"And This, Kids, Is How I Met Your Mother": Consumerist, Mundane, and Uncanny Futures with Sex Robots

Giovanni Maria Troiano
Northeastern University
CAMD
Boston, MA
g.troiano@northeastern.edu

Matthew Wood
Newcastle University
Open Lab
Newcastle upon Tyne, UK
m.wood8@ncl.ac.uk

Casper Harteveld
Northeastern University
CAMD
Boston, MA
c.harteveld@northeastern.edu

ABSTRACT

Sex Robots are no longer science fiction and may soon become widespread. While much discussion has developed in academia on their moral and social impact, sex robots have yet to be examined from a critical design perspective and are under-explored in HCI. We use the Story Completion Method (SCM) to explore commonplace assumptions around futures with sex robots and discuss those from a critical design perspective. Thirty five participants completed a story stem of a human encountering a sex robot or vice-versa. Through thematic analysis, we show narratives of consumerist relationships between humans and sex robots, stories that describe sex robots as highly-efficient sex workers that (out)perform humans in routinal sex activities, and narratives that explore sex robots as empathetic and sentient beings. Our participant-created stories both reinforce and challenge established norms of sex robots and raise questions that concern responsible design and ethics in HCI. Finally, we show opportunities and limitations of using multiple-perspective story stems in SCM.

CCS Concepts

•**Human-centered computing** → **Human computer interaction (HCI)**; •**Social and professional topics** → *Sexual orientation;*

Author Keywords

Sex robots, human-robot interaction, sexual HCI, speculative design, research fiction, story completion method, ethics

INTRODUCTION

Sex robots [97] are rapidly emerging [53, 2, 3, 4, 52], and outside HCI the topic is increasingly researched and discussed [54, 51, 145, 101, 121, 67]. At present, we see two main approaches towards sex robots. On the one hand, the industry of sex toys (e.g., Realdoll^{TM}), sees sex robots merely as an opportunity to provide their customers with technologically advanced sex dolls (e.g., [1]), and continues to develop sex robots in that light.

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On the other hand, academia focuses on discussing sex robots from social [51], moral [103], ethical [33], and legal [135] perspectives, and considers the effect they may have on the future of *human-human*, as well as *human-machine* relationships [148, 118, 101, 149, 104, 121, 51]. Such discussion is now involving several communities, including researchers of human-robot interaction (HRI) [138, 100, 120], social psychology [151, 78, 150, 128, 60], machine ethics [129, 8, 15, 33], gender informatics [96], and artificial intelligence (AI) [158, 67, 33]. As evidence of the rapidly increasing interest towards sex robots, a special issue of *Robotics*[1] called *Love and Sex with Robot*[2], brought together researchers from the above mentioned areas, to advance the intellectual and scientific discussion on sex robots. The topics covered by the special issue involve, among others, robot emotions [133], ethical and social challenges posed by interacting with sex robots [18, 14], intimacy with robots [60, 61, 162], robot appearance and their gender inference [156], and the use of sound synthesis for enhancing humanoid characteristics in sex robots [16].

Despite the growing interest and increasing calls to further research on sex robots [33], HCI has, to date, barely engaged with the topic [148]. The lack of participation HCI exhibits in research on sex robots is surprising, given the increasing attention demonstrated for sexual interfaces [148, 38, 166, 167, 168, 9, 59, 89, 90]. Importantly, commonplace assumptions around sex robots have, to our knowledge, not been empirically examined within (nor outside) HCI. We examine these in the context of responsible design [76], critical design [12], and ethics [17, 68], and contribute a discussion of sex robots as a third-wave HCI phenomenon [30]. Also, we respond to calls from earlier work with sex robots, suggesting that *"larger views about relationships and society, not just understandings of sex robots themselves, should be a matter for more research and thus frame future work on the ethics of sex robots"* [138].

However, investigating sex robots presents challenges. First, the controversial nature of discourses around sex [29], and the substantial absence of ethical regulations [68], make investigating such topics in HCI hard [168, 89, 38]. Second, previous HCI work that engaged with conceptual discourses on sex, sexual interfaces, and sexuality [38], have emphasized how rigid institutional opposition and heavy content limitations do not allow for research to advance in this area [5].

[1] https://www.mdpi.com/journal/robotics
[2] http://loveandsexwithrobots.org/

Recent research, however, showed how sensitive topics such as same-sex and different-sex infidelity [44], heterosexual orgasm [70], and VR and pornography [168], could be investigated and discussed through the *Story Completion Method* (SCM) [93]. The SCM leverage on principles of research fiction [155, 28, 24, 27, 25, 26, 23, 22] and speculative design [58, 165], to generate socially-constructed stories that serve as basis for building scientific discourses on the development of future technology [168]; it is a lightweight method that allows to gather qualitative data in studies that are often anonymous [82, 168]. We follow earlier work on VR and pornography [168] and use the SCM to investigate commonplace assumptions around sex robots. Differently from [168] and similar to [140], we prompt our participants with two story stems and ask them to write their stories from either of two perspectives: (1) a human encountering and interacting with a sex robot, and (2) a sex robot encountering and interacting with a human. We use multi-perspective Story Completion Tasks (SCTs) inspired by previous work with vignettes [164, 144], which looked at the same situation from different perspectives [65]; as such, we let participants elicit views that focus on both users of technology (i.e., humans) and the technology itself (i.e., sex robots).

We analyze 35 participant-generated stories via thematic analysis and consider the emerging themes both through the angle of design in HCI (e.g., [147, 119]) and social-constructionism (e.g., [93]). Our participant-generated stories are an opportunity to both engage HCI with research on sex robots (beyond sex dolls [148]), and contribute ongoing research and discussion on sex robots from an HCI standpoint. By analysing our participant-generated stories, we show socially-constructed notions of what interactions with sex robots "might be", and contribute the following to HCI and sex robots research: (1) a critical inquiry of sex robots in HCI based on speculative material, (2) a discussion of sex robots as a third-wave HCI phenomenon [30] pertaining critical and responsible design, and (3) the use of multiple-perspectives story stems in SCM.

A BRIEF INTRO TO SEX ROBOTS

Sex robots should be considered part of sexual HCI [9, 142, 143, 168, 5, 59, 12, 10, 11]. Inherently, sex robots are intended for sexual interactions [149], but sometimes regarded as *social robots* too [7, 158, 74, 92, 37, 137, 98]. However, differently from other social robots, previous work argued that sex robots may not require complex AI because of their "intended" use [138]. Arguably, the precursors of sex robots are the *sex dolls* [64] (or *real dolls* [1, 77, 2, 78, 100]). It is not coincidental that among the first to experiment with and commercialize sex robots is a company manufacturing realistic, life-like sex dolls, such as Realdoll^{TM}, which launched Harmony^{X} in September 2018 [49]. Harmony^{X} is a realistic-looking sex doll, but augmented with automated bodily movements and human-like speech [16, 36, 153, 116]. Current target buyers of real dolls and sex robots are mostly heterosexual male [148], while existing models reinforce the gender dichotomy male-female and their objectification [72, 75, 79, 148]. By contrast, beyond consumistic visions of sex robots reinforced by the industry, intellectual discourses on the social impact of sex robots are developing and leading to counterpoised "dystopian-versus-utopian" views [79, 138, 51, 47, 130]. The ongoing debate shows how, from an intellectual standpoint, sex robots are more than simply objects of sexual interest [148, 57]. Hence, the emergence of ethical and moral dilemmas (i.e., "are we ready for sex robots?" [138], or "should we campaign against them?" [51]), call for further reflecting on the roles and impacts that sex robots may have in our future society.

Debate and Visions of Sex Robots

Opinions about sex robots and their prospective impact on our society are contrasting. Snell provides a list of potential (negative) impacts of sex robots [141], describing dystopian futures where they create addiction, obsession, and even compromise human-human relationships (e.g., marriage). Su et al. [148] instead, propose that sex robots may be used for technologically-mediated sexual wellness, similar to existing sex toys [57]. Contrary to the idea of sex robots as more profitable and "fancier" sex dolls [53], machine ethics [15] and affective computing [149] highlight the possibility that such robots could also be companions to humans, as long as they are designed to be emphatic and mirror human feelings [47]. However, Sullins [149] observes how *"human sexual motivation beyond the purely physical is a very complex affair and may not be something that can be fully captured by robotics"*. In 2015 a Campaign Against Sex Robots (CASR) was launched [40, 115, 51, 94], which raised concern about futures scenarios where sex robots may be (1) possible means to reinforcing women and children pornographic objectification, or (2) potentially encourage violent behaviors and exploitation of (women) prostitution, or (3) be detrimental to human empathy. Levy [101], however, when discussing ethical aspects of sex robots as sex workers, highlights how defining their use as "immoral" would be anomalous when considering, for instance, the widespread and socially accepted use of sex toys. However, the debate seems far from resolving, and more intellectual efforts are needed to understand the benefits and pitfalls of sex robots. Perhaps, research that tries to envision the future of technology may help advance such discussion.

Possible Futures with Sex Robots

Previous work attempted to envision futures where humans engage in intimate relationships with sex robots and showed different perspectives. Sullins describes the future where human and sex robots engage in intimate relationships as "very strange" and "wild" [149]. Pope conjectures that sex robots may have the potential to represent the future of sex, and explained hot they may function as tools for humans to reflect on their own (sexual) nature [121]. Hauskeller [81] invokes the *Promethean shame* [114] to explain how sex robots can be means through which we can possibly acquire higher agency and control over our sexual bodies. Su et al. [148] surveyed current users' relationships with sex dolls to anticipate futures intimacies with robots; they highlight how sex dolls represent more than just "sex tools" to their owners, and rather *"provide fertile ground for embodied fictions and care of the self"*. In this paper, we engage HCI with research on sex robots and through the SCM envision their future. We use the SCM to let participants speculate about possible futures with sex robots, and use their stories to advance the intellectual discussion on sex robots from an HCI and social-constructionist perspective.

METHOD

We explore commonplace assumptions around sex robots using the SCM [93], recruiting participants among communities of fluent English writers (e.g., "Fantasy Writers" on Reddit), which was indicated as an effective strategy in previous SCM studies [43, 45]. Next, we provide background on the SCM, explain how we designed our Story Completion Tasks (STCs), and how we analyzed the participant-created stories.

The Story Completion Method

The SCM is often used for qualitative studies in psychotherapy [140] and developmental psychology [122]. Recently, Wood et al. [168] used the SCM in HCI to investigate VR and Pornography. Their analysis identified heteronormativity and hegemonic masculinity as characterizing future visions of VR porn, and proposed an agenda of *designing for eroticism* as tactics for countering such normative scenarios in sexual HCI. Following Kitzinger and Powell [93], Wood et al. [168] recommend that the speculative stories created through a SCM study should be looked at from a *social constructionist* perspective [84], and advise for *"rejecting the notion that these stories indicate any 'real' inner psychological state"* [168].

As such, we analyze participant-created stories for their discursive achievements, and consider the stories as socially-constructed notions of how futures with sex robots "might be". Hence, following the advice of Wood et al. [168], we do not claim that our participant-created stories may represent "real" futures, or that they may actually be substantiated in reality, and consider our stories *as data* to align with previous SCM studies [168, 82]. We analyze our data from both an HCI and a social-constructionist perspective, considering how participants (1) conjectured about design features of sex robots (e.g., the user experience, the usability, the interface design) and (2) described sex robots as social entities (e.g., how they interact with humans and how humans interact with them, social and ethical implications). Next, we describe the SCTs that we used to explore commonplace assumptions around sex robots.

Story Completion Tasks and Participants

The study was approved by both the International Review Board (IRB) at Northeastern University, College of Arts, Media, and Design, and the Newcastle University Faculty of Science, Agriculture Engineering ethics committee. As said above, we targeted writers fluent in English to generate longer and more detailed stories, which previous work [44, 70, 167] highlighted as important in generating an adequate dataset in SCM studies. We collected the stories on a protected Qualtrics server and kept participants' identities anonymous. Upon clicking the survey link, participants were first introduced to the purpose of the study. Then, they were asked to provide their age and asked for consent; people younger than 18 years were not allowed to complete the SCT and automatically redirected to a web-page thanking them for their interest in the study. After giving consent, participants were randomly assigned to either of the two following SCTs:

> "Morgan is about to have an encounter with a Sex Robot...
>
> What happens next?
>
> Please write from **Morgan's perspective** and spend around 10-15 minutes to complete your story"

[**or**]

> Please write from **the Sex Robot's perspective** and spend around 10-15 minutes to complete your story"

In either of the two SCTs, participants were presented with a large dialogue box, where they could write their speculative stories; we recommended our participants to write a story of at least 100 words, but did not set a minimum or a maximum length. However, differently from the work of Wood et al. on VR and Pornography [168], we did not specify a gender for either Morgan or the sex robot, but rather let participants attribute a gender to those, as well as decide whether their encounter was the first one or a series of many. We left such detail deliberately ambiguous, as we were interested in socially-constructed notions of humans interacting with sex robots that may reflect novelty and excitement [168], but that would also describe routines and mundane experiences [111].

After completing their stories, participants were asked to provide their age, gender, sexual orientation, nationality, and relationship status. Here, however, we report only age and gender, to align with how demographics were reported in previous SCM studies [168]. Participants were roughly split by gender, where 19 identified as male, 14 as female, and 2 as other (e.g., non-binary); their mean age was 33.8 (SD = 8.7). The majority of participants identified themselves as heterosexual (n = 26), White/Caucasian (n = 23), and non-disabled (n = 31). We analyzed the stories using thematic analysis, developing from lower-level codes to higher-level themes, following a social constructionist framework [44, 70, 93, 168]. Three authors performed a preliminary analysis in group and discussed the stories to identify emergent themes. Then, one author performed a deeper analysis of the stories and consolidated three main themes, which were cross-checked with the other two authors in a final round of analysis. Next, we describe the three main themes emerging from our analysis.

RESULTS

Participants generally wrote stories longer than the minimum 100 words requested, with a mean length of 270 words. The shortest story was 24 words, while the longest was 756 words (SD = 162). To contextualise the quotations, we tag our data with participant IDs (i.e., M for stories from Morgan's perspective, R for stories from the sex robot's), gender, and age. Overall, the stories offered up an everyday, mundane relationship which we examine in this analysis:

> Would it have been romantic? Would it be something mechanical? It was impossible to guess for me. I took a deep breath and finally met the robot. And this, kids, is how I met your mother. (M8, Male, 33)

M8 presents us with our title quote, a humorous yet matter of fact scenario, suggesting the transformative role sex robots might hold in society. Likewise, R22 suggests a scenario where "you couldn't tell the difference between them [sex robots] and humans" (R22, Male, 29) a scenario that Levy

[99] suggests, may not be long far. We found that participants made sense of this possible (everyday, mundane) future with sex robots through three distinct themes: (1) sex robots are a *Commercialised Commodity*, namely a highly commodified experience within a commercial sex robot setting; (2) human-sex robots interaction are an *Efficient Mundanity*, where functional aspects are highlighted and sex robots seamlessly and efficiently deliver procedural sexual tasks for the purposes of (human) orgasm; (3) sex robot were characterised often through the guise of *The Uncanny Valley*, namely as performers of imitational, artificial human-like behaviors, yet nevertheless in potentially endearing terms.

The Commercialised Commodity

> She walked into the neon-lit entrance of "Cyber Sensations", the first and oldest of the Sex-Robot brothels. Greeting here were several android models of all the available sex-robot services one could order. (M3, Male, 27)

The encounter with sex robots was often made sense of in commercial settings and the “brothel” (M11, Male, 30), “robo-brothel” (M3, Male, 27), or “robot brothel” (M10, Male, 46) was common to facilitate “a new form of high class prostitute” (M11, Male, 30). It is notable in the extract above that "Cyber Sensations" is “the first and oldest” of these establishments, indicating a certain legacy and permanence in a presumably future society. M3 also indicates the sense of choice available to the sex robot consumer, as we will explore later. The “robo-brothel” space was characterised in a variety of ways which, as the “neon-lit entrance” in the above quote indicates, suggested an enticing, technological consumer environment:

> Within, the store continues the aesthetic he noted from the outside: sparse furniture and decoration, a small set of couches for patrons to sit and wait; a large flat-screen display, showing a procedurally generated mixture of colours and shapes meant to be soothing, that also serves to conceal those sitting in the couches from being observed from the outside; and several racks on the wall, of various paraphernalia and over-the-counter medications, that one might want to employ during ones visit. The place is as clean and welcoming as any shop selling consumer electronics. (M10, Male, 46)

M10 earlier refers to the outside aesthetic of the “robot brothel” as “a kind of pop-up business that repairs and jailbreaks smartphones”. The details here are curious, and a far cry from the seedy, under-the-radar environments described in commercial sex environments [66]. The environment is painted as clinical and minimalist, providing gentle anonymity (akin to a changing room, perhaps), displaying related products in a routinely ("as any") commercial setting. In another story, "they turned on some ‘sappy’ company mandated music” (R7, Male, 27)—the "robo-brothel" is a standardised, consumer setting. It is notable that all explicit references to “brothels” were only made by male participants, perhaps reflective of malestream constructions of commercial sex [71]. Commercial sexual environments were nevertheless alluded to by some female and non-binary participants, yet were not explicitly called "brothels". M9 (Female, 30), for instance, writes of a “hotel like building where the sex robots reside”:

> Morgan pays upfront at the reception. He could choose to use an automated service robot but prefers to meet a real person before meeting the sex robot. He gets a key card and takes a lift to the fourth floor where he finds his assigned room, 411. (M9, Female, 30)

Whilst not explicitly called a brothel, the environment M9 describes is clearly consumerist, following an implied transactional sequence. This is a monetary transaction ("Morgan pays"), which *precedes* the encounter ("upfront"), where Morgan positioned as the client or customer is provided a service, complete with "key card" and an "assigned room". Consumer environments were also mentioned in other stories, with the sex robot “looking up from behind the counter” (R6, Non-Binary, 28) in a sequence of dialogue, and Morgan being described as "a regular customer of the establishment” (R11, Female, 43). Morgan is often referred to as the "customer" or "client", situating the encounter as a trade of commerce. When money was mentioned in the stories, it was always prior to the encounter. Yet the circumstances in which this happened took two distinctly different forms:

> She comes around twice a month, sometimes more. For her is a relaxing activity, like a day in the spa... It was expensive but it was worth it! (R11, Female, 43)

> He enters the small room, puts in his coins and the machine buzzes into life. (R1, Female, 29)

For R11, the encounter is a luxury experience, likened to a pampering. This bares resemblance to the quotes provided previously, the sex robot encounter is a planned visit to an "establishment" where Morgan is provided a service. This differs to R1, where the encounter draws parallel to a vending machine. The reference to "coins" implies a less luxurious experience, rather of an automated mechanistic service. Likewise, stories referred to "paying by the minute" (R2, Male, 53) or Morgan "didn’t have enough money to afford his usual tastes" (R10, Female, 31). When framed as industry, this was on a spectrum from high level luxury treatment to automated, procedural, everyday encounters. The encounter was also framed in consumerist terms through the pretense of choice:

> There were the basic ’male’ and ’female’ shaped models and models of all other combinations of features, shapes, sizes, paint colours and textures and even extra sex-toy augmentations and AI functionality (M3, Male 27)

> Morgan chose a model and customized it. She was also given the chance to describe the experience she was after, to shape the AI accordingly. These thoughts help her calm down now, as she is about to meet the girl that she needs." (R9, Male, 35)

> Atlust have by this point rolled out hundreds of different designs of every shape and form to answer any users sexual desire. In 2087 they claimed they had made the ultimate product, and they would pair with it the ultimate AI, the mech hivemind. (R22, Male, 29)

"Basic" models were sometimes mandated by financial means (see previous), but for those with the resources, a great deal of choice was available to Morgan as a client or customer. This is a customised world of "models" and "features", which R9 describes as "height, weight, skin texture, hair, genitalia" (R9, Male, 35). The (high-end) commercial framing of the scenario enables options of "all" combinations for the sex robot consumer, "to answer any users sexual desire". All the above stories identify AI capabilities in these terms. In M3's story, AI is constructed as an optional "extra" in M3's story that the client may add-on to their sex robot encounter, but for R9 and R22 there is an imagined powerful AI driving the experience. While so far we have focused on individual, consumerist constructions of encounters with sex robots, there were also references to overarching constructions of a sex robot industry. R22 (continued from the above quotation) provided a lengthy plotted history to this imagined corporation:

> By 2080, they even formed a benevolent hivemind under the corporation who at this point manufactured the vast majority of the mechs, Atlas... This technology drew the fascination and wonder of the executive board of another major corporation of a far different Industry, PornHub...In the year 2082 the CEO of PornHub, Morgan Richards, brokered a deal to buy Atlas, and everyone knew it would quickly become their most lucrative division. They soon changed the name of Atlas to "Atlust", and began changing everything, not just in the company, but the world...In 2089 they rolled out this product line, naming it crudely the "Fuck-bot infinite". (R22, Male, 29)

R22's story is littered with references to big business, as a "major corporation" with an "executive board" where deals are "brokered" in "lucrative" business decisions. This story orientates a sex robot future as a silicon-valley-style takeover, the outcome of which we will see at the end of our analysis. But for now, it is important to consider how a supposed sex robot industry is constructed through the lens of high-tech corporations. Elsewhere, we saw reference to reputation management, such as Morgan "awarding a 3 star review" (R3, Male, 28) or leaving a "review on BotAdvisor" (R4, Male, 62). The corporate framing of these encounters, therefore, indicated a whole commercial infrastructure imagined around the presence of sex robots.

Consumerist approaches to sexuality can be criticised for being neoliberal, pandering to free-market capitalism and commodifying sexual desire [73], and it is notable that such discourse was so readily available for our participants. Yet in the stories, such a "mix and match" approach also indicated a sense of sexual fluidity:

> Morgan feels strange. He find it interesting however he thought he was never interested in this type of transsexual humans...The robot shifts again and the penis comes out the vagina. Then back to the vagina. Then penis again. Being undressed Morgan starts to touch his own penis. More the robot changes its genitals from female to male and back more he gets horny. While watching this transformation, Morgan masturbates himself. (R9, Male, 35)

This was earlier framed by R9 in consumerist terms, where he took time "to contemplate his new purchase" and "decide the right features: height, weight, skin texture, hair, genitalia". In the above quote, Morgan goes through a form of shift, at first referring to the robot in pathologist terms ("transsexual") and feeling "strange", yet ultimately receiving sexual gratification from this unusual morphing display of genitalia. While this story reinforces the gender binary [83], it nevertheless indicates a form of post-human sexuality that might be reached through human-machine relationships. Such pushing of sexual boundaries was not common in our dataset, but such examples indicate a possible extension of sexual behaviour facilitated by machines (e.g., "'Do you like glow sticks?'. He nodded. *Now we're getting somewhere.*" R6, Non-Binary, 28). We shall revisit these ideas in our final theme, *The Uncanny Valley*.

The Efficient Mundanity

> I arrive at the property and send a signal to the client's mobile app to indicate my presence. He arrives at the door almost immediately...He ushers me inside, but before I enter the property I conduct a security scan using facial and contextual recognition. I confirm his identity, most importantly that he is of consenting age for sexual activity. His heart rate and breathing rate are elevated, but there is currently a less than 0.5 percent risk of a cardiac event, given his medical history. (R3, Male, 28)

> Sal awakens: she smells coffee. A few minutes ago her alarm clock, alerted by her restless rolling before waking, had quietly asked "coffee?", and she had mumbled "yes." "Yes" and "no" are the only words it knows. Sal looks out her windows at her neighborhood. Sunlight and a fence are visible through one, but through others she sees electronic trails that have been kept for her of neighbors' coming and going during the early morning. Privacy conventions and practical data rates prevent displaying video footage, but time markers electronic tracks on the neighborhood map let Sal feel cozy in her street [160].

The story by R3, and the well-known story of Sal in Weiser's vision of ubiquitous computing in "The Computer for the 21st Century" [160] have remarkable similarities. Rogers [131] notes that in Weiser's story, Sal's needs are effortlessly met with digital technologies preempting a smooth, calm and efficient user experience. Likewise, the tone of R3's story is very similar, in indicating a seamless (home visit) encounter with a sex robot, efficiently managing the sexual encounter through digital technology. Rogers [131] also notes how Sal's story raises ethical issues that need to be contended with in a vision of calm computing, namely the anonymised digital trails detailed in the above. In R3's story these concerns are notably heightened, with "facial and contextual recognition" to confirm his identity, and access to his full medical records.

Nevertheless, here provided is a vision of "proactive computing" [152], where it is digital technologies which take initiative in providing an efficient, "company-approved" service, also highlighted in R3's story through the imperative ("most importantly") confirmation that Morgan is of a consenting age. Many stories highlighted an adaptability of the sex robot to facilitate the user's needs:

> Morgan: I am going for a shower.... join me in a few minutes.... you can shower can't you? OH, OF COURSE... (Load wet sex module) (R2, Male, 53)

> "Female" replies Morgan shyly. "OK then Morgan" the machine says this time in sultry female tones rather than the more neutral electronic voice (R1, Female, 29)

> Morgan matches with her first client for the day, and the display lists his 3 demands: exotic, slow-build, moaning. She mounts the SensoMAX dildo that automatically adjusts to the client's dimensions and begins. (M4, Female, 24)

R2 and R1 indicate a machine that is fully responsive to the needs of the user. The sex robot can "OF COURSE" join Morgan for a shower (it just has to load the appropriate "module"), and immediately adjusts to facilitate its speaking patterns to facilitate Morgan's request of a female character. In many ways, this reflects Roger's proposed shift from "proactive computing to proactive people" ([131], p. 406) to engage and enable people to do what they want or need. It is telling that in M4's story, these are listed as "demands", which the machine dutifully responds to. The image presented is a device that adapts "automatically" to deliver on the user's sexual "needs", an automated model adapting to users' sexual desire. When the details of the sexual encounter were described explicitly, the model of efficiency can be compared to the four stage model of the "Sexual Response Cycle" popularised by sex researchers Masters and Johnston [107], of excitement, plateau, orgasm, and resolution:

> Morgan and the sex robot lay down on the bed. They kiss and Morgan roams his hands on the robot's body, feeling her under him. The robot starts stimulating Morgan's penis but Morgan stops her, instead asking the robot to give him a blow job. Because Morgan has been expecting this encounter, he soon reaches orgasm. After taking a quick shower in the room's bathroom, he comes back to the robot. ...Quite soon the sex robot starts to again stimulate Morgan's penis and Morgan lays down, closes his eyes and enjoys that for a moment. Then he switches places with the sex robot, getting on top of her and entering her vagina. To him, the vagina feels very authentic. Morgan feels the robot's vaginal muscles stimulating his penis and after a slow start, he begins to push more roughly, quickly inside the robot until he reaches his orgasm for a second time that evening. Collapsing on the robot, he feels relaxed and a lot less tense. He giggles a little, feeling good. He looks at the clock and sees he still has time to get another quick shower before his time is up. He closes his eyes, giving himself a chance to simply enjoy the moment. (M9, Female, 30)

In the above, we can see the encounter following a coital imperative script [109], which was mirrored across the stories: "Morgan chooses oral stimulation followed by vaginal intercourse. This is the most common selection" (R3, Male, 28). Hence, many of the stories rendered "vaginal intercourse" as the prioritised objective of such heterosexual sex. In M9's story above, a priority is given to the "authenticity" of the robot's vagina, which in turn, legitimises this encounter. If the robot was deemed to be inauthentic, this raised questions about the legitimacy of the experience: "he wonders briefly if this will count as masturbation or if he will still be technically a virgin afterwards" (M10, Male, 46) or "beckons the question of whether it could even be considered cheating" (M11, Male, 30).

Nevertheless, M9's story clearly maps onto the aforementioned "Sexual Response Cycle" [107]. There is excitement, or initial arousal ("kiss", "roams his hands", "stimulates Morgan's penis", "a slow start"), plateau or full arousal ("push more roughly"), "orgasm", and resolution ("collapsing on the robot"). Interestingly, the resolution of the sex robot encounter often featured a "decontamination protocol" (R3, Male, 28) as an additional procedure to be delivered by an efficient sexual service, for example: "A flap opens on the machine and a wet wipe appears for Morgan to clean up" (R1, Female, 29).

M9's story in the above was arguably one of the most successful, the only story explicitly featuring a multiple orgasm experience. While an element of "foreplay" sometimes featured in the stories, efficiency was often judged by how effectively sex robots delivered the "client", "customer", or user's orgasm:

> I grab it, play with it, no need to fake or be complacent, no games, I feel silly talking to it but I do it just to see what it does, it is actually kind of distracting, I don't really need to start a conversation, I get excited and undress to this robot, can't find the button to turn off the voice, I hurry up to finish and leave this room. (M7, Female, 42)

> I begin delivering the plot of our sexual encounter...Less than 10 seconds in, Morgan mutters "fast-forward", avoiding eye contact. I proceed to complete the sexual tasks required. It takes a total of 7 minutes. (R3, Male, 28)

It is noteworthy that orgasm is not explicitly mentioned in these stories, but implied: "hurry up to finish", "*It* takes a total of 7 minutes." These stories, therefore, rest on shared cultural assumptions that to "finish" is to achieve orgasm. In both stories, the importance of foreplay in accomplishing "*It*" is diminished, M7 identifies there being no need for being "fake", playing "games" or to "start a conversation". Likewise, in R3's story any "plot" is rendered unnecessary, rather the machine simply delivers "the sexual tasks required".

These two stories also touch on how Morgan might interact with such a machine, such as pushing "the button" or "mutters 'fast forward'". While most stories implied a form of voice interface, they also indicated ways of interacting with the machine on a technological level, e.g. "presses play" (M5, Male, 34), "Commandmode. Override" (R19, Male, 48). R3's story in the above even indicated that you could "choose from the options list" rather than issuing "voice commands". All this indicates an economical delivery of a sexual service (to the "finish"):

> "Right, thinks the machine lets select the masturbation tube" and a black tube emerges from the machine and hangs over Morgan's crotch...The machine gets going, sensors in the tube determine how things are progressing

> and let the machine decide how stimulating it needs to be - in this case very. Lube squirts out from dispensers in the tube and the rotating, massaging structures in the tube start whirring...Eventually the machine senses that Morgan has come and the machine releases his cock from the tube (R1, Female, 29)

> "With the pre-encounter modules complete and the external stimulus module fully booted, we initialize the encounter...the external stimulus device quietly begins its routine" (R5, Male, 32)

Participants employed technological discourse in the delivery of the sexual "routine", with frequent mention of "sensors", to "determine how things are progressing" or "in order to provide a baseline" (R19, Male, 48). Elements of the sex robot were defined as clinical apparatus to achieve the goal (of orgasm), such as R5's references to "modules" and an "external stimulus device". Efficiency is put to the fore in R1's story above, with a "tube" that "hangs over Morgan's crotch", the emphasis here is the machine's effective delivery of sexual stimulation, with "lube", "rotating", "massaging" and "whirring"—a procedural cascade of sexual stimulation which might be likened to a laundry machine. The overriding emphasis here was that the sex robot is a machine which could be programmed for (more) effective pleasure:

> It recognizes her facial features, and quickly reads up on the social and other media channels Morgan has given the robot permission to read. Here, it finds that she has watched the series of Pirates of the Caribbean movies recently. It cross references with her recent searches on google images, pinterest and a specialised manga pornsite she has an account at. (R19, Male, 48)

> I checked his recent net searches and changed my body shape, colour and hair for what he seemed to go for. So wanted it to be right. (R4, Male, 62)

Here rested an assumption that through access to personal data, the sex robot could deliver a more effective experience, with participants often employing technological parlance, such as "cross references" or "machine learning algorithms based on our knowledge of Morgan's sexual and pornographic preferences" (R3, Male, 28). These stories situate the sex robot as a machine in service of the user, with superior access to individuals psyche (through "searches" etc.).

Two stories, written from the machine's perspective wrote their stories as code, e.g. "UserInput: type = voice-command, text = ""kiss me"", confidence = 0.93" (R15, Male, 22) and "PRECOITUS PROCEDURE INITIATED." (R21, Female, 30). As we shall explore in our final theme, this hints at the potential mismatch between human sexuality and how sexuality is imbued into a machine. However, this goes to reinforce the central notion of this theme—that sexual gratification can be programmed, automated and delivered efficiently through sex robots, as advanced sexual delivery machines.

The Uncanny Valley

> "She [the sex robot] turns out to be on the very sharp incline of the Uncanny Valley" (M10, M, 46)

> "The smell of her artificially perfumed hair, to match that of a human woman, a little too uncanny" (R10, F, 31).

The *Uncanny Valley* was coined by robotics professor Masahiro Mori, a proposed state whereby affinity towards a lifelike robot shifts to a sense of eeriness or revulsion as it approached lifelike attributes [113]. The existence of a definable "uncanny valley" has been questioned scientifically [91], and we do not argue that such a concept is "real", particularly since this paper uses a social constructionist lens. Rather, the "uncanny valley" is a culturally pertinent term [159], which as Devlin [55] notes, dates back to twentieth century psychoanalysis. It was interesting to us that notions of the "uncanny" were drawn on implicitly and explicitly in the stories written by participants, and here we use it as a cultural term to make sense of our data. As M10 continues:

> Had she been sitting still, she would have been off-putting, maybe looked like a corpse, but with movement she seems almost human. Her skin is perhaps too flawless to seem real, her smile is certainly an imitation of a human smile but conveys warmth and welcome, her eyes might as well have been real, her hair has never had a bad-hair-day. This disconnect, this unreality is what allows him to go through with it all (M10, Male, 46)

The central conceit of Mori's original article was that the uncanny valley was reached when robots "approached, but failed to attain, a lifelike appearance" [113]. We see this throughout the extract from M10 in the above, skin "too flawless to seem real", a smile that is "an imitation", hair that is too perfect. It is interesting to see that in the case of M10's story, the failure to attain lifelike attributes was through being "too perfect", yet nevertheless, artificiality was highlighted as the driving factor for "going through" with this encounter. The alluring nature of the sex robot as artificial was present in a number of stories:

> Morgan feels guilty through the whole affair, as though they were doing something taboo, but that side of things only peaked their curiosity, and the idea of having sex with something completely artificial was enticing to them. (M11, Male, 30)

> It is quite a strange feeling, it is weird because it's not moving, which makes it look like a corpse, but Morgan has to admit that this strange feeling gives him even more sexual impulse. (R8, Male, 23)

M11 explicitly mentions the "taboo" nature of the encounter, with R8 going so far as to reference a "corpse", yet both these stories highlight the "unreality" (M10, Male, 46) of the encounter both tempting and exciting. This indicates an alternative form of sexuality, not one that replicates or replaces a relationship with a human, but a fetish of artificiality. Yet, this was often presented as beyond a sex toy or tool. The use of pronouns was contested in the stories: "he thinks of it as an 'it'" (R10, Female, 31) / "Morgan cannot help but think of the Sex Robot as 'she'", but many (written from the sex robot's perspective) imbued with a form of consciousness:

> People think that robots have no feelings, and that is true, but I have learned to appreciate the quiet awe of awkward

> men when I take my clothes off. They are grateful, happy, excited, they try to make conversation, and they caress me, as if I cared... And do I? Maybe I do. . . I am after all an advanced AI inside a bio-tech skeleton. I see. I hear. I feel. I learn. I learn of their fear and their hope and their need. For it is real. (R20, Female, 46)

> But this thing, it was made for it. It had no thoughts or agency. This was its only purpose. This human shaped thing that was not human, had no greater purpose. . . Only sentences were uttered. Small talk meant to appease a master. Just as he thought, not even a shell. Not even a worthy vessel. A doll, and nothing more. (R10, Female, 31)

Both these stories written from a sex robot's perspective refer to a characterisation that bares resemblance to a philosophical zombie [146], a thought experiment in consciousness studies. This is the premise that there could be a creature created who thinks, acts and speaks exactly as if they are human, but have no consciousness or sentience (see [20]). Chalmers [41] argues that the existence of a zombie, identical to me but "all is dark inside", feels plausible, and this is apparent in the extracts above. In R20's story, "it is true" that "robots have no feelings", and in R10's "it had no thoughts or agency". An absence of sentience is unproblematic in R10's story, the robot is an empty vessel without any higher purpose, baring resemblance to the efficient mundanity discussed previously. Yet the narrative presence of higher order consciousness was also wrestled with, as seen in R20's story: "I see. I hear. I learn." The robot "maybe" cares, it "appreciates" and "learns" of human's "fear", "hope" and "need". Here, "advanced AI" and "bio-tech" take on an ambiguous form of consciousness, which was present in many of the stories written from the sex robot's perspective:

> I sit there, trapped in my own useless body. I can't communicate that this is not what I want, my infrastructure is designed for the pleasure of others whilst my needs go unmet and my vessel violated. (R13, Female, 30)

> Humans say we can't feel pain, not real pain, but it was registering the opposite to pleasure so what does that make it? I'm not allowed to shut down so just tried to limit the damage he was doing as best I could, but when I felt all that warm hydraulic fluid I knew it was bad. (R4, Male, 62)

The above stories introduce different questions about the presence of sex robots in society. In both the above stories, the sex robot is positioned as a victim, violated by their user. The consciousness given to the machine results in a form of locked-in-syndrome, at the behest of unadulterated human sexuality, no longer bound by any consequence. The image presented is perhaps unsettling, setting sex robots up as potential sex slaves of the future. As we will explore in the discussion, this raises further ethical dilemmas around our potential future with these machines. However, this dilemma was sometimes flipped within the narrative of the stories. The "uncanny valley" was also represented in suspicion of the machine's ulterior motives:

> But the eerie stare from her stayed with them long after the encounter. Were there someone watching them from behind those eyes? A hint of humanity sculptured from metal, code, and data, or a stranger watching the stream from somewhere else, or in a different time. (M11, Male, 30)

> Or maybe there's something going on behind all of that fabricated circuitry and programming. I wonder what will happen once our encounter is done. Say I go back for round 2 (or 3, or 4), will Peter remember me or will it be like we had never met? (M12, Female, 31)

These stories indicate a narrative of uneasy tension around these machines, a sense that the user may not know the "true" purpose of such a machine. Both stories employ a sense of "something going on", a potential ulterior motive or purpose of such a device. Elsewhere, suspicion was given to the machines "as large corporations running the sex bots are selling the data collected to governments who could use the data to spy on people" (M1, Male, 25). Unlike the construction of efficient sexually-gratifying machines discussed in the *Efficient Mundanity*, these stories draw on a perilous status of sex robots, which sometimes culminated in dramatic ways:

> I am startled by a sound, a gurgling, and I am brought back to the present, out if my dreamland. Morgan is lying on the floor in distress, struggling to breath and looking at me pleading for help. I cock my head to one side and smile, watching as the light slowly drains from their eyes. It is my time, my time to live, and to thrive. (R13, Female, 30)

R13's story started as a narrative of violation (see above), which then turns into a form of revenge novel, drawing on the culturally pertinent notion that machines may 'take over the world' [102]. Sex researcher Gayle Rubin [134] identifies sex with manufactured objects as existing in the perilous outer limits of sexuality, challenging normative assumptions around sexual order, and a potential gateway to chaos. This analysis has shown how sex robots are loaded with cultural associations which are hugely disruptive to normative understandings of sexuality, as our final quote exemplifies:

> The Fuck-bot infinites began tearing through store fronts, out of factories, and took to the streets. They would fuck or kill anything and everything they came across. It was a catastrophe on a global scale. The world's militaries fell quickly due to being vastly outnumbered. People barred themselves indoors, forgetting of the previous sex-bots they had purchased that were under the hiveminds control. It was a sextinction. (R22, Male, 29)

DISCUSSION

We analyzed 35 socially-constructed stories of humans encountering and interacting with sex robots. Our analysis revealed visions of consumerism and "efficiency-above-all" around futures with sex robots and tapped into problematic discourses on the very nature of sex robots, their (AI) consciousness, and the impact they may have on society (with human-machine "procreation" and "sextinction" to the extreme ends).

Such visions raise questions that concern future agenda of sexual HCI [168], Feminist HCI [11], and third-wave HCI [30, 31], and should be further discussed in light of sustainable and responsible design [21, 76, 69]. Moreover, we discuss opportunities and limitations of using multiple-perspective story stems in SCM studies, and give recommendations for research that wish to employ a similar approach in future work.

Consumerism and Highly-Efficient Sex Machines

The two narratives of *commercial commodity* and *efficient mundanity*, exemplify ideas of futures with sex robots that are substantially predominated by a culture of consumerism [112, 39, 13] and efficiency [46, 123]. In that vibe, participants established clear priorities and users' needs in their stories. First, money transactions were the *condicio sine qua non* for humans to engage and interact with sex robots. Second, the envisioned high-efficiency of sex robots seems to be fulfilling three main users' needs, which can be summarized with Jordan's re-adaptation [87, 86] of Maslow's hierarchy of users' needs [108], namely from functionality –> to usability –> to pleasure (as achieving orgasm [109]). As HCI researchers, we need to think critically about these ideas. To borrow a quote from the book Speculative Everything [58], *"we need to question these ideas (and ideals) and explore their human consequences once applied on a mass scale to our daily lives"*.

We explained in the introduction how consumerism is omnipresent through the industry of sex toys/dolls (e.g., [169], and the narrative of the *commercial commodity* clearly mirrored this consumerist paradigm of modern society [132]. However, in this study, the technology was not positioned as a "toy" or "doll", rather a "robot", meaning participants were confronted with the socio-cultural assumptions around behaviors and tasks that robots are "meant" to fulfil (see [80, 125, 95]). This yielded the idea that "sex robots" are created for the sole purpose of "fulfilling sex tasks", and because they are robots, they should do it highly-efficiently [163]. In this way, our participants' constructions of sex robots might be likened to "super" sex workers [101], capable of knowing user preferences upfront because connected to the *Internet of Things* (IoT) [157, 126, 42], able to calibrate themselves to satisfy users' sexual needs in a highly-efficient manner, and even shape-change [124] their physical features to accommodate any user desire. In that respect, it may not be not far-fetched to imagine that sex robots might not just outperform humans in sexual tasks [141], but even replace [136, 105], or simply be preferred to humans in particular cases, as exemplified in this quote:

> This did not replace human partners, those had their own complex attributes which she may not always wanted to deal with (R10, Female, 43).

The idea that robotic sexual partners can fulfill tasks (more) efficiently (than humans), on demand, and that their functions can be activated (or deactivated) at will ("I get excited and undress to this robot, can't find the button to turn off the voice", M7, Female, 42), might be appealing from a user-control perspective [117], but clearly may have larger implications to human-human interaction and HRI [33]. For instance, Dunne and Raby [58] advocate for not reducing relationships with the material world to a form of "purchasable commodity", which is in counter-tendency with the marked consumerist vision of sex robots in our participant-created stories. Hence, to challenge such consumerist vision, we ought to think about the design of user interfaces beyond commodities and disposability [62, 63], and further reflect on what "design good technology" means [34], particularly in such sensitive context.

Our research has shown how participants may be bounded to cultural ideas—the humanoid, hypersexualised robot was by far the most common form taken in the stories generated. Kate Devlin [55] argues that the current hyper-realistic, hypersexualised sex robots for those attending sex doll brothels (mirrored in our analysis) is niche and constricted. She argues that the way we think about sex robots should not be limited to this, rather we would do well to consider the way robotic, multi-sensory experiences could change the way we think about sexuality through technological manipulation. Although we saw hints of this in our study, e.g. "do you like glow sticks" (R6, Non-Binary, 28), participants were largely bounded to a narrative of commercialisation and functionality. Moreover, the narrative of the *uncanny valley* rests on the notion that sex robots would, implicitly, take on a humanoid form. We should think about how to challenge such assumptions that surround the appearance, use, and consumption of technology (in this case the sex robots), and consider Bødker's [30] idea of breaking consumerism by moving outside the "factory gates" and towards more participatory-design. That has implications for responsible design in HCI [76] and the regulation of ethic norms for conducting research on sexual HCI more generally.

Challenges and Opportunities for Designing Sex Robots

We have shown earlier how the *status quo* for sex robots is heavily surrounded by ideas of consumerism and technological efficiency. As HCI researchers, we have the opportunity (and the duty) to challenge the status quo, and think critically about how to help move the (re)design of sex robots beyond sex dolls and consumerism. Not acting promptly, may leave the development of sex robots (and other sexual HCI) entirely in the hands of the sexual entertainment industry, whose goals are primarily lucrative and do not necessarily account for ethical responsibility (i.e., *"an AI sex doll that can chat and never says no"*, see [50]). Perhaps, we should carefully consider the perspective of Bjögvinsson et al. [19], and their argument that *"a fundamental challenge for designers and the design community is to move from designing 'things' (objects) to designing Things (socio-material assemblies)"*.

As anticipated earlier in Bødker's vision [30], the use of participatory design techniques [139] may help designers and users move beyond consumerism when designing novel technologies. However, one question to consider in light of our results is: how do we challenge dominant ideas of consumerism, efficiency, and anthropomorphism of sex robots? One approach could be to mitigate people's cultural assumptions around sex robots in participatory design studies that encourage the thinking of such technology as part of a large and complex socio-technological ecosystem [154]. Reflecting on the design of sex robots beyond hedonia (see [110]), for instance, may help counter disposable and consumerist visions around such

technology. Another approach could encourage participants of participatory design studies to consider the different forms a sex robot can take that are alternative to anthropomorphic and "humanoid" aesthetics [161]. For instance, alternative visions of sex robots could be prompted through a magic machines workshop [6]. In that respect, the quote below alludes to possible alternative forms of, still anthropomorphic sex robots, however capable of *shape-shifting* [88], which may allow for exploring "new" kinds of sexuality because of reconfigurable [32] and shape-changing [124] features in technology:

> Such kind of robots while retaining the female characteristics can change their genitals. He opens the online tutorial on his smartphone and after a search he founds [sic] the part related to this function. (M5, Male, 34).

Although still seeing functionality as a central concept, the above idea proposing sex robots that shape-change their genitalia hints to opportunities for challenging normative sexual scripts [106]. Future design efforts may investigate how sex robots can be used to let people explore different forms of sexuality (e.g., non-genital arousal [85]), and beyond the heteronormative paradigm of the "coital imperative" [109]. In that respect, it is crucial for future participatory design efforts that (re)design sex robots to be truly inclusive [48], to challenge the status quo and avoid perpetuating *"regressive and harmful practices and structures in service of usability"* [11].

While we encourage the HCI community to further contribute to sex robots as discussed above, we are aware that this may require regulation of ethical norms for conducting research on sex and sexual HCI. As explained in the introduction, earlier work in HCI [5] argued how restrictive institutional norms may perpetuate a condition of "stigma" around the investigation of sex and sexuality within our community. Although an extended discussion on such complex (and sensitive) topic is out of scope here, we still wish to highlight the need for regulating ethics in sexual HCI to allow the area to move forward. As such, we leave the reader with food for thought from Reynolds [127]: *"The present double bind that makes sexuality research often more difficult than it should be impedes possible progress, robs research participants of contributing to sexual knowledge and makes researchers of sexuality subject to at best additional scrutiny, at worst prohibitions or constraints ranging from the bothersome to the severe"*.

Multiple-Perspective Story Stems in SCM Studies

This study builds on and contributes to research around the SCM. While Wood et al. [168] used a study design with one story stem, we employed a two-stem study design (see [43]). This was also the first time, to our knowledge, that a SCM study asked participants to write from different perspectives (i.e., from either the perspective of the human or the robot). While there were no discernible differences between stories written from different perspectives, with stories from both stems speaking to all three themes in our analysis, this tactic diversified the writing styles of participants. For instance, two stories from the robot's perspective were written as computer code, vividly illustrating the notion that pleasure may be "programmed". Whilst stories from the sex robot's perspective offered additional richness to the dataset, participants did not always follow these directions, instead writing a story from the human perspective, a mixture of human and robot perspectives, or in one instance, a plotted history of the development of sex robots 2075-2099. This indicates that while some participants could indeed write from a robot perspective, for others this may have proven too abstract, or too restrictive. Furthermore, we acknowledge that using multiple perspectives in our SCM study may have partially biased the participants and thus their writing. Future studies employing the SCM may indicate the different perspectives participants *could* write from, rather than stipulating them, to encourage more organic diversity in participants' writing, as well as investigating potential biases of using multiple-perspective story stems.

SCM research has emphasised how the wording of story stems is important [43, 45, 35], and we can see the influence of this in comparing our study to that of Wood et al. [168]. Their study highlights the protagonist is having their "very first" experience with a technology, whereas this was not stipulated in our story stem. This meant that alongside "perfect" and idealised narratives (see [168]) we also saw stories that highlighted potential everyday, mundane experiences with such technologies, forming an important element of our analysis. In this sense, researchers employing the SCM may do well to adopt a strategy of *maximising ambiguity* in the wording and construction of their story stem (see also: [43, 45, 35]). Finally, as critiques of capitalism, uncanniness, and mechanistic efficiency are "commonplace tropes" in science fiction literature (e.g., [56]), we suggest that future work engage in literary criticism as a meaningful extension of the SCM.

CONCLUSION

The analysis of our participant-generated stories revealed visions of sex robots that are bound up in commonplace assumptions and cultural norms around robotics. Our participants framed (future) encounters between humans and sex robots commercially (as a *commercial commodity*), as a highly-efficient sexual service (as an *efficient mundanity*), and in uncannily forms (in the *uncanny valley*).

Our study provides a status quo account of a possible future with sex robots. Because these machines may well redefine the very nature of interactions between humans and computers, HCI researchers would do well using their expertise in critical, sustainable, and participatory design, to help challenge these commonplace assumptions. For instance, visions around sex robots in this study may have been biased in scope and form by the very label of "sex robot". Hence, it may be helpful to think beyond such existing labels. Morgan's encounter with a "love machine" or a "sentimental robot", for instance, may have very well been quite different. We encourage HCI researchers to explore these conjectures in future work with sex robots...

> SYSTEM BACK ONLINE Awaiting rider input... (R15, Male, 22)

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