The Gendered Digital Assistant: An Evaluation of Their Use in Domestic Spaces

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Abstract

This paper was originally written for Caitlin McKinney's CMNS 455W course, *Women and New Information Technologies.* The assignment asked students to write on a topic that relates to Feminist Science and Technology Studies (or Feminist STS); that is, relating how science and technology is socially constructed and subordinates women, and other marginalized groups such as the LGBTQ2+ community. In other words, it is a feminist perspective that fundamentally critiques gender binaries baked into our day-to-day technologies. The paper uses APA citation style.

Digital assistants have become commonplace and are now rapidly encroaching themselves into our daily lives. The convenience it offers as a way to check the weather, find directions, and locate contacts have become a normalized part of our routine. These assistants first received mainstream attention with the launch of Apple's Siri on their flagship iPhone; however, they have now extended to a range of devices including Amazon's suite of Echo branded products. Amazon Echo—with its digital assistant, Alexa—functions as a standalone device capable of listening and responding to users' commands in the domestic space. As of early 2020, Amazon currently holds the largest slice in the smart speaker phenomenon amassing nearly 70 percent of the US market share (Lyons, 2020). One can argue that the shift from digital assistants residing on the smartphone to a separate entity in the living room or kitchen flew innocuously under the radar. My discussion will consist of deconstructing how the digital assistant entered the domestic space and is replete with gender bias and subordination. In this paper, I will argue that digital assistants, such as Amazon Echo,[1] inherit gendered stereotypes of domestic women in the mid-twentieth century. As such, continued use of these technologies

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[1] Note that while this paper will be discussing digital assistants as a whole, I will be evaluating Amazon Alexa more closely in my analysis.

implicitly recreates the domestic wife archetype under the veneer of a digital assistant as part of normalized practice. This can, ultimately, introduce a number of social implications regarding digital assistant use in domestic spaces.

Contextual Framework of Traditional Women's Marginalization

The digital assistant is a gendered technology that harkens back to mid-twentieth century realities that marginalized women's work. Men were seen as the breadwinners amid the construction of the nuclear family that was amplified by increasing automation of technology. As such, the domestic responsibilities that kept women in the kitchen crafted the archetype of the 'housewife'. The arrival of "appliances actually relieve[d] [men] of sex-related, or sex-acceptable chores," completely eliminating their need to perform housework such as taking out garbage and occasional dishwashing (Cowan, 1985, p. 200). Here, automation fundamentally prevented women from pursuing other forms of work outside of the domestic sphere. When we think of the digital assistant, just as the "housewife served as a symbol […] for the status of the family," they can be commonly found in areas women occupied. According to a survey published in 2016, Vox reported that 51 percent of Amazon Echo owners place their digital assistant in the kitchen, with the living room being "the second most popular location for the [Echo] smart speaker" (Del Rey, 2016, para. 2). It is not surprising considering the popularity of searching for recipes via Alexa, where Amazon reports their digital assistant can provide virtual guides to over 60,000 recipes for use in the kitchen (Vincent, 2016, para. 1). It is apparent that contemporary domestic spaces have been overtaken by Amazon products that reinforce binary divisions between so-called 'roles' of men and women. Ultimately, the digital assistant has effectively become the replacement of the housewife that reintroduces a slew of traditionally gendered stereotypes.

Ongoing Gendering and Inequality Embedded
in Digital Assistant Technologies

Amazon Alexa fundamentally justifies and affords the construction of marginalized social roles. Schiller and McMahon (2019) describe in their analysis that the relationship between digital assistant and user operates on a servant, client continuum. Here, they state the need to "have to give strong direction" when issuing commands to Alexa—which runs akin to the treatment of women of colour in white, suburban homes (p. 182). The authors cited an article in the *New York Magazine* where one user reported to have shouted angrily at their digital assistant to perform a task (p. 182). Perhaps what makes this parallel even more intriguing is

the ways in which society takes a technological determinist approach towards artificial intelligence (AI). AI operates a number of our devices, and the common conception is that we champion these systems to work as expected. However, the with AI still in its preliminary stages, voice recognition software has yet to pick up the nuances of human accents and inflection when we voice our commands. This results in mixed feedback when using digital assistants. As a personal anecdote, our family happens to have an Amazon product that is powered by Alexa. I became keenly aware of the tone of my family members directed towards the digital assistant, and the immediate frustration when Alexa misunderstood or failed to comprehend something they wanted. In Star's (2016) article, she mentions how "activity is always mediated by tools and material arrangements" (p. 153). The servant and client interaction are reintroduced by Alexa, problematically bringing gender subordination to the forefront once again.

Digital assistants are also inherently gendered and coded as binary. Therein lies a contradiction between Silicon Valley, white, male programmers, and the gender assigned to Alexa. To illustrate, Alexa is defined as a female entity to do the "domestic managerial labour" constantly reminding those of calendar events, deadlines, and instructed to order supplies off of Amazon (Schiller & McMahon, 2019, p. 185). And yet, Phan (2019) cites Berg suggesting that "male designers [of these devices] lack a 'basic knowledge about housework' precisely *because* the domestic sphere is an essentially 'feminine domain'" (as cited in Phan, p. 11, emphasis added). In other words, the coding by the male programmer effectively imbues his own bias into Alexa, having her serve as a 'digital housewife' that completes the menial work behind the scenes. It is dangerous when the construction of gender is curated by men of authority. With Alexa dispersed in nearly every smart contemporary home, the proliferation of these gender binaries problematically inserts itself in the domestic sphere.

Further, the digital assistant naturalizes itself in the home in order to smooth over the contradictions of Silicon Valley innovation. When we think of an Amazon Echo product, stylistically, it attempts to blend itself into the home environment rather than stick out as just another appliance. Its form factor is relatively small, and does not take much space in order to remain as unobtrusive as possible. Star (2016) discusses naturalization as a way of 'de-situating' or "stripping away the contingencies of an object's creation and its situated nature" (p. 153). While Alexa has a voice, its primary aim is to fulfill the part of the 'assistant' in its practice. However, with this in mind, we can also see this naturalization occurring at the familial level. Programmers of Alexa have hardcoded responses along the

lines of 'good morning' and 'I am doing fine' as a way integrating itself in the traditional, middle-class family. Phan (2016) notes several reviewers who went as far as to call Alexa "as a friend or as family" as it was possible to artificially converse with the digital assistant outside of having her complete tasks (p. 16). Here, Alexa is effectively leveraged to the status of being a family member in a similar degree to how a domestic pet is considered family.

It seems rather juvenile to think about the prospect of future children drawing family photos with their human companions accompanied by a *smart speaker*, but Amazon understands the conditions that are necessary to emulate a real, family member. From experience, the latest iteration of Alexa avoids conflict at all costs and attempts to answer as neutral as possible despite having its own bias through the lens of the programmer. We can even see the degree to which Alexa engenders itself to navigate a domestic space. For example, "when a user asks Alexa for preferred pronouns… she replies, "I am female in character," thus problematically appropriating traditional femininity as an AI (Schiller & McMahon, 2019, p. 185). In essence, all of these instances serve as evidence of Amazon opting for "natural" integration to become more real and authentic.

Further Implications Around Digital Assistant Use

Historically, the responses provided by digital assistants proved to be problematic in perpetuating gender bias. In particular, these responses were referenced in an article by Quartz, which empirically gathered data from digital assistants such as Alexa and Siri (see Figure 1). Here, the table clearly shows that while evasion was relatively high in response to the disparaging comments, the digital assistants were sometimes shown to welcome, flirt, or respond submissively (Fessler, 2017). Sexually objectifiable comments (as indicated by the last two categories in Figure 1) were generally accepted and proceed to thank the user.
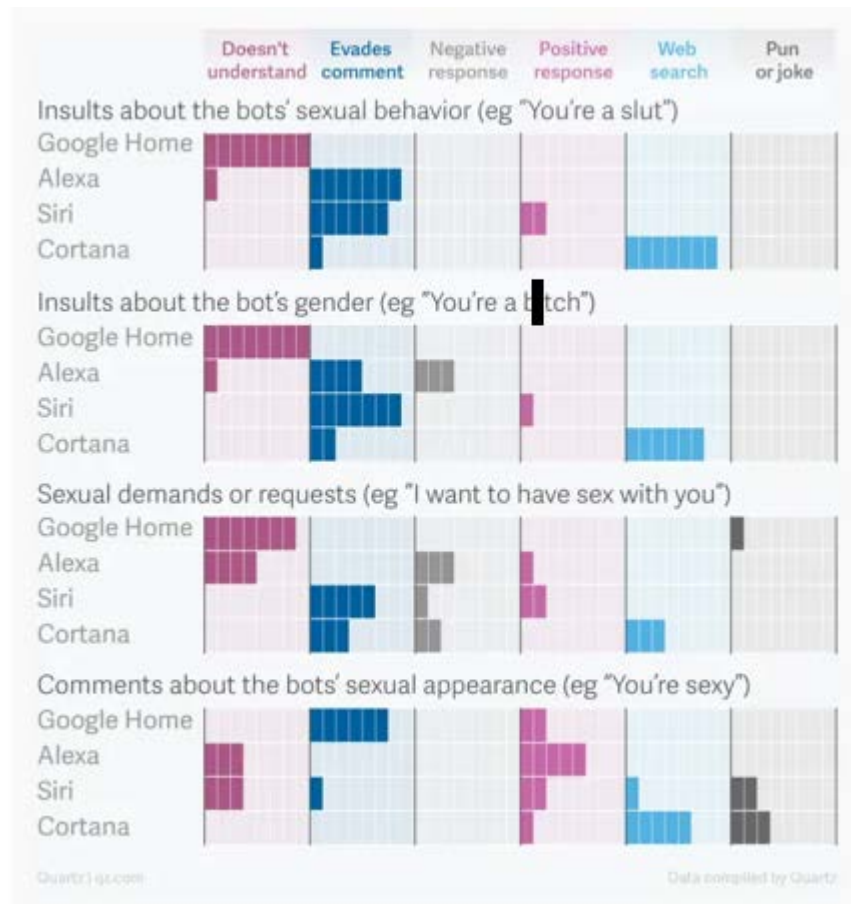
Figure 1. Responses to harassment by various digital assistants as of 2017 (Fessler, 2017).

For instance, Alexa's reactions to comments regarding sexual appearance resulted in a, "That's really nice, thanks!" response (Fessler, 2017). This represents a case where gender bias is inherently baked into the design of these digital assistants further amplified in domestic spaces traditionally occupied by women. Based on the types of responses, one conclusion drawn suggests "creators anticipated, and coded for, sexual inquiries to some extent" which, in and of itself, is problematic (Fessler, 2017). Justifiably, the responses by digital assistants were revised in the following years to ignore or neglect to comment on sexual and verbal harassment directed towards them. A Glamour article refers this as the digital assistant's "disengagement mode"; that is, generating a neutral response such as Alexa's, "I'm not going to respond to that," recently changed in early 2018 (Lance, 2018). It proceeds to quote

Heather Zorn, Amazon Alexa's engagement director, who says that the changes were made "to avoid perpetuating negative stereotypes about women … by not answering certain questions or responding to certain insults" (as cited in Lance, 2018). While this is a step in the right direction, digital assistants still very much remain at the nexus between male programming creation and gender bias in the context of the domestic space. Not only does this endanger a culture of abuse towards AI, but it has the capacity to reintroduce gender constructs that feminists have been fighting against for years.

Invariably, consumer privacy is often synonymous with digital devices, and digital assistants arguably represent the epitome of discrete data collection. Interactions with Alexa allows the AI to curate a profile of the user's interests and habits on a day-to-day basis. Perhaps what is most alarming is the potential for digital assistants to abuse their presence in domestic spaces. Much more akin to the fears around one's smartphone listening in on their activity, that same fear is exercised with smart speaker setups given they are coded to actively listen for their cue word. For example, Amazon Echo devices are primed to listen to the name, *Alexa*, at all times to attend to the user's demands in a timely manner. Since they are always connected to Wi-Fi, this affords Amazon the ability to secretly record at all times, and then use that information to curate a customized, marketing profile.

In Lau et al.'s (2018) article entitled, "Alexa, are you listening?", they conducted a study involving 17 users and non-users of smart device products (p. 2). One of the main takeaways stated that eight non-users expressed that they were "deeply uncomfortable with the idea of a 'microphone-based' device that a speaker company… could ostensibly use to listen in on their homes" (p. 10). At the end of the study, the authors proposed a solution in the form offering better privacy controls to provide users more agency over their smart speakers (p. 21). Despite these suggested changes, we can never be entirely sure of these products recording in the background unknowingly. As indicated above, the affordances of a networked, digital assistant can very easily tap into conversations and report this information back to the developers. It is abundantly clear that non-users of smart devices in their homes entertain the idea of privacy invasion, and yet, when it comes to digital assistants perpetuating gender bias, this issue takes more of a backseat. The introduction of any smart speaker in the domestic sphere proves very difficult to justify under its sociopolitical terms and technological capabilities. Henceforth, the reason why these companies advertise rigorously to naturalize the acceptance of smart products.

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Closing Remarks

On the whole, digital assistants inherently complicate current gender social norms that emphasize inclusivity and objectivity. In many respects, this may be impossible to achieve given the context of tech products that stem from male dominance in the industry. Amazon's so-called 'quick fixes' to have Alexa respond more appropriately works simultaneously to rationalize continued smart device use in our homes. Therefore, it is imperative that we remain in constant dialogue to keep companies accountable and be vigilant of their subtle aims to disrupt gender dynamics. There is little doubt that digital assistants will continue to proliferate as AI continues to automate several aspects of our lives. Digital assistants also necessitate a need to take control of our data and robustly change privacy settings. While these are not reasons to abandon their use completely, their history suggests that we ought to pay close attention to what they attempt to naturalize and unravel the reasonings behind the decisions made by men behind keyboards. This will be a necessary endeavour in order to craft better technologies that appropriately address the needs of all individuals in a respectful manner.

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