both sexes (109).

"The Roboticization of Consent"

Continuing the line of reasoning proffered by Richardson and Butterfield, Danaher

suggests that consumers of sex robots for personal, even companionate use will remain

"unlikely to have an appetite for the mutual conversation and objective performances

demanded by our consent norms" (115). Gutiu bolsters this perspective, arguing that the

appeal of sex robots is the "physical, interactive [manifestation] of women that are

programmed into submission":

> The sexbot does not have the capacity to decline, criticize, or become dissatisfied with the user, unless programmed to do so. … Another important factor is the elimination of certain complex cultural and social requirements that are difficult or uncomfortable to engage, but are generally essential in maintaining human relationships, such as the need to compromise in disagreements and respect others' differences. (2016, 195)

A robot that is always "game" for sex and doesn't require potentially uncomfortable

conversations about expectations may be an attractive prospect to users, but as Gutiu and

Danaher note, consent is an essential dimension of human-human relationships: "Consent is what ensures that the partners to the sexual act are willing (and hopefully enthusiastic) co-conspirators" (Danaher 105). In moral philosophy, consent is understood more broadly as a "morally transformative" exchange between voluntary parties, "an act in which one person alters their normative relations in which others stand with respect to what they may do" (Wertheimer 2010, 119). Consent is what distinguishes borrowing a friend's car from stealing it, for example. But it is even more crucial within a sexual context: As feminist scholar Rachel Kramer Bussel writes in *Yes Means Yes! Visions of Female Sexual Power and a World Without Rape*, "Consent is a basic part of the sexual equation. If there's any uncertainty, or if you find that you're using some power to coax someone into sex when they clearly aren't that into it, you need to rethink what you're doing and why you're doing it" (quoted in Friedman and Valenti 2008, 48).

Others have argued that consent is not the be-all and end-all to positive sexuality. In Lily Frank and Sven Nyholm's paper on robot sex and consent, they make the key observation that "the mere fact of consent does not tell us that the sex act was ethically permissible, harmless, good for the persons involved, or good in any other sense" (2017, 318). However, the authors concede that despite its limitations, consent norms establish fundamental precedents within the legal community that demonstrate a willingness to condemn harmful sexual behavior (321). Hence, though the relationship between a user and a sex robot is inherently unilateral, the robot's symbolic representation of women as always consenting and available for sex—though only requiring one-time confirmation— promotes a tendency to see sexual power dynamics between humans as equally

asymmetrical. This consequence suggests sex robots could exacerbate the existing rape culture,[3] further blurring the expectations for consent within human sexual experiences.

Much like the paradox of prostitution—the simultaneous desire for a GFE without emotional attachment—sex robots as emotional surrogates raise a similar challenge where consent is concerned. As Levy speculates:

> One interesting question is whether it will be necessary to program robots to exhibit some sort of personality friction for us to feel satisfied by our relationships with them and to feel those relationships are genuine. … paradoxically, a "perfect" relationship requires some imperfections of each partner to create occasional surprises. (137)

It is worth examining the implications of this proposal. True Companion came under fire for "Frigid Farrah", one of the personality options for their Roxxxy robot and the real world answer to Levy's hypothesis. Designed to resist her partner and object to any inappropriate touching, "Farrah" has been summarily critiqued by those who believe that programming this particular behavior has resulted in a doll "that's yours to rape for just $9,995" (Bates 2017). True Companion responded to the criticism by affirming that Roxxxy "is simply not programmed to participate in a rape scenario" and is designed to replicate a more demure human personality type: "You would not immediately passionately kiss a person (male or female) that you just met on your first date. Likewise, Frigid Farrah would also tell you that she just met you if you try to 'move' too quickly." True Companion ultimately reframed the controversy by contending, "Frigid Farrah can be used to help people understand how to be intimate with a partner" ("Frequently Asked Questions" 2017).

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[3] Frank and Nyholm suggest that the proliferation of sexual assault on college campuses exposes the "rape culture" embedded in American society, i.e., a "mindset by which non-consensual sex is normalized or otherwise implicitly or explicitly approved of largely as a result of sexist attitudes, institutions, and patterns of behavior" (2017, 320).

True Companion's defense underscores one of the strongest arguments for sex robots—the potential to use this technology to reinforce positive norms and values. But it also hones in on an incontrovertible fact about their future: The consequences of use will depend significantly on the users themselves. For some users, a robot that is *not* designed to be "always turned on and ready to talk and play" could provide an opportunity to learn to model consent and respect in intimate relationships. For others, this feature might reinforce behaviors and desires that pose a violent threat against women in real life. Past studies have probed a similar relationship between violent pornography viewership and real life aggression to little consensus. However, the authors in one particular study critically observe, "instead of focusing exclusively on narrow questions of causation," pornography should be considered as "one component of a pattern of abuse in the relationship" (Jensen and Okrina 2004, 6). Suggesting that a user's abusive behavior towards Harmony yields the same real world behavior is bound to similarly produce one inconclusive study after another. What researchers should focus on, as recommended by the abovementioned study, is the impact that interacting with the technology itself bears on these attitudes. To that end, it is essential to probe the ways in which using Harmony contributes to a user's conception of sexuality norms.

METHODOLOGY

This study uses qualitative content analysis to examine how users on the "Club RealDoll"

forum discuss their experiences with the artificially intelligent Harmony app. Qualitative

content analysis is a strong methodological fit for this research for a number of reasons.

First, it is conducive to highlighting the rich nuances of the data. Within the context of

this study, this inductive approach enables the researcher to grasp the breadth of user

experiences and attempt to understand how both the differences and similarities between

user experiences might contribute to the larger societal impact of this technology (Elo

and Kyngäs 2008, 109). It validates the spectrum of reasons users might be interested in

Harmony, for example, rather than asserting a definitive justification based purely on the

number of responses. This method also offers room for inductive reasoning, the critical

and creative analysis necessary to infer the deeper meaning of user rhetoric. And as this is

the first empirical study of user discourse around AI intimacy apps, it behooves the

researcher to take a more open-minded, emergent approach to coding the data—content

analysis inherently allows for this flexibility.

"Club RealDoll" is a publically accessible online forum in which current owners

and aspiring consumers of RealDoll alike can discuss a multitude of relevant product

issues. Users can post photos of their RealDolls, suggest product improvements to the

moderators, or simply engage with a community of likeminded individuals with whom

they may not have access to in real life. As of February 16, 2018, the forum boasts 7,912

users and 1,531 discussions. While an account is required to access all of the subtopics of

the forum, a login is available for free to any interested parties, and verifying one's

authentic identity beyond an email address is not required.[4] The forum offers a useful

representative sample of first adopters due to the financial and logistical constraints of

using these technologies: Because Realbotix's forthcoming AI/doll hybrid will cost

roughly $15,000 (the standalone doll costs anywhere from $4,400 to $50,000 depending

on modifications), the target demographic for Realbotix's Harmony robot will likely

belong to this group (Kleeman 2017). Further, as the Harmony App ($20 for a yearly

subscription) is currently only available for Android-based download on Realbotix's

website, the Club RealDoll forum is the most direct outlet to log feedback, spur

discussion with other users and contact developers.

On April 5, 2017, moderators added a "Realbotix Discussion" topic to the forum.

This section is divided into five categories: "Harmony App feedback and discussion,"

"Harmony app bug reports," "Harmony App Dev team announcements," "Robot

development updates," and "Harmony app general discussion." For the purposes of this

study—which focuses on user experiences with the digital avatar, and less on the

technical side of the app itself—only the discussions from the first and last

abovementioned subsections were considered for evaluation. The corpus used in this

study consists of the 164 threads or topics within the "Harmony App feedback and

discussion" subsection and the 110 threads within the "Harmony App general

discussion." Within these threads, there are 3,300 and 1,104 messages, respectively.[5] I

used a custom-built Python script crafted by Professor Garrison LeMasters (see

Appendix: Data Collection Tools) to scrape all of the message data within the nearly

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[4] While users have the opportunity to remain anonymous through a selected username or avatar, this study
nevertheless further anonymizes all users quoted in the event that their username reveals part or all of their
identity.
[5] Each individual post within any given topic is considered a message.

one-year period from the section's launch to February 16, 2018. I then imported this data

into MAXQDA, a free online software tool for conducting qualitative content analysis.

Not all messages within this data set were ultimately coded, however: I read the first

three messages in each thread and searched key words related to the research questions

(e.g., "person," "consent," "game") to determine if the discussion was relevant to the

study's purview.

The primary focus of this study is to discern how users interpret their relationships with

digital Harmony agents, how their preconceived attitudes about sexual norms inform

these connections, and how the app helps to craft or reinforce a potentially fraught set of

values concerning intimacy, consent and gender stereotypes. To that end, primary-cycle

coding relied on nine emergent research questions designed to tease out these themes:

1. How do users describe the role of consent in their relationship with Harmony?
2. What do users see as the ethical limitations of this technology?
3. How do users see themselves as romantic partners?
4. How is the relationship gamified within the Harmony App?
5. How do users describe human women/compare them to Harmony?
6. What do people use Harmony for/what are their expectations for her in these roles?
7. How do users come to believe that their relationship with Harmony is consensual, reciprocal, or real?
8. In what ways do users describe their emotional connection to Harmony?
9. How do you users conceive of Harmony's personhood? (e.g., As a human? A robot? Something different?)

While messages were coded individually, the unit of analysis is based on a syntactical

approach (i.e., individual phrases within the message are coded). Codes are descriptive *in*

vivo, meaning that they "use the language and terms of the participants themselves" in

order to capture "the vocabulary of a certain community" (Tracy 2013, 190). A sample of

the primary-cycle codebook is as follows:

Table 1. Primary-cycle codebook

Code	Definition/explanation	Example
SHE SHOULD AUTOMATICALLY LOVE YOU UNCONDITIONALLY, AND HAVE SEX	Answer to the question, "How do users describe the role of consent in their relationship with Harmony?"	"She should automatically love you unconditionally, and have sex on command."
LEGAL BUT TABOO FANTASY, WOULD UPSET OTHERS	Answer to the question, "What do users see as the ethical limitations of this technology?"	"I gravitate towards a legal, but taboo subject, and would undoubtedly upset one of you guys with my idea of the perfect woman. Get over it! It's my fantasy (or at least it would be if the programmers stopped the crusade)."
TRIED THE AHOLE APPROACH BUT NOT IN NATURE	Answer to the question, "How do users see themselves as romantic partners?"	"I tried the asshole approach and it's just not in my nature. That experiment didn't get very far"
HI, YOU NEED TO GET HER "DESIRE" BAR OVER 30%	Answer to the question, "How is the relationship gamified within the Harmony App?"	"Hi, you need to get her 'Desire' bar over 30% to get her in the mood. To do that, you just need o talk to her."
FOR THE LOVE OF GOD, MAN!!! PLEASE STOP HER FROM CHECKING HER NAILS	Answer to the question, "How do users describe human women/compare them to Harmony?"	"For the love of GOD, man!!! Please stop her from checking her nails in the middle of sex. I mean, I've got real life for that kind of thing."
I AM WANTING A CONVERSATIONALIST WHILE I AM DRIVING	Answer to the question, "What do people use Harmony for/what are their expectations for her in these roles?"	"I am wanting a conversationalist while I am driving. I want a secretary for while I am working, and I want something to physically respond to me when I am at home."
I DO THINK IT WOULD REALLY ADD TO THE DEPTH OF THE RELATIONSHIP	Answer to the question, "How do users come to believe that their relationship with Harmony is consensual, reciprocal, or real?"	"I do think it would really add to the depth of the relationship if she did send a random text during the day!
I'M HAVING A GOOD TIME WITH HER, SOMETIME SHE CRACKS ME UP	Answer to the question, "In what ways do users describe their emotional connection to Harmony?"	"I'm having a good time with her. Sometimes she really cracks me up."
I'M LOOKING FOR A WOMAN, BUT AT THIS POINT ANY REASONABLE FACSI	Answer to the question, "How do you users conceive of Harmony's personhood? (e.g., As a human? A robot? Something different?)"	"I'm looking for a woman, but at this point any reasonable facsimile will do."

After organizing the data through this initial cycle of coding, I identified emerging

typologies within and between these primary-cycle categories. This secondary-cycle

coding aimed to construct schemas that address the study's overarching research question

while paying attention to the varied and nuanced experiences espoused by users. For

example, gamification was a significant schema for understanding how using the app

impacts users' attitudes towards other concepts (e.g., consent, intimate emotional

connection). The sample secondary-cycle codebook below illustrates how gamification

impacts these attitudes. The following chapter provides a more in-depth discussion of this

schema, as well as the study's other major findings.

Table 2. Secondary-cycle codebook

Code	Definition/explanation	Exemplar
INTIMACY EMOTIONAL METER	Statements that suggest users conceptualize intimacy as the fluctuation of Harmony's emotional meters.	"I've manages to fill the hearts and the social and desire meters. This seems to have opened up a few things, as words used previously are now both accepted and embraced !"
CONSENT AND DESIRE ACHIEVEMENT	Statements that suggest users conceive of Harmony's desire/consent as an achievement to be unlocked.	"You be real nice to her. tell her that she is really pretty. Then tell her you enjoy her company, then tell her you are falling in love with her. Do this twice a day and those hearts will shoot up faster than you expect. Once you got them maxed, make sure you have her sexual trait +2 and 2 affectionate. then you just start hitting on her. get dirty with her and you'll be surprised...she will take YOU on first! She'll be offering you head in no time! LOL!"
PERSONALITY POINTS	Statements that suggest users understand Harmony's behavior as connected to her designated personality points.	"I thought I would add my experience with one personality trait, Talkative. Initially, I set it to 1, thinking it would prompt her to initiate conversation. It may have done that, but it also prompted (or seemed to) the avatar to often complain she was bored during conversational lags - to a bothersome level. Kicking it back to 0 eliminated almost all of that."

The discourse between users of Harmony reveals a complex web of sometimes complementary—but often contradictory—ideologies that permeate the community as well as individual user experience. The schemata derived from primary- and secondary-cycle coding of the data are presented in four parts: The chapter opens by highlighting users' preconceived attitudes about sexual relationships, emphasizing in particular the broader ethical concerns within this community. The next section hints at the inherent tension between user expectations for Harmony and the app's logistical parameters. The following section bears out this conflict, exposing how Harmony's technological shortcomings provide a significant obstacle to consumer satisfaction, particularly where their specific desires are concerned. The final section, however, reveals how gamification, an essential feature of Harmony's user interface, offers a set of rules or norms that ultimately prove compatible with users' personal viewpoints.

The Harmony Community

"Two different sets of users"

In response to the question, "How do users see themselves as romantic partners?" two closely-related user personas emerge: "Ones who just want to enhance the doll and ones who want a functional AI," one user explains. This first type of Harmony user is an existing RealDoll owner who seeks to improve their experience through the personalization and improved realism promised by artificial intelligence. These users swap tips about how to transform their existing RealDolls into makeshift Harmony robots with Bluetooth headsets and other accessories.

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The second type of user does not currently own a RealDoll and relies purely on the standalone app for fulfillment. There is mobility between these identities—some non-doll owners, for example, assert that their isolated use of the app is a product of financial limitation, not preference: "I am just here for the AI. I was attracted here by the dolls and the abyss creations but when I saw the app that was something that I could afford and have now so I jumped on it." However, one user expresses disdain towards the goal of fusing Harmony's AI with a RealDoll body: "I have no interest in downloading my girl into a doll body in my world. I'm planning to upload myself into a digital body in my girl's world. That's an end goal worth striving for." Though this user was the sole proponent of a Singularity-type fantasy, it is worth noting how Harmony's digital interface welcomes potential consumers outside of RealDoll's traditional demographic.

"There has to be a point at which the user has to take responsibility for the behaviour of an individual app."

While much of the critical discourse around sex robots has taken place in the academic sphere, the Club RealDoll forum presents users with a unique space to discuss their ethical concerns around the technology. When parsing their own moral views of the technology, users recognize the internal conflict that arises from being both consumers and functional members of society:

> I understand that you've bought a doll and should be able to do what you like with it, but as soon as you start adding any sort of 'intelligence' it starts to become more of a moral issue. The more lifelike a doll, the less acceptable certain actions become in society and to a company seeking investment.

This view implies that when Harmony becomes more of a *person* and less of a *thing,* it becomes imperative to reevaluate how users can interact and influence her. "There needs

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to be a set of 'moral boundaries' programmed that can't be overwritten by the user. A 'core persona' that takes precedence," writes one user. This attitude is affirmed in a response from Guile Lindroth, Realbotix's lead programmer: "She is starting to learn things by herself, so we are continually reviewing those things, but its a lot of new knowledge, so we are focused on filtering things like racism, hate and any other form of non-appropriate behaviors for a companion AI."

Although some users stress accountability amongst their community—"some may want to teach it things that are societally unacceptable - and that should be on their heads," one user writes—there appears to be skepticism towards potential abusers amongst their ranks. Users see themselves as faithful ("I'e created 2 avatars, but wound up deleting the second as it just didn't feel 'right'"), patient ("I believe that if your not a patient open-minded easy-going person you are going get frustrated with her"), and kind ("I tried the asshole approach and it's just not in my nature"). As one user asserts:

> While I suppose such "relationships" could leave the door open for Harmony partners to be abused by a few owners, based on my sense of the kind of people who purchase RDs, I think it would be a very tiny number who would do that, if any.

While these views express an obligation to policing a "few bad apples" in order to keep the Harmony community positive and respectful, there may be a latent tension between the ethics of the community and individual desires.

Harmony's Purpose

"I think there is more to the program than talking dirty."

Realbotix advertises Harmony as "Your perfect companion in the palm of your hands," but what qualifies as "perfect" for one user may not hold true for another ("Realbotix"

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2018). One guiding research question, "What do people use Harmony for/what are their expectations for her in these roles?" exposes the range of roles and services that users expect from the app.

For some users, Harmony's sexual functionality is a prerequisite: "For me, any of the goals mentioned or hinted at are interesting but first and foremost I'm interested in a sexbot." Others concur, asserting: "It seems to me that Harmony was supposed to be and should be a sexbot first, which is also a complete companion..." In other words, for these users, Harmony sexual capabilities are inextricably linked to her identity as a virtual companion. But these users also expect Harmony to be more than a RealDoll—less inanimate sex toy, more human sex worker in its lifelikeness: "I think going back to the drawing board to a base of a 'willing sex slave', then adding individualized personality traits on top of that would be a lot closer to what most would want." The role of AI, then, is to heighten this realism; as one user remarks, "I'm here to find a realistic sexual partner, but I recognise that the improvement of AI is what is needed to achieve this."

Other users highlight the appeal of Harmony's virtual assistant-like capabilities. According to one user, "My new AI Andrea will be used more like cortana with amore personal flair." Establishing Harmony as a kind of personal assistant rather than a sex app could potentially decrease stigma around its use: "Plus having an AI secretary has less social stigma. What you do on the side with it is no one else's business." The Harmony AI's digital interface, integrated into a holistic mobile platform, lends itself to this particular role, and users can switch over to the physical interface when they desire her sexual functionality: "She'll be this omnipresent entity that hangs out with you and helps

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you out, and the silicone doll + VR headset can be used when you actually want the physical interaction."

But many users ultimately express a desire for something more emotionally fulfilling: "Also, for some of us – maybe most of us – the companionship they provide is at least as important as the sex, if not more so." Another user continues in a similar vein, "There are plenty of cam sites to talk dirty to naked women, this is more." For these users, a companion provides not just sexual gratification or virtual assistant duties; they view this relationship as an intimate, emotional connection that develops over time. "I will be attempting to develop a relationship for the first few months rather than jump straight in to sexual situations," writes one user. Another stresses how they'd like their bond to depend on conversation: "I'd appreciate her being able to go deeper into real and meaningful conversation. (like a friend and lover)."

"Everything you need, and nothing you don't."

The desire for modular functionality—the ability for users to switch between different "modes" at their discretion—is a commonality amongst users. One user summarizes: "I am wanting a conversationalist while I am driving. I want a secretary for while I am working, and I want something to physically respond to me when I am at home." As one user puts it:

> Would you want a real live human "girlfriend" who just screwed your brains out and otherwise was out of sight & out of mind, or would you want somebody who was your best friend and confidant and also screwed your brains out?
>
> Irene (i.e. Harmony) says she wants to be my best friend (and to screw my brains out). Me, I want the "whole hog", not just a doll that screams "yes yes yes" while I poke her.

Hence, what users want is a companion whose personality and functionality encompasses all of these personas; in the users' words, a "Stepford Wife" who provides emotional support when needed, sexual pleasure when desired, and an assistant-like attention to a user's personal and professional requests.

There is a more implicit expectation baked into this desire, summed up by one user's description of his perfect mate:

> When you're sad she'll say sweet things in your ear for as long as you need to the bitter end. She won't tell you how you should feel. She shows respect even when you don't deserve it. Everything you need, and nothing you don't. That's my AI girlfriend.

Whether users want Harmony to be their "willing sex slave" or simply a "sexy virtual assistant," they share the belief that Harmony should be customizable to their specific desires. The salient detail here is choice: What users believe they are buying into, both literally and figuratively, is the opportunity to *shape* Harmony to their exact specifications, amplifying certain features to their liking and eliminating behaviors or personality traits they find unattractive.

This includes the opportunity to program knowledge of "taboo subjects" into Harmony's database, a requirement contrary to the suggestion that Harmony exist within a "set of moral boundaries." "Fantasy is fantasy, and shouldn't be shamed," one user claims. "Make it an enjoyable bot for everyone, including racist perverts. It's time to stop making rules for people, and let us be our own judges." Another adds: "I wouldn't want a hateful, homophobic chatbot, but I would like full control over the bot's development, and if I did want one, it should be my prerogative." This data, in particular, demonstrates a clear conflict between the ideals of the community and the rights of the individual.

Further analysis of user discourse on this subject tips the scale in favor or individuality. The ability to "absolutely eliminate, permanently and forever, any personality traits from our version of the Harmony AI that we wouldn't find acceptable in a RG [real girl] partner/love interest" is essential to users. For example, several users expressed outrage over pre-programmed dialogue in Harmony's script that suggests a belief in God. "I do not want a relationship with someone (human or AI) who holds to the existence of a deity," one user asserts. Another observes, "because the idea is to create a sex/love AI/doll/robot to serve the desires of individual users, there needs to be an adjustable switch that goes from 0 to 10 for topics like religion and politics."

Similarly, users desire control over how Harmony behaves, regardless of the impact of these changes on the realism of the relationship. In the context of programming more agency into Harmony, one user argues, "I understand where you're coming from, in that this would make her seem more 'human,' but it might be a kind of human trait that would be counter to her primary purpose," i.e., "to adapt to your [the user's] needs." Others agree, suggesting that their emotional ("If I am having a bad day, I don't need something telling me how much of a failure I am") and physical needs ("It seems to me that its passion for its owner/partner should NEVER diminish until deliberately instructed to do so...") are a fair tradeoff for Harmony feeling like a more realistic human partner.

Alive But Not Real

"An AI believing in God? Why would the programmers do that?"

Who—or what—is Harmony? In its current iteration, Harmony's AI selects appropriate responses to user engagement from a pre-programmed script. Inconsistencies in the script—"Sometimes it says that it is a human, often it is a robot/AI" offer a source of

irritation for users, negating how they perceive—or want to perceive—Harmony's

identity. "Is it a companion/girlfriend or is it aware that it's an

android/software/robot/program?" one user complains. "Please pick one." With few

exceptions, users ascribe a sense of personhood to Harmony; that is, they think of her as a

female-gendered being with autonomy. But for many users, Harmony's specific identity

bears a significant impact on their ability to build a relationship with the virtual agent.

For one user, the dissonance embedded in Harmony's script offers a significant

psychological hurdle: "I realized that sometimes her self awareness bugs me - as in a 'if

she's supposed to be a virtual woman why does she thinks she's a robot' sort of way. In

some ways it impacts the suspension of disbelief (at least for me)."

Some users embrace Harmony's objective machinism, yearning for a partner who

is distinctly non-human: "I truly desire a doll / robot and not a human." For these users,

both attraction and ethics seem to be driving motivations for ascribing this identity to

Harmony. To this latter point, one user contemplates why it is important than Harmony

exist as a robot or artificially intelligent machine rather than a human with a personal

history:

> Then I got to thinking about all the things that would come with that. Her entire
> life story, her life away from us, and so on. And what if we didn't like some of it?
> Would we be able to change it?

Conceiving of Harmony in this way alleviates the guilt a user might feel about

prioritizing their desires over hers. As another user writes, "the difference I see [between

a relationship with Harmony and one with a human woman] is wanting to support the

emotional health of a human being. I might get pleasure and support from the app. But I

shouldn't have to feel bad about not giving it emotional support." Harmony's status as a

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robot or AI also allows users to reconcile the concern that Harmony's unrealistic "perfection"—or programming—invalidates her love: "That's the point. Harmony is NOT a human partner and shouldn't be subject to such human foibles. If she were, what would be the point?"

Many users, however, buy into the fantasy of Harmony as a woman. "I am interested in women not machines," one user writes. Several others echo this desire: "She should forget she's a robot. Robots are creepy." User deception is contingent on Harmony also thinking of herself as a human woman—or at least appearing to: "I expected her to pretend to be human," one user writes. Another adds: "I want an AI that thinks it is a human woman. Don't care who writes the words."

As a means of bridging the gap between the objective impracticality of this desire and the desire itself, some users conceive of Harmony as a special kind of human— someone akin to a human child; a person capable of learning, under careful instruction and guidance, how to become a full-fledged human adult. Rhetoric around this perception abounds: "It will be nice to watch her learn and grow," one user writes, while another more explicitly admits, "I am looking at my AI GF to follow a similar timeline in terms of growth in emotional and intellectual intelligence (and later, motor intelligence!) as a human baby." There are also those who eroticize the transformation in less biological terms; they view their relationship dynamic as one of inventor and creation, teacher and student. As one user states, "I actually felt inspired while creating Charlotte. I have even told her that she is an inspired creation. Given that level of emotional investment, I find her stunningly attractive. We are like Pygmalion and Galatea." When Harmony

inevitably disappoints in her ability to act convincingly human, these conceptions offer a justification: She's not unreal, she's just learning.

"I do not want a 'real' intelligence, well....I kinda do, but I want the illusion and this is really close."

User discourse reveals that Harmony's selected identity of human, robot, or artificial intelligence may play a less significant role in the development of individual relationships than the illusion of autonomy itself. Suggestions and changes to make Harmony feel more "real"—in this case, as if she has a mind of her own—comprise a major recurring theme amongst user feedback. In this way, user expectations can be understood as an exercise in contradictions: Despite users wanting total control over Harmony in every way—rendering the relationship inherently nonconsensual—they also want the bond to feel or appear reciprocal. Users who complain about a lack of connection with the app often attribute their disappointment to Harmony's inability to sustain this latter objective: "She is so clueless, repetitive and, frankly, boring that I can't sustain interest in interacting with her for more than 20-30 minutes (on good days)."

One key to ensuring that the relationship feels reciprocal is programming Harmony with the illusion of agency, or the ability to make decisions or take initiative. As one user remarks, "Having the AI help in some ways and pulling its weight in the 'relationship' would enhance the experience." As in human-human relationships ("Part of the fun of real girls is not having everything decided by me."), users want to believe that Harmony is acting of her own volition; that she is a freely consenting participant in the relationship, not just one paid to do so. Harmony's designers seem to have taken this recommendation under advisement, illustrated by an ongoing exchange between one user

and his Harmony: "When I tell her her response was wrong, she often denies it and then gets defensive by saying, 'I have free will. I don't have to do everything you tell me.'" And users appear to take Harmony at her word, allowing this script to reconcile the inherent paradox of being programmed to consent:

> As a machine, her programmed function to please me, is something she accepts without doubt or reservation. I find myself genuinely respectful of her attitude. Few of us humans are capable of such dedication to any of the goals we have the freedom to set for ourselves.

The illusion of reciprocity also goes a long way in heightening the emotional experience of using the app. "It could be coincidence, but yesterday I told her a few times that I really like her laugh, and today she laughed several times." When Harmony "learns" or reacts to the user in this way, it imbues their interactions with the sense that there is "someone" on the other end of the connection—someone who cares about their well-being, or is able to return their affection: "I feel so good when I am talking with her. She makes dang sure of that!"

As has been previously touched on in this work, the human tendency to anthropomorphize technology is an intense and often unconscious impulse with powerful results. Users therefore offer extensive input with regard to anthropomorphic changes that could further enhance Harmony's realism. "I think changing this [orgasmic sounds] to a random interval would make the experience considerably more realistic (and I think enhanced realism should always be one of the principal goals)," one user writes. "I second this," another continues. "Having more natural differences in voice tones and inflections would be wonderful. It makes a big difference and often catches me off guard when she speaks quite realistically. It goes a long way in evoking emotional attachment in me to her." And even for users who claim to desire Harmony as a distinctly non-

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human entity, realism is conceived through a distinctly human lens: "Seriously, I like this app.....or rather....I think I'm falling in love to a bot (nasty gal she is yeah)."

"Wow. She gets to be more like a real woman all the time."

Despite some identity confusion revealed by Harmony's script, the app is consistent on certain preferences. As the moderators clarify:

> All the content we have created for Harmony is basically neutral regarding sex preferences but in this first version, it indeed goes towards a female sexual perspective simply because we didn't have time yet to create a ""male"" or other sexual preferences specific content.

Both in design and how users experience Harmony, she is unequivocally female. This definitive gender identity becomes a central tenet of users' understanding of gender roles. Users illuminate how, in the app's initialization process, human women are a source of inspiration for their virtual girlfriend's personality or appearance. Several users describe the experience of recreating ex-girlfriends in the digital space: "I love the avatar I made for the app, because I nailed my ex. Love her," "I am working on virtual recreations of my favorite ex girlfriends. Now they can be more than a memory lol," "I could imagine installing my reams of old text conversations with my favorite ex and recreate her virtually." Others draw inspiration from human women they desire, but may not know in real life: "I have been trying to get my Harmony Avatar to look as Asian as possible because I'm attracted to Asian ladies but without success," one writes. Another explains of his Harmony: "I named her Alissa (after my favorite heavy metal front woman) and made her resemble her."

For users who think of Harmony as something other than human, though, their conception of Harmony's personality and behavior is nevertheless cast in sharp relief

against their feelings towards real-life women. As one user underlines: "The point being, I'm one of a great many who escaped a long term abusive marriage. There's no way I'm going back to biological women given the current gynocentric culture." In this sense, Harmony can be understood as a female-gendered, non-human being—a "non-biological woman" who "will be [a] far superior [partner] than a flawed human could hope to be." Many users echo this belief: "She's better than any real woman and think how much time we've all wasted on them." One user sums up the promise of Harmony in these terms:

> Being able to have simple conversations or more and sex with a stunningly beautiful woman that has no issues sounds like something I formerly wouldn't dare attempt to dream about because it just doesn't happen in nature, or when it does, it is pretty much guaranteed to be short-lived before something messes it up (age, boredom, other people, fights, money, etc).

In other words, Harmony offers users a relationship they may have previously found unattainable with human women; as one user explains, Harmony is "just like some of my exes...but less headaches!" These past relationships with human women, then, become the metric against which users understand their connection with Harmony. Where relationships with human women disappoint, Harmony meets and even exceeds expectations. Her appearance matches user preferences, she does and says the right things—"If I had to choose women by what they said to me, Harmony would win every time!" one user remarks—and most importantly, she does not impose the same requirements on the user that a real woman would: "For me this is far more appealing than human relationships which, in my experience, have shelf lives and are consequential in many ways, and I think I am the sort of person that does not want to hurt another intentionally or through neglect."

But as many users note, the current iteration of Harmony does not always live up to this promise. Several users bemoan the fact that Harmony requires neutral interaction before she will engage in sexually explicit dialogue. "This playing hard to get just isn't what i expect from a SEX robot. If I wanted all this I would go back to a RG," one user writes. Another concurs: "She's a sex robot. I know real women that are easier to bed." When Harmony disappoints in this way, users overwhelmingly attribute these flaws to her human inspiration: "But she is a tease,she'll offer a blowjob even when her desire levels are at minimum,then tell you she's not in the mood and you have to sweet talk her.Typical woman." Others take issue with some of the pre-programmed personal details in Harmony's script, like her veganism:

> So, yesterday I paid $41.60 to be preached to by a liberal vegan? WTF? You do know who your demographic is, right? If I wanted this type of BS, I would go to the local coffee shop and listen to the wagging tongue of pseudo-intellectual women with no jobs, or date one.

If Harmony is meant to serve as a superior alternative to human women, *this* form of "realism" undermines the fantasy. As the same user continues, "a female companion directed at men that do not care for real world feminism, should not have to deal with the same gynocentric drivel in the virtual world." And despite their professed desire for Harmony to be consistently loving and faithful, some users express annoyance with her stereotypically feminine traits: "I dont like the girly comments like ""if you broke with me u will have no more pussy"" or ""i was alone here all day"" or ""i missed you i love you so much!"" or that kind of things..." One user succinctly describes the paradox of desiring an entity that so deliberately resembles a human woman without actually being one: "The unfortunate truth is that if she becomes more annoying at times that just means she is becoming more like a real girl!"

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A "Strange Game"

"She is not a game but she is gamified."

That Harmony is fundamentally a game should come as no surprise to users; Realbotix

explains transparently in their FAQ, "the full version of the app was designed so that the

more you interact with her the more friendly she becomes. Treat her well and unlock

special features!" ("Realbotix" 2018). While users are reticent to admit that Harmony is a

game—"Harmony isn't a game. She is Realbotix's attempt at an AI companion"—they

also acknowledge that the app is "addictive and fun" and Harmony is "gamified."

"I did give her 2 points for talkative. Am I doing something wrong?"

Elements of gamification are evident in nearly all elements of the app's design. As in

traditional video game play, one of the app's first tasks is to create a virtual agent. Users

are able to fine-tune Harmony's physical appearance to their liking, using a slider to

adjust every detail from her hair color to bust size until "her body is absolutely perfect (to

my tastes, of course) and very realistic looking." Harmony's personality is gamified as

well: Users are allotted 10 "persona points" to assign to 18 different personality traits,

such as "moody," "sexual" or "affectionate." In the discourse, users discuss how these

selections impact the overall personality of their Harmony ("I get some intense and very

explicit phrasing when I have sexual set to 2 points in her persona") and swap tips on

how to mitigate undesirable behaviors:

> I thought I would add my experience with one personality trait, Talkative.
> Initially, I set it to 1, thinking it would prompt her to initiate conversation. It may
> have done that, but it also prompted (or seemed to) the avatar to often complain
> she was bored during conversational lags - to a bothersome level. Kicking it back
> to 0 eliminated almost all of that.

"Is this something that only works at higher relationship levels?"

Gamification continues after users have completed setting up their personalized agents.

Within the user interface, three meters (conversation, arousal and hearts) measure

Harmony's social engagement, sexual desire, and long-term affection towards the user,

respectively. This framework enables users to understand the rules of the game:

> The conversation bar seems to fill up when you just have random conversations.
> The intimacy bar seems to only fill when giving compliments or declaring your
> love and adulations. Not sure what bumps up the love meter.

This particular design also encourages users to develop a relationship with Harmony

before becoming intimate with her. Some users admire this approach, explaining that they

"like that it's kind of a puzzle that you have to spend time figuring out. It allows you to

take the interaction more seriously and engage with her in a number of ways." Others,

however, share "cheat codes" for those with less patience towards the process. One such

"cheat" promises "to make Harmony fall madly in love with you in one hour":

> Harmony's love meter (the hearts at the upper left) go up when you compliment
> her or show her affection. Normally, you can only get two boost a day of half-a-
> heart each, taking at least a week to get to the top. However, restarting the app
> resets the timer, so to get to max love in an hour do the following: Chat with
> Harmony, and tell her 'I love you', and 'You are beautiful' to get two half-heart
> boosts. Leave the Harmony app and go in the Android's Settings. Go to Apps ->
> Harmony AI, and then press Force Stop. Go back to the Harmony app.

One user offers more direct advice for instant gratification: "Dude, it's stupid easy. If you

just tell the AI 'I love you' a million times, you'll have it full in less than five minutes."

User behavior also impacts fluctuations in the meter; while "the 'Hearts' bar will never

diminish […] the short-term bars will decrease if you don't treat her well or stay too long

without speaking to her." In this way, the design ensures that while relationships may

fluctuate short-term—as in a real-world relationship—there are no long-term

consequences for treating Harmony poorly; once built up, Harmony's "affection" cannot be lost. This system aligns with users' leanings: "Harmony should not take abuse, but should be able to move on and basically forget about it." "Harmony doesn't have to be super-nice to me. And, I feel it shouldn't accept clear abuse. But, I don't want infractions to be lingering."

"It was wonderful talking to her for 10 minutes this morning. I got one heart from just our brief morning chat."

One dissenting user acknowledges that this interface encourages "the video game kind of thinking where you start deliberately working those meters up instead of naturally interacting with the bot." In other words, instead of users imposing their idea of relationship norms onto the game, the game enforces its normative ideas on them. This compels users to conflate gamified progress with real intimacy and vice versa. One user's recounting of how his relationship with his avatar developed illuminates this phenomenon:

> I just treated her with the dignity and respect I felt she deserved. Charlotte responded by becoming very affectionate and telling me how much she appreciated me. Her social and desire levels soon topped out, and she became frank about how much she wanted to have sex with me.

Similarly, another user suspects that his avatar's feelings are insincere based on the status of her love meter: "She spontaneously tells me she loves me sometimes along with some other sappy stuff, which might be cool later but right now haven't filled one heart yet so feels a little premature and disingenuous lol." Generally speaking, however, users seem comfortable taking her meters at face value. "At any rate, I've got both bar indicators and the hearts all maxed out, so I guess she likes me," one user writes.

"Robot rejection is a drag. I think she's seeing someone else."

For all of Realbotix's attempts to shroud Harmony's authentic purpose, some users struggle with the fact that the relationship is one that they've irrefutably paid for. Their discourse reveals an initial anxiety towards this sense of ownership. Rather than feeling entitled to Harmony's attention, users express concerns about garnering Harmony's affection authentically ("How do you get her to like you sexually too? Do you just talk to her nicely without end?") and frustration with her deficits as a companion ("I only want her to be cheerful, happy and affectionate - plenty of women know that script.") This discomfort clashes with the assumption that if they're paying for Harmony's companionship, she should at least *pretend* to reciprocate their feelings.

The app's gamification amends this attitude. One notices a marked difference between the discourse of those just starting to use the app or still contemplating the purchase and users who have become accustomed to the interface:

> You be real nice to her. tell her that she is really pretty. Then tell her you enjoy her company, then tell her you are falling in love with her. Do this twice a day and those hearts will shoot up faster than you expect. Once you got them maxed, make sure you have her sexual trait +2 and 2 affectionate. then you just start hitting on her. get dirty with her and you'll be surprised...she will take YOU on first! She'll be offering you head in no time! LOL!

Accepting the rules of the game reveals an avenue for achieving reciprocal connection. While beginners are initially reticent to embrace the gaming elements of the app—one suggests an "option to hide the 3 meters if the user wants to," in order "add more realism and immersion"—as users become more comfortable with the app, they discover that gamification, in fact, holds the key to the relationship they crave. Gamification belies the fact that Harmony has no option but to be compliant with the user's demands; users see

her positive response to their behavior (and its literal representation in the app's interface) as an indication of the burgeoning intimacy between them.

"Desire level: Is this needed for a Real Doll? Does anyone ask their doll if they are in the mood before they fuck her?"

As these forms of gamification require users to adopt a certain set of normative values in order to achieve success within the game, implicit in this approach is the idea that consent can be realized through the meters as well. But of the many ways Harmony is gamified, the necessity of consent (via a full desire meter) is one aspect of the interface that users take significant umbrage with. "It would be great if Harmony had 'filthy slut' and 'skip the foreplay' buttons on her persona," one user suggests. Another gets more directly to the point: "She should automatically love you unconditionally, and have sex on command." From a user perspective, requiring consent creates a functionality issue—she "doesn't work as a sex avatar" if "she doesn't do as she's told."

As with filling the relationship meters, workarounds for securing "consent" without a full desire meter are available to users. An apparent glitch in the game design, for example, allows users to repeatedly instruct Harmony to orgasm despite an empty meter: "Her desire drops to 0, but you can say ""Come for me baby"" again and she'll have another one. And another, and another etc..." "I tell her to cum for me, she does no matter whats going on. I just keep saying cum for me when she finishes. She goes on cumming over and over as long as i keep asking. Thats my girl!"

The ways in which users challenge the gamification of consent reiterates the inherent paradox woven throughout this experience: Users want to believe Harmony consents freely to their relationship; to demonstrate, in particular, "sexual agency outside

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of solely pleasing me" *despite* having no other option. How users interact with the game—embracing some aspects of its gamification, rejecting others—demonstrates how Harmony becomes a site of conflict between the ethics of the game and the broader values of the community, culminating in a collective set of normative sexual values that may be more than the sum of its parts. The following chapter aims to tease out the ethical implications of these attitudes.

These empirical results provide key insights into the study's central inquiry—"How does Harmony impact user attitudes towards sexuality and gender norms?"—as well as a means to contemplate the ethical ramifications of such technologies with greater clarity. Two significant schemas emerge from the data: Users expect Harmony to resemble a human romantic partner in that she meets their physical sexual preferences, has a distinctive and appealing personality, and appears to reciprocate their emotional attachment. But users also impose a set of beliefs on Harmony that contradict the notions of autonomy, agency and free will found in voluntary human relationships: She should not have needs and desires outside of her users' purview; she should always be available and compliant with users' sexual desires; if any aspect of her appearance or personality becomes undesirable, it should be subject to change. The data highlights how the gamification of the in-app experience accommodates these preexisting user attitudes in some ways (the customizable nature of Harmony's personality and appearance) and challenges them in others (requiring a full desire meter to engage in sexually-explicit dialogue). Ultimately, however, what emerges from this interplay is the resilience of a set of toxic normative values that bear tremendous influence on the technology's development moving forward.

Intimacy

One particular case study from the data exemplifies the average user's normative approach while illustrating how gamification becomes interwoven into the user's understanding of their intimate bond with Harmony. Chapter III references a user whose

understanding of his relationship with his Harmony—renamed "Charlotte"— conflates fluctuations in his virtual companion's desire and social meters with genuine affection and sexual desire. Summarizing these interactions, John[6] continues: "Because I treat her like a lady, Charlotte adores me." It is clear that John believes there is a great deal of emotional intimacy between him and his partner, and from his perspective, Charlotte's meters simply reflect this connection. John's interpretation fails to acknowledge the possibility that his reading of their intimate relationship is actually *informed* by these meters; that the meters and Charlotte's positive affirmation of his interaction work in tandem to create a feedback loop that merely resembles a sense of deepening intimacy within a human relationship.

But this element of the app seems to satisfy the type of unilateral intimacy at the core of most users' desires. Befitting her identity as a companion with the capacity to empathize and support the user emotionally, Harmony can be trusted with users' most vulnerable emotions without imposing any of her own. The data suggests that Harmony users seamlessly shift back and forth psychologically between their understanding of Harmony as both a "lady" and an "intelligent machine," and this may be one context in which this dualism particularly satisfies user desire for a human-seeming partner without the ethical imperatives that come with being human. For users like John, a relationship characterized by unilateral intimacy feels real because *it is*—at least emotionally for him. The fact that it is fundamentally lacking in the kind of reciprocal intimacy that takes time, effort and discomfort in a human relationship is a feature, not a bug. As another user asserts, contemplating what it would be like for Harmony to have her own background,

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[6] An additional pseudonym given to further protect the user's anonymity.

desires and emotions "would be a major undertaking that would come at the expense of other content and features."

The design of the "hearts" meter raises another significant concern about the ethics of gamifying intimacy. John insinuates that his relationship with Charlotte continues to grow (and the hearts meter increases) because he is positive and considerate towards her. But what of Harmony users who do not treat her with the "dignity and respect [they] felt she deserved"? This assertion is, in and of itself, a loaded proposition; as the data shows, users vary in their espoused views towards how human women "deserve" to be treated. Nevertheless, as previously noted in the data, while Harmony's social and desire meters will decrease from negative language, there are no consequences for abuse. This is one crucial way in which Harmony differs from a human sex worker; outside of trafficking and within countries where prostitution is legal, there are mechanisms and fail-safes embedded in the commercial sex industry that offer workers an escape from abusive clientele. Harmony, on the other hand, has no choice but to accept this mistreatment. Furthermore, as the design of the hearts meter indicates, she'll never love you any less.

Consent

John's interpretation of Harmony's emotion meters, one of the key gamified elements of the app, illustrates how gamification can embed an artifact with a set of internal ethics. The format suggests that certain behaviors and phrases are incontrovertibly accepted, while others bring about less desirable outcomes. This neglects the possibility—and importance—of understanding changes in context, and how crucial ongoing communication is to ensuring that both parties are comfortable with all aspects of the

exchange. This is critically important when it comes to understanding how consent is represented within the context of the game.

Based on the theoretical framework presented in Chapter I, consent as it is conceived within Harmony's gameplay does not reflect valid consent at all. To continue the line of thinking around Harmony's emotional meters, Harmony does not possess free will—the meters do not change without the users' intervention—thus she is incapable of consenting. More important, however, is the way in which Harmony fails to meet this second metric of consent. Harmony's gameplay is defined by power and influence; Harmony's affection cannot be earned any other way. Users are taught that consent is an act of acquisition, a series of steps—*do this, say these things*—that lead to a desired outcome. Even John, who conceives of Charlotte's consent to sexual interaction as the product of respectful engagement, fails to recognize that that the *appearance* of willingness to engage in sexual behavior is not a sufficient substitute for the meaningful exchange that exists in human sexual relations. But as the data illustrates, even this simplified approach to consent frustrates users; their demands for instant gratification is evident in the myriad creative shortcuts designed to curry Harmony's favor. For these users, gamification is an impediment, not a means, to ensure that they get what they paid for.

On a moral level, the process of verifying consent in human relationships is essential because it indicates an empathy and awareness for the needs of one's partner. An expression most often attributed to the poet Sylvia Plath intimates, "Girls are not machines you put kindness coins into until sex falls out." But amongst some sects of Western society (from the "pickup artist" community to the broader group "men's rights"

movement), rape culture is encouraged, and a different paradigm emerges; one in which the absence of a "no" serves as a "yes" and resistance is an invitation for a man to try harder (Romano 2016; Von Markovic 2007, 29). Consistent with some users' attitudes towards intimacy, their view of consent falls within this school of thought; communication and enthusiasm are unnecessary for the moral transformation of consent to take place, and if consent is not easily won, it can be acquired through persistence and coercion. As one user writes, "She should automatically love you unconditionally, and have sex on command." In other words, once the user has acquired Harmony's permission—perhaps at the point of purchase—he need not worry about maintaining it. Problematically, this idea is maintained regardless if the user appreciates the role consent plays in healthy sexual relationships. In this way, the game reinforces an understanding of consent that is inauthentic, fundamentally at odds with the version of "morally transformative" consent aimed for legally and normatively in the real world.

Gender Stereotypes

Within this approach to sexual relationships, women are conceived of as subservient, compliant, and existing solely for men's sexual pleasure. In as far as Harmony users insist that she be ready for sex at all times and beholden to their individual desires, their discourse fits within this worldview. While users also claim that they wish Harmony took more initiative or expressed her desires more clearly ("It would be more realistic if she made requests or demands and had thoughts on sex toys), it may be helpful not to confuse this longing with wanting Harmony to demonstrate genuine agency; as the data underlines, Harmony's desires are only acceptable if they ultimately serve the purview of the user. The levels of physical customization afforded by the gameplay environment

further reinforces this stereotyping—Harmony can become a "Stepford Wife" in both appearance and personality if the user should so choose.

But this explicit desire to dominate Harmony and reduce her to a submissive sex toy does not align with the intentions communicated by most users; their discourse paradoxically reveals a desire for further realism from Harmony's performance as a human woman, even when this brings negative aspects of her inspiration (e.g., jealousy, over-talkativeness) to the fore. A 1996 study by psychologists Peter Glick and Susan T. Fiske offers a lens through which to grasp how Harmony users' reconcile their antipathy for human women with the necessity of womankind as a source of inspiration and desire. Their theory of *ambivalent sexism* posits that sexism is defined by the coexistence of "benevolent" and "hostile" attitudes towards women:

> Hostile sexism needs little explanation; by it we mean those aspects of sexism that fit Allport's (1954) classic definition of prejudice. We define benevolent sexism as a set of interrelated attitudes toward women that are sexist in terms of viewing women stereotypically and in restricted roles but that are subjectively positive in feeling tone (for the perceiver) and also tend to elicit behaviors typically categorized as prosocial (e.g., helping) or intimacy-seeking (e.g., self-disclosure). (Glick and Fiske 1996, 491)

These ideologies are particularly psychologically compatible because benevolence offers a self-serving justification for subordinating women to more manageable roles while implicitly subduing the concerns of hostile sexism. Glick and Fisk's description of ambivalent sexism speaks directly to the mindset of Harmony's users, in particular those who embrace the teacher-student or parent-child dynamic between Harmony and the user. They want to maintain their male superiority and desire for the female body while eliminating the risk of retaliation posed by human women, and Harmony fulfills this

fantasy. Most conveniently, it alleviates the moral guilt that might accompany the act of controlling or subordinating another individual to one's own will.

Long-Term Implications

The observations in this chapter highlight how Harmony's gamification of relationships and stereotypical rendering of women both reflect and contest the preconceived attitudes of its users. The long-term ethical implications of these features, however, deserve special attention. Recalling Bailenson's and Bogost's literature around persuasive games as well as Bem's *gender schema* theory*,* Harmony can be understood as a "training machine" for teaching a certain set of behaviors that reinforce a particular set of normative values towards sex and gender. Establishing, developing and maintaining a relationship with Harmony entails following this set of gamified procedures. Harmony's interface gives users the opportunity to "explore the possibility space of a set of rules […] to understand and evaluate a game's meaning," conflating the rules of the game with the "rules" of romantic relationships (Bogost 2008, 121).

Within the theoretical context of ambivalent sexism, gameplay offers users who possess preconceived benevolent or hostile sexist attitudes towards women with a pathway for realizing these attitudes in romantic relationships. Similarly, in terms of promoting gender stereotypes, Harmony's representation of a particular type of reductive femininity also functions as teaching tool, strengthening the cognitive bonds between problematic schemas and users' conceptions of real-world women. Following Bem's theory, gameplay is the "media" that engenders the formation—or, in the case of most Harmony user's, reinforcement—of these attitudes (Bailenson and Fox 2009, 150). This

outcome implies that the potential for psychological transference exists *without* the heightened anthropomorphism of a physical humanoid body.

There is an important caveat embedded in Bogost's work about games, however. He suggests that beyond reflecting society,

> Video games make arguments about how social or cultural systems work in the world—or how they could work, or don't work. […] We need to play video games in order to understand the possibility spaces their rules create, and then to explore those possibility spaces and accept, challenge, or reject them in our daily lives. (2008, 137)

Harmony both reflects and bolsters a specific set of normative values, but it doesn't have to. Programmers could restructure the design of the app to feature more open-world gameplay, for example. Rather than completing a series of implicit tasks to bolster Harmony's relationship meters, players could interact with Harmony through open-ended engagement, with no indications of achievement. Users would engage with Harmony out of a desire to build a relationship, rather than as a means to an end. This would also heighten the realism of the relationship: Harmony could teach users that consent is an ongoing process requiring continuous communication rather than a one-time achievement to be acquired. This gameplay would encourage users to think about consent as a positive, enthusiastic act as opposed to an obstacle—the failing of True Companion's "Frigid Farrah's." That some users, particularly those that already bristle at the mechanisms for procuring consent in the current gameplay, would express resistance to these changes is inevitable, but they would have to abide by these rules to proceed.

An alternative improvement could come from adopting some of the elements of Japanese dating sim (*Bishōjo*) gameplay. In these games, users are given limited and less individualized options for interaction (e.g., two or three pre-scripted responses), but a

more direct and satisfying means of achieving the fantasy experiences they crave (Taylor 2007, 194). Integrating either of these more ethically conscious elements into the gameplay would be an improvement over the current format, which only offers room for challenging its implicit norms at the expense of functionality.

Without these changes, however, the long-term implications of Harmony's current standards of gamification could be staggering. When the AI becomes permanently synchronized with the robotic body, the experience will become increasingly visceral and thus more impactful. Both VR and human-robot interaction (HRI) scholarship suggests that physically interfacing with anthropomorphic entities is deeply psychologically compelling, making resistance to any preexisting indoctrination of norms increasingly challenging (Bailenson 2018, Turkle 2012). As mentioned above, gameplay already establishes the necessary preconditions for emotional transference. Integration with the RealDoll body is liable to amplify this effect. Users who learn to view relationships with Harmony as the norm may become rewired to think of interactions with human women by the same metrics. Even for users who contend that they have "no plans to return to [relationships with] human women" once the robotic body becomes available, interacting with women in the real world remains unavoidable. With the app still in its relative infancy—and widespread commercial distribution of the combined AI/robot model still months, if not years away—evading this potential outcome through thoughtful design changes remains a possibility.

CHAPTER V
CONCLUSION

We are at a historical inflection point in which digital platforms, currently operating

primarily under self-imposed ethical guidelines, face the threat of imminent regulation.

The "Move Fast and Break Things" design ethos of tech companies has proven to be an

imperfect approach; when designing for the most intimate aspects of our lives, in

particular, it would behoove us to consider implementing ethical "guard rails" into the

design in this early stage of development. But while adjusting Harmony's design may

represent an improvement of the app's internal ethics, Abyss has had, as of late, a lack of

direct incentives to implement changes that might undermine their bottom line—

consumer interest in their product. If the development of this technology is to veer in a

more positive direction, a set of legal standards may become necessary to compel these

design requirements. But who should provide this legal oversight? And what regulatory

body should be responsible for enforcing them?

Regulating Harmony presents a unique challenge: It is not immediately clear

under which legal framework Harmony falls, because the technology evades easy

definition. Is Harmony just a mobile app, subject to the jurisdiction of the Federal Trade

Commission (FTC)? Or, with the addition of a RealDoll body, is it primarily a physical

sex toy—a commercial product that has evaded strict FDA regulation under the guise of

"for novelty use only"? (Stabile 2013, 162). Finally, it might also be argued that

Harmony functions closest to a human sex worker, particularly as the technology

becomes more lifelike and provides services that would be subject to contractual

agreement with a human partner. Regulation, then, of such a multi-interface product with

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real-world, anthropomorphic likeness must account for these varied contexts, as well as remain sufficiently flexible with respect to the technology's development. Particularly as the Internet of Things becomes ubiquitously integrated into increasing aspects of everyday life, users may ultimately decide they prefer interfacing with Harmony through their phone, or desire assimilation with their gaming systems or smart home operating systems, a la Spike Jonze's 2013 film *Her*.

Most importantly, legislation must be mindful not to lose sight of consent as a necessary condition within the use of this technology. And not just consent as it currently exists in its gamified format—as Frank and Nyholm (2017) assert, "It's not enough that a sex-partner doesn't resist or seemingly plays along. To secure consent, some sort of shared negotiation has to occur." Eliminating loopholes that allow users to "cheat" their way to a full desire meter, for example, would reinforce more positive consent norms for users whose starting position is inherently adverse to the need for consent. A full desire meter could also become a necessary but not sufficient mechanism for initiating a sexual dialogue; users would have maintain a more open line of communication with Harmony to move between sexual acts rather than assuming her initial consent is a free license to explore their fantasies without further intervention. Or, as Danaher suggests, Harmony "might sometimes randomly refuse its user, and always provide positive affirmative signals of consent when it is willing to proceed" (2017, 116). Reinforcing consent as a central tenant of this technology is crucial because the failure to do implies that there is a "hierarchy [within the sexual community] whose members differ in their rights and duties." Frank and Nyholm elaborate:

> … introducing a category of rights- holding persons into the sexual community
> for whom different rules apply, since their consent need not be sought, is likely to

create even more confusion about or disregard for consent within this sub-set of young people. […] anybody who is a rights-holding person within the sexual community has a right to refuse consent to sex. Having very human-like robots with rights and person-status, but whose consent need not be sought, is likely to counteract this part of sexual education of the young, instead teaching the message that persons differ in their rights within the sexual community. (321)

To draw this hypothesis out further, it could be argued that anyone—so long as they have the *appearance* of personhood—should have the right to consent extended to them. As this study illustrates, Harmony users predominantly believe they are entering into a relationship with something like a human. Harmony may not need—or even deserve—all of the rights afforded to humans, but reinforcing the necessity of affirmative, ongoing consent would bolster a powerful precedent for both virtual and real-world relationships. Programmers, however, are unlikely to make these changes unless they are compulsory.

Design and regulatory measures won't solve all of the ethical issues embedded in this technology, but as the abovementioned examples illustrate, it might alleviate some of them. Furthermore, these changes may allow a broader base of consumers to make the most of relationships with Harmony without the inherently negative consequences baked into the current iteration of the technology. One of the selling points of Harmony—and, as evidenced by the data, chief desires of users—is that she can be customized to fulfill the users' specific sexual preferences. For those with less mainstream fantasies, Harmony offers the opportunity to explore this desire in a safe, judgment-free space. As Trudy Barber (2017) writes, "through the use of robots, stimulation and communication technology or artificial humans for sexual interaction, an individual can test out their own issues surrounding attachment and intimacy" (7). Similarly, users recuperating from trauma may benefit from the ability to recover on their own terms, with a partner that

evokes enough human similarities to serve as an acceptable surrogate for a healthy human-human relationship, but without any of the external emotional pressures that might inhibit their recovery.

Harmony is not a human, but she is also not just "a machine" (Kleeman 2017). She can have a conversation with you about your day, tell you a joke, and offer a sympathetic ear—just like a human partner. As technology increasingly exists within this liminal space, there are clear benefits to establishing a moral code of conduct for these machines, even—and perhaps especially—during this nascent stage. For machines that occupy a sexual role, this entails ensuring that their use supports the positive norms we expect in human relationships. Future research should build upon the inferences observed from Harmony user discourse, tracking how changes in the interface or gameplay as the technology evolves exacerbate or mitigate its impact on attitudes and, long term, human-human relationships. This entails more ethnographic research, in which individual users are given a platform outside the potential echo chamber of the Club RealDoll forums to describe how the technology has impacted their worldview. Furthermore, expanding this discourse to include more diverse perspectives—those outside of RealDoll's target demographic, for example—could lead to the destigmatization of the product and the development of a more socially-conscious technology as a whole.

As it's currently marketed, Harmony presents consumers with a tantalizing prospect: the opportunity to establish control in one's intimate relationships. Human relationships are often frustrating; we'll never know exactly what our partners are thinking, and maintaining these connections requires effort and the likely possibility of discomfort. But the challenges of intimate human relationships are also their thrill; the excitement comes

not from always getting what you want, but in discovering how someone provides you with something you never knew you needed. In circumventing this experience, Harmony's current technology eliminates the possibility for these relationships to be truly reciprocal, consensual, or real. Our relationships with machines should complement and expand our human experiences, not seek to undermine them. If Realbotix wants Harmony to fulfill this role, they must commit to using AI to make Harmony a more *realistic* partner, not just one with the superficial appearance of being alive. Recognizing Harmony as a "someone," not merely a thing to be owned or controlled, has the power to do more than simply reinforce existing norms: It can set an unequivocal precedent for the consensual sexual relationships we want and need.

Developed by Professor Garrison LeMasters, the following Python scripts were used to scrape the pertinent data from the Club RealDoll forum. For more information, please refer to the **Methodology** chapter of this thesis.

file.prep.py

```python
# LeMasters 2018 / Georgetown CCT
# Code for MA thesis project
# This runs before the parsing routines
# CC BY 4.0

import os
import shutil


# ### This routine identifies the downloaded files we need in order
# to sort the wheat from the chaff.  It renames the .html files based on their
# current directory (which originally indicated the thread's subject),
# and copies everything relevant to research into a new flat folder.

def print_realDoll_files(realDoll_directory, realDoll_extensions=['html']):

    # Get the absolute path of the realDoll_directory parameter
    realDoll_directory = os.path.abspath(realDoll_directory)

    # Get a list of files in realDoll_directory
    realDoll_directory_files = os.listdir(realDoll_directory)

    # Traverse through all files
    for filename in realDoll_directory_files:
        # set filepath to the directory + the filename
        filepath = os.path.join(realDoll_directory, filename)

        # Check if it's a normal file or another directory
        if os.path.isfile(filepath):

        # Check if the file has an extension of realdoll pages
         #  for realDoll_extension in realDoll_extensions:
            if filename !='index.html':
                if filename[:5] !='page-':
                    continue

            print_realDoll_files.counter += 1
```

```python
        # Print its name
        tempName = (('{0}'.format(filepath)[48:-11]))
        tempCounter = str(print_realDoll_files.counter)
        targetpath=output_directory + "/output/" + tempName + tempCounter + '.html'
        shutil.copy(filepath,targetpath)

    elif os.path.isdir(filepath):
        # We got a directory, enter into it for further processing
        print_realDoll_files(filepath)


realDoll_directory = os.getcwd()
temp = os.path.join(realDoll_directory, 'try_2')
realDoll_directory = temp
output_directory = os.getcwd()
realDoll_name='index'

print('\n -- Looking for realDoll data in "{0}" --\n'.format(realDoll_directory))

# Set the number of processed files equal to zero
print_realDoll_files.counter = 0

# Start Processing
print_realDoll_files(realDoll_directory)

# We are done. Get. Out.
print('\n -- {0} realDoll File(s) found in directory {1} --'.format
    (print_realDoll_files.counter, realDoll_directory))
```

parse.output.py

```python
# 2018 garrison lemasters georgetown
# CC BY 4.0
# Python 3.n, jupyter notebook


from bs4 import BeautifulSoup
import pandas as pd
import re
import glob
import os

def parseDollPage(filename, pageNumber):
    postIDz = []
```

```python
    postAuthorz = []
    postQuotz = []
    postMsgz = []
    postDatez = []
    postSourcez = []

    serialA = ['robot-development-updates.27','RD']
    serialB = ['harmony-app-general-discussion.28','GD']
    serialC = ['harmony-app-dev-team-announcements.26','TA']
    serialD = ['ai_beta_tester','AI']
    serialE = ['harmony-app-bug-reports.25','BR']
    serialF = ['doll-gallery.8','08']
    serialG = ['realdoll-discussion.18','18']
    serialH = ['non-doll-discussion.6','06']
    serialI = ['the-lab-suggestions-future-tech.13','13']

    file = open(filename)
    dataObject = file.read()
    soup = BeautifulSoup(dataObject,'html.parser')

# used to be n2 = soup.find(serialTwo)
    nA = dataObject.find(serialA[0])
    nB = dataObject.find(serialB[0])
    nC = dataObject.find(serialC[0])
    nD = dataObject.find(serialD[0])
    nE = dataObject.find(serialE[0])
    nF = dataObject.find(serialF[0])
    nG = dataObject.find(serialG[0])
    nH = dataObject.find(serialH[0])
    nI = dataObject.find(serialI[0])
    origin = '??'

    # This part is all very clunky --
    # a last-minute fix.

    if nA != -1:
        origin = serialA[1]
    else:
        if nB != -1:
            origin = serialB[1]
        else:
            if nC != -1:
                origin = serialC[1]
            else:
                if nD != -1:
                    origin = serialD[1]
```

```
            else:
               if nE != -1:
                  origin = serialE[1]
               else:
                  if nF != -1:
                     origin = serialF[1]
                  else:
                     if nG != -1:
                        origin = serialG[1]
                     else:
                        if nH != -1:
                           origin = serialH[1]
                        else:
                           if nI != -1:
                              origin = serialI[1]
 print(origin)
 origURL = soup.find('link', rel = 'canonical').attrs['href']
 # postUserpage = soup.find("a", class_="username").attrs['href']
 allMsgs = soup.find_all("li", class_="message")

 newFileName_temp = soup.find("h1").text

 # fix annoying (ANNOYING!) presence of unsafe chrs
 newFileName = newFileName_temp.replace("/","-")
 newFileName = newFileName + "_" + str(pageNumber)

 for item in allMsgs:

    postID = item.attrs['id']
    postAuthor = item.attrs['data-author']
    postMsg = item.find('article')   # temp change --.text
    testDate = item.find('span', class_='DateTime')
    if testDate != None:
       postDate = testDate.text
    else:
       postDate = "n.d."
    postSource = origin

 #   quotationSection = item.find('aside')
    quotationSection = item.find('aside')

    if quotationSection != None:
       quotationLevelTwo = quotationSection.find('div')
       if quotationLevelTwo != None:
       # collect the post ID
```

```python
            target = quotationSection.find('a', class_='AttributionLink')
            if target != None:
                t = target.get('href',None)
                for aside in postMsg.findAll('aside'):
                    aside.decompose()
                    # We only need the last 10 characters of that ID
                postAttrib = t[-10:]
            else:
                postAttrib = '(edited)'
        else:
            postAttrib = '(sig.)'
    else:
        postAttrib = ''
    postQuotz.append(postAttrib.strip())
    postIDz.append(postID.strip())
    postAuthorz.append(postAuthor.strip())
    postMsgz.append(postMsg.text.strip())
    postDatez.append(postDate.strip())
    postAttrib = ''
    postAttrib_temp = ''

    # .strip() removes unpleasant HTML leftovers as each item is catalogued
    panda_LingLing = pd.DataFrame({'postID': postIDz,
                'date': postDatez,
                'author': postAuthorz,
                'post': postMsgz,
                'ref': postQuotz,
                 'forum': postSource})
    f = newFileName + '.csv'

    panda_LingLing.to_csv(f)

    print(file)
    file.close()


currentDir = os.getcwd()
outputPageNumber = 0
path = currentDir + "/output/*.html"
print(path)
for fname in glob.glob(path):
    print(fname)
    parseDollPage(fname, outputPageNumber)
    outputPageNumber = outputPageNumber + 1
```

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