**Chapter 39. The Ethics of Matching: Mobile and web-based dating and hook up platforms**

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1 Introduction

While the internet originated in a military and scientific context, from its early days it has also been used in the service of flirting with and potentially meeting others for sex and romance offline. More than two decades after the 1998 US romantic comedy *You’ve Got Mail* brought internet dating to the mainstream, the lengthy, literary, and carefully punctuated emails exchanged by Meg Ryan’s and Tom Hanks’ characters in the film seem hopelessly dated. In addition to radical changes in people’s attitudes to online dating and hook-ups, two key technological developments make *You’ve Got Mail*-style socializing and romancing seem decidedly quaint: internet-enabled mobile phones with color displays, and the phone application (“app”) marketplace.

The first innovation, circa 1999, gave users the ability to look at pictures and videos of each other any time and place they wanted. The second, around the same time, coupled these modes of interpersonal interaction with the logic of capitalism in dating apps like Match.com. While the revenue models of online dating apps vary widely, the global online dating market is predicted to be worth $9.2 billion by 2025 (Allied Market Research 2018). Dating and hook-up apps (DHAs) are not just the new normal, but a mainstay of the global economy. Indeed, it is impossible to adequately convey the plethora of purposes for which DHAs have been used within their continually evolving ecosystems. In short, DHAs are on track to becoming the main way that people living in advanced industrialized societies meet for sex, partnership, love, friendship, or whatever else they’re into.

These developments have made obsolete not only bulletin boards and chat rooms (familiar from the early days of the internet), but also, to a lesser extent, more traditional forms of socializing, such as meeting in bars and clubs (Rosenfeld, Reuben & Hausen 2019). Online dating is particularly popular among young adults who identify as lesbian, gay, or bisexual (LGB), with more than half of all 18- to 29-year-olds and 55 per cent of LGB adults having used a dating site or app, and about a fifth of each of these age groups regardless of sexual orientation, reporting that they had married or formed a committed relationship with someone they had first met through these platforms (Anderson, Vogel & Turner 2020). Fewer people than ever are hooking up with their neighbors or engaging in university and workplace romances sans assistance from DHAs.

DHAs have undoubtedly improved some people’s lives. For example, in recent years, some of the world’s most popular dating apps have adjusted their interfaces and algorithms to support users from gender minorities, such as transgender and non-binary folk, many of whom report feeling unsafe approaching potential sex and/or dating partners in offline settings because of the high risk of experiencing rejection, prejudice, verbal abuse, and violence (Human Rights Campaign 2019). These supportive adjustments include the provision of a wide range of gender identity options enabling users to signal their openness to dating members of various gender minority groups. For example, at the time of writing,[[1]](#endnote-1) OkCupid offered users 22 gender identity options (“agender,” “pangender,” “transmasculine,” “genderfluid” et cetera) and 10 variations on sexual preferences (for example, “straight,” “gay,” “heteroflexible,” and so on), along with up to three relationship type options: “monogamous,” “non-monogamous,” and “open to either.” Location-based apps such as Grindr and Tinder also generate safety alerts tailored specifically to gender minority users: for example, offering tips about how to safely navigate travel in countries which have laws prohibiting non-heterosexual sex.

Overall, there are many good things to say about DHAs and especially their role in fostering intimate connections among those who are lonely, who are members of minority or marginalized groups, or who live nomadic lifestyles because of work or recreational travel. Nonetheless, the wider social and relational changes that DHAs portend are merely beginning to be seriously discussed by academics (Arias et al. 2017). Furthermore, the increasingly mainstream nature of DHAs is causing a change in norms around sex and intimacy in general (Klincewicz & Frank 2018). In the following section, we summarize the concepts from philosophy of technology that inform our analysis of these changes. In the section after, we collate some of the morally significant impacts of DHAs and present some of the elements of the architecture of DHAs that facilitate them. We critically assess which of these might best be considered a direct consequence of DHAs themselves, and which are better characterized as pre-existing potentialities that are merely amplified by DHAs.

The picture we ultimately present may leave one pessimistic about the survival of some of the most cherished aspects of currently normative (“traditional”) relationships. In the final section we make some suggestions about the use of a class of design approaches and methods, known collectively as “design for values” approaches for DHA, which can give us more control over this process. Ultimately, there is room for cautious optimism that DHAs may be vehicles of positive social and moral change.

2 Philosophical Frameworks for Evaluating DHAs

Several concepts from the ethics of technology inform our approach to understanding DHAs. First, there is the distinction between hard and soft technological impacts: roughly, hard impacts are the effects of technology on the material world (e.g., air pollution or an app data breach which exposes someone’s banking information), while soft impacts are the effects of technology on the social, cultural, and moral world (e.g., changing our understanding of what counts as “natural” behavior) (Swierstra & Molder 2012). Second, there is the concept of techno-moral change, which can itself be considered one of the “soft impacts” we just described. Along with mediation theory, this is the view that technology co-creates the changing moral landscape with us (Swierstra, Stemerding & Boenink, 2009; Verbeek 2011). In other words, technology is not only imbued with value and politics, it also changes the substance and application of our values. We also analyze DHAs in the context of wider critiques of commodification, such as that by Michael Sandel (2012).

 A third concept is that of technological mediation and scripts (Idhe 1990, Latour 1994, Verbeek 2006). Roughly, mediation theory is a descriptive, rather than normative position, that starts with the claim that technology is not neutral when it comes to politics or morality. It also rejects the view that humans and technology are two entirely distinct entities, whereby humans use technologies as instruments, and technologies are simply inert objects (Verbeek 2006). Instead, it holds that technologies often implement (changes in) values and norms by altering how users see, understand, and are able to act in the world.

 Finally, we make use of various methodologies that comprise value-sensitive design, which is a “theoretically grounded approach to the design of technology that accounts for human values in a principled and comprehensive manner throughout the design process” (Friedman, Kahn and Borning 2002, p. 1). We will turn to these methodologies in the final section of the chapter to offer some suggestions for how DHAs might be designed so as to promote positive values and human flourishing (Friedman 1996). Altogether, these concepts and methodologies will help us situate our discussion of dating apps within a larger discourse: one that explores how technologies are transforming social relations, moral obligations, and ways of seeing and being in the world, while simultaneously asking how designers, engineers, and other stakeholders can (and should) exert influence over these processes.

 Many of the consequences of new technologies or new uses of existing technologies are difficult to assess and are often morally ambiguous. One way to get a better grip on these consequences is to turn to the above-mentioned distinction between hard and soft impacts of technology. According to Tsjalling Swiestra and colleagues (Swiestra, Stemerding and Boenink 2009), hard impacts of a technology are those that can be characterized in terms of traditional risk-benefit assessments. What is at stake in such assessments is usually easy to grasp (for example, the number of deaths that might be caused by a meltdown at a nuclear power plant), and the causal links between the deployment of the technology and potential risks or benefits are relatively clear. In the case of DHAs, a hard impact might be someone stealing users’ banking information and selling it to a third party as a result of insufficient cyber security.

Soft impacts, by contrast, are more qualitative, having to do with potential changes in practices, culture, and values. These changes are often unpredictable and cannot be characterized by an analysis of risks and benefits alone. It is also not always clear which values are involved in soft impacts or whether they are good or bad from a moral perspective, or how to weigh the various values at stake. Sometimes, this is because a soft impact may destabilize one or more moral standards operant within the context of analysis. For example, the contraceptive pill is a technology that, through its soft impacts, has induced moral change surrounding asymmetrically gendered norms of chastity and promiscuity (e.g., greater sexual freedom for women has become less stigmatized, given the reduced likelihood of unwanted pregnancy) (Ketting, 2000; Swierstra 2013; Nickel, Kudina and van de Poel 2020).

There are at least three soft impacts of DHAs that will be discussed in this chapter. First, DHAs benefit people who would struggle to find partners, by making more potential partners available to them. Indeed, two of Tinder’s founders have said in interviews that their inspiration came from their own dissatisfaction with the lack of naturally-occurring dating opportunities with one saying about the other: “Justin needed help meeting people because he had, what’s that disorder you have where you don’t leave the house?” (Rad cited in Fetters, 2018). The soft impact here is on the social expectation that meeting people for the purposes of finding love, companionship, or sex requires socializing in person. The second soft impact is that DHAs can be a vehicle for systematic discrimination and abuse (e.g., they can allow for new forms of stalking and harassment; expose users to new levels of judgment of their physical appearance, etc.). The third soft impact of DHAs is the way they commodify intimacy, love, and attraction and (as we will show) induce behavioral addictions, which raise moral concerns. The soft impacts of DHAs are sometimes obscured because they present themselves as neutral digital communication tools to help us achieve our own previously defined goals. But these ubiquitous technologies such as mobile phones are not in fact morally neutral. Instead, they prompt certain kinds of interactions and patterns of behavior and have the potential to strengthen certain values and weaken others (Latour 1994, Verbeek 2006; Vickery, et al. 2018). The same can be said about DHAs, especially when it comes to values operative in interpersonal relations.

As mentioned above, mediation theory grounds a critique of the idea that technologies are neutral tools used by humans simply to achieve their own goals and implement their values. Instead, technologies can be seen as “extensions of the human; there can be a dialectics between humans and technologies; and human-technology relations can be approached in terms of hybrids” (Verbeek 2015). A detailed typology of these different relations is beyond the scope of this chapter, but a few illustrations will convey the basic idea. Consider the ultrasound machine, for example, and how it changes the way pregnant people and their partners see and experience the fetus, which in turn can influence decisions regarding prenatal testing, pregnancy loss, and termination (Verbeek 2008). Similarly, DHAs change the way users see and experience the pool of potential sexual or romantic partners. Rather than encountering potential partners face to face, which conveys a depth and relative fullness of their personhood and embodiment, for example, with DHAs, users see them through a series of images—“face and body” images are generally preferred, although this differs among user groups.[[2]](#endnote-2) These images are accompanied by a small amount of user-generated text (Tinder, for example, allowed 500 characters at the time of writing). Such limited information and form of engagement can be quite reductive. The affordances of the technology encourage emphasis on photographs, and qualitative research suggests that including pictures of one’s face is a way of signaling “authenticity and investment” to other users, at least among men seeking men (Miller 2019).

Technologies may also provide a particular context for human experiences and interactions: that is, “background relations” within which those experiences and interactions occur (Verbeek 2015). DHAs—and mobile phones more generally—are now an omnipresent source of potential gratification and amusement, often by way of sensory cues like alert pings and blinking lights. An important feature of technologically constituted background relations is their relative transparency: that is, “the degree to which a device recedes into the background of a user’s awareness as it is used” (Rosenberger & Verbeek 2015, p. 23). As we will argue, DHAs have the potential to exert strong, addiction-like influence on their users, and users are unlikely to be aware of the design mechanisms that make interacting with these apps as seductive as it is. (In fact, the creators of such apps count on this fact to increase their profits.)

Finally, technologies may exhibit or enable certain “scripts,” as we alluded to earlier (Akrich 1992; Latour 1992; Verbeek 2006). According to Peter-Paul Verbeek (2008):

Technologies possess a “script” in the sense that they can prescribe the actions of the actors involved. Technologies are able to evoke certain kinds of behavior: a speed bump can invite drivers to drive slowly because of its ability to damage a car’s shock absorbers ... a plastic coffee cup has the script “throw me away after use,” whereas a porcelain cup “asks” to be cleaned and used again. Technological artifacts can influence human behavior, and this influence can be understood in terms of scripts. (p. 362)

In the following sections we will highlight some of the major scripts—including moral scripts—that the current design of DHAs facilitates, in particular those that come from the world of gambling and the capitalist market.

2.1 Online Dating, Relationships, and Sex: Market and Casino

It is difficult to generalize about all DHAs, since they often cater to specific demographics, members of which may be looking for ever-more specific (kinds of) social encounters. For example, a middle-aged conservative Christian woman in Kentucky looking for a husband is likely to use a DHA (for example, Christian Mingle) that is quite different from the DHA used by a teenage gay man in Manhattan looking for someone to join him on a Long Island beach (for example, Grindr). Furthermore, each DHA has its own algorithms that govern matching and recommendations; its own marketing strategy and business logic; its own interface and intended use, and so on—all of which may alter the affordances of the app and the strategies employed to keep users on it (“time on page” and “time on platform” being among the key metrics). To speak about the soft impact of DHAs, for example their effects on cultural or moral norms, thus raises the question: which DHAs and whose norms? Nonetheless, there are some important commonalities across many DHAs that are connected to long-term changes in norms around intimate relationships in contemporary Western society. One is a design that facilitates behavioral addiction. The second is the presence of affordances for the commodification of social interactions.

 A typical DHA has a system of recommendations and feedback built into its interface. For example, in Tinder (the highest grossing dating app worldwide at the time of writing)[[3]](#endnote-3) users are presented with a reel of pictures, filtered by some antecedent criteria they specified in their user settings (e.g., geographical proximity, preferred gender, and desired age range of potential dates). In most DHAs, but particularly in an interface like Tinder’s, we can discern three important mechanisms that mediate an interaction. Borrowing from slot machines, let us call them the *reel*, the *bet*, and the *payout*. The reel is typically a matrix or stream of user profiles or photos. The bet is typically a virtual button that records some form of approval or interest in what is presented on the reel. The payout is a consequence that comes from a “successful” bet. Payouts can be parlayed into a conversation through the DHA’s interface, the interface of a third-party platform (such as Snapchat and Instagram), or an encounter in real life. In sum, the reel provides choices, which the user can bet on, hoping for a payout.

Once presented with the Tinder reel, users can then place a bet by swiping a presented picture on their screen either right (to indicate interest) or left (to indicate a lack of interest). This process may take only 300 milliseconds (Taubert, Van der Burg, & Alais 2016). Accordingly, hundreds of profiles may be accepted or rejected in a single session of what is known colloquially as “speed swiping.” If both users swipe right on each other’s profile, the Tinder system informs both users they have been “matched.” At that point, these users can message each other, which is the payout. For the time being at least, the bet has paid off.

The way that bets and reels are implemented, the rate at which bets translate to matches, and the algorithm that governs the composition of the reel are all proprietary parts of the DHA. Successful DHAs will be those that can deliver on the promise of a payout by carefully tuning the reel, i.e., by presenting pictures or profiles of people that are most likely to bet on each other, thus controlling the number of payouts available to users. These payouts include the simple (and sometimes quite literal) buzz of discovering that another user has also bet on your profile (thereby initiating a “match”), receiving initial messages from another user after matching, receiving “likes” or other positive reactions to one’s messages and new posts, arranging offline “hook-ups” (typically understood to mean a one-off or sex-only encounter rather than an ongoing arrangement), and forging a longer-term relationship.

For DHAs, it is essential to ensure that the balance between payouts and users’ “investments” (measured in forms such as new user sign-ups, time-on-app, subscriptions and repeat subscriptions to premium versions of the app, etc.) favors the business model of the app, which can include fees for use, premium in-app features, or advertisement space. Regardless of the business model, players should be incentivized to win, but ultimately the odds must be in the app’s favor. To continue with the slot machine metaphor, if slot machines maximized payouts, they would put the casino out of business.

Betting and receiving payouts on bets can be addictive, especially on the internet (Young 1998, Dow Schüll 2012). As with most forms of gambling, excessive betting is typically characterized as a behavioral addiction (Goodman 1996), that is, as a compulsion to engage in behavior that leads to a particular reward (albeit typically with adverse consequences of some sort, or in a manner that goes against one’s better judgment, etc.). Unlike substance addictions, behavioral addictions do not involve physiological dependency on a substance, such as alcohol or drugs. Nonetheless, there is evidence that behavioral addictions (according to one prominent biomedical model of addiction) often involve neurophysiological processes implicated in substance addictions, such as increased dopamine synthesis and mis-regulation of opioid receptors (Majuri et al. 2013; van Holst et al. 2018; Wise and Myke 2020). Playing slot machines activates similar neural reward mechanisms that are implicated in all behavioral addictions.

Further, there is good evidence to suggest that the slot machine architecture of many DHAs has occurred not by accident, but by design. The cultural anthropologist and gambling researcher Natasha Schüll, for instance, argues that social media platforms such as Facebook and Twitter use methods similar to the gambling industry to keep users on their sites. The addictive qualities of these mechanisms should not be underestimated. For instance, Schüll recalls a woman who was a severe narcoleptic:

She said, "I fall asleep driving on the highway, having sex, the only place I do not fall asleep is playing video poker." … Something about this activity and the way that it modulates your attention… literally can keep a severe narcoleptic awake (Center for Humane Technology 2019).

Importantly, the addictive qualities of slot machines and slot machine-like DHAs are not dependent on a certain portion of the population being prone to gambling or addiction. Instead, Schull argues that “predatory” tech companies are deliberately designing apps and platforms in ways that exploit tendencies that evolution has hard-wired into human nature (Center for Humane Technology 2019).

Similarly, Tristan Harris argues that to maximize addictiveness, all tech designers need to do is link a user’s action with a variable reward:

When we pull our phone out of our pocket, we’re *playing a slot machine* to see what notifications we got. When we pull to refresh our email, we’re *playing a slot machine* to see what new email we got. When we swipe down your finger to scroll the Instagram feed, we’re *playing a slot machine* to see what photo comes next. When we swipe faces left/right on dating apps like Tinder, we’re *playing a slot machine* to see if we got a match (Center for Humane Technology 2019).

The slot machine architecture of many DHAs facilitates behavioral addiction (and continued use) of its users (Kuss & Griffiths 2017) and this in turn has the power to change those users’ overall lifestyle, goals, and norms.

DHAs are not the only digital technologies that facilitate this type of interaction. Consider video streaming services like Netflix, or YouTube recommender algorithms that automatically select and play one video clip after another. Nolen Gertz discusses these analogous cases arguing that such technologies are designed for bingeing and encourage users to enter an altered state of mind, which he describes as “techno-hypnosis,” rather than addiction (Gertz 2018, p. 82). But the phenomenon shares many features with the addictive behavior described above, for example, losing track of time and a lack of awareness of the manipulative—rather than neutral—properties of technology and its presentation of the world. Continued engagement with techno-hypnotic technologies, Gertz writes, “lead us to accept” the idea that “what is being presented to us [is] actually reality and not a version of reality shaped by the technologies through which we view reality” (Gertz 2018, p. 83).

In a similar vein, “loot boxes” in video games function as a representation of such an alternative reality. They are rewards built into the mechanics of the game and opening them, receiving their virtual rewards, and thus playing the game itself can become addictive. The act of opening a loot box in-game often involves a representation of a seemingly random process of selection from a range of possible rewards (Nielsen, Ludedal and Grabarczyk 2019). A player’s avatar may open the loot box to receive an upgrade, but it is the player that controls the avatar that gambles. In a DHA, the role of the avatar is filled by the user’s profile. These addictive behavioral patterns are common to many forms of digital communication, gaming, and engagement with content (e.g. Facebook, Twitter so-called ‘doom-scrolling’, or massive multi-player online games). Addiction in the case of DHAs may be particularly pernicious because users are not aware of the state of techno-hypnosis into which they are entering. At the same time, if we assume that for many users of DHAs, their original goal is to use the technology to actually meet a potential lover or partner, their goal is being thwarted by the addictive design.

2.2 Commodification of Social Interactions

Online dating and hooking up is arguably an amplified digital version of an extant marketplace in which singles shop around and play a game of probabilities or ratios. One distinguishing feature of the digital version is that many of the transactions that take place in it involve virtual social capital. Social capital is the sum of “the connections among individuals such that, over time, a social network is created in which people come to expect mutual support and trust” (Johnson & LaShaune 2016: p. 63). Exchanges of social capital in the online economies of likes and retweets on social media are transactions of *virtual* social capital (Blanchard & Horan 1998). While virtual, this sort of social capital can be just as consequential and valuable as social capital unmediated by online economies of likes and retweets.

The bets DHA users place on each other can function in ways that are similar to likes or retweets in other social apps. As with the latter, DHAs can be a vehicle for the construction and management of personal brands online. For Tom Roach:

[Online dating] instrumentalizes intimacy and mechanizes the wily ways of desire. It conjures illusions of privacy, control, and anonymity (while simultaneously violating that perceived privacy with the insidious practices of data mining and personalized advertising). It exacerbates the same barbarous impulses—hyper-individualism, cutthroat competition, solipsism, self-aggrandizement—so integral to and rewarded in the marketplace (Roach 2015).

On this view, DHAs are a version of a more general phenomenon of the economy of likes, influence, and microcelebrity that both fuels and constitutes a great deal of activity online. The relevant difference is that the online activity of DHA users takes place in a marketplace of other DHA users and to some extent replaces a marketplace of intimacy and hooking-up offline.

One way in which social capital is exchanged in DHAs is indirectly, through the often-opaque algorithms that govern the reel of matches. User behavior, bets, and payouts are fed back into the algorithms that determine which profiles appear on the reel of each user. The result of this feedback is that profiles that are most likely to bet on each other are selected for each reel, and people who receive fewer bets are less likely to feature on the reels of people who receive more bets. This creates a virtual ranking of attractiveness, which, in DHAs like Tinder, was (until 2019), an explicit part of the ranking algorithm.[[4]](#endnote-4) Investment of (virtual) social capital in a bet aims to maximize payout, while having highly desirable profiles bet on your profile may be the best way to receive even more matches.

Social capital is also directly exchanged through DHAs. Matches, dates, and the encounters among people in those communities do not always remain exclusively in the memory of the DHA and its algorithms. Sometimes, they can become subjects of conversations with friends or other DHA users in the community online (on forums, groups, etc.) or offline (in schools, towns, teams, etc.). Indeed, in 2016, Tinder appeared as an app option on Apple TV alongside other marketing materials (including, for example, blog posts, sponsored Instagram stories, advertisements with product tie-ins) encouraging users to invite friends and family to help them choose dates (Heathman 2016). Having a match with a well-known and desirable profile can be a reason to boast independently of any romantic or sexual encounter that it may precipitate: "I’ve been matched with so-and-so from Tinder!”

Similarly, undesirable or dangerous users can be a subject of discussion among users and people outside of the DHA ecosystem. Social transactions in a DHA can have very real payouts—or penalties—in the community one belongs to. Perhaps this is also why several DHAs have recently been created to exclusively cater to those with high social standing (celebrities, the wealthy, or those with more than 10,000 Instagram followers). The Raya app for dating and networking, supposedly for single celebrities, not only charges a fee, but also requires that one be referred by an existing member and submit an application to an anonymous board of reviewers.

 Finally, there are transactions that involve an exchange of social capital for monetary rewards. Many internet applications feature super-users and influencers, who are paid to post pictures of themselves with a product or promote a business. Brand representatives can raise their digital footprint by taking advantage of the sustained engagement of their users. This strategy is used to advertise businesses, parties, or products (Froelich 2014). DHAs are ideal venues for this strategy and so-called guerilla advertising campaigns. In one example of this phenomenon, the (anti)super-hero Deadpool had a Tinder profile as a part of a guerilla campaign meant to promote the *Deadpool* movie.

For better or worse, a marketplace of social capital and its various transactions have partially changed the social norms that regulated how people perceived potential encounters, potential mates, and their own place in the social order of intimacy. A bet, payout, and eventual encounter mediated by DHAs is an exchange in a digital marketplace where dating has become a numbers game. The problem with the market metaphor, however, is that a DHA that is successful in facilitating permanent or long-lasting relationships between its users would put itself out of business.[[5]](#endnote-5) Like the weight-loss industry, *success* in most DHA business models relies on a covert *failure* that must not openly be declared or acknowledged (Wilken, Burgess, & Albury 2019). Profitable DHAs must find ways to keep customers coming back or keep growing in some other way. One could even generalize to say that DHAs are not a place of traditional, long-lasting relationships, but a constantly evolving network of more temporary relationships within a digital ecosystem.

* 1. Betting against the casino

Before DHAs, communicating with and meeting a potential partner was not always easy, especially for those without a community of fellow students, workers, or neighbors. The architecture of reel, bet, and payout can offer new hope for isolated individuals who would otherwise have little to no chance of meeting others. This is not inherently good or bad, but merely brings into relief the point that internet technologies enable long-distance connections, of various sorts, that would be far less likely without it. The internet transcends physical location, so distance is less likely to function as a filter for people with whom one can interact. Furthermore, from the perspective of any individual user, the cost of betting and losing can be negligible—these are just virtual buttons on a screen, while DHAs create the illusion that there is always another profile to bet on. Nonetheless, user costs include—and this is far from an exhaustive list—the time invested in looking at a profile and the negative emotions that may be associated with being rejected, the potential mal effects (such as loss of sleep) that are made more likely by overuse of the apps, and also real money that a user may have paid to use the DHA, or to enable or (in the case of platforms such as OkCupid whose “freemium” versions contain advertising) *disable* certain features.

The phenomena described above have been influential within the metaphorical casino in which DHA interactions take place. First, any bid raises the possibility that another bet may have delivered a better pay-out (where superior pay-outs take the form of sex, a relationship, amassing vast numbers of potential sex and romance partners, and so on). Second, it is easy and tempting for DHA users simply to skip to the next bet in the face of minor issues such as a new conversationalist not responding to a message. This, in turn, has two further consequences for the way people interact through DHAs and the norms governing these interactions, namely that many DHA users (1) *spread* and (2) *hedge* their communication, as defined below. While these strategies share similarities with social interactions outside of DHAs (at a crowded party it may be relatively easy to just move on to the next person, for example), the slot machine architecture of DHAs has amplified these affordances enough to have them take on a new quality, as we will argue.

In traditional gambling and investment contexts, “spreading” is a complex betting strategy that involves wagers on price fluctuations rather than on the success of one outcome over others. It is associated with low returns, “serial losers,” and higher levels of addiction than other types of gambling (Budworth 2009). On our account, spreading in the context of DHAs involves maintaining communication with multiple matches such that at any given time a DHA user’s attention may be split between numerous other users. This is substantively different from the way we divide our attention between friends or potential dates at a bar in real life (IRL). In offline contexts, it is difficult to communicate with dozens of people within a matter of minutes unless one has, for instance, a captive crowd at a public speaking event. Yet, given the asynchronous nature of digital text and image-exchange, rapid fire and near simultaneous communication with multiple people is not only a possible but a feature that users seem to find *desirable* in DHAs. Users speed-swipe through each other, placing bets from anywhere and at any time. This high-volume operation often results in a scenario described as “classic” by one author, in which someone on a Tinder date visits the bathroom and talks to several other people on Tinder (Fetter 2018).

Further, unlike IRL flirting, in DHAs one can simply stop messaging someone without the inconvenience and potential awkwardness of having to make excuses to walk away. As such, the DHA environment invites comparisons, shopping around, and ruthless selectivity. Once again, there exists a tension between the way DHAs issue strong invitations to appraise others with machine-like efficiency—ostensibly to avoid wasting time on non-starters—while simultaneously deploying a multitude of design strategies to nudge/manipulate users into investing/wasting as much time as possible on the platforms themselves. This type of compulsive app use occurs to such an extent that, as the sociologist Holly Wood observes, swiping on dating apps is often not *a type of* dating so much as it is *a replacement for* dating, conventionally understood (cited in Fetters 2018).

 Many of Wood’s male interviewees have complained that they put a great deal of work into dating without results. Yet when she has asked what they have been doing, they have replied that they have spent hours a day on Tinder: “We pretend that’s dating because it looks like dating and says it’s dating” (Wood cited in Fetters 2018). This type of DHA use could be considered analogous to visiting a supermarket and browsing many times a day without making a purchase—and then feeling frustrated and bewildered at the failure of one’s grocery shopping enterprises, coming home hungry and facing empty cupboards. While this approach to food shopping is at worst inefficient, when it comes to dating, the problem is potentially deeper, if we assume that in seeking romantic or sexual partners people are striving for connection.[[6]](#endnote-6)

Finally, comparisons between potential matches are experienced differently on DHAs when compared to the way this occurs IRL. Rather than comparing anything like a holistic interaction with one person versus another, users precipitately compare discrete fragments of information, profile photos, quality of responses, et cetera—much like the algorithms found in automated price comparison services such as Google Shopping or Shopbot. The spreading strategy incentivizes rote question-answer interactions at the expense of more personalized—and consequently more time consuming—exchanges in which people may get a more holistic picture of their interlocutors.

The desire to cast as wide a net as possible while ostensibly minimizing time investment helps explain the existence of services that provide attractive openers intended to spark interest in one’s interlocutor, machine learning algorithms that learn from your likes and dislikes in order to select profiles based on your past searches, and bots that completely automate the process in the service of scammers and bad actors (Morrison 2019). Indeed, as Tom Roach observes, there exists a mobile app called “Yo” whose initial sole function was to facilitate users shouting “Yo!” at recipients, thereby taking “inarticulacy or, more generously, post-articulacy” to new heights/lows.[[7]](#endnote-7) At an IRL social gathering, conversations can easily fizzle out and a man barking loudly at a stranger might be perceived as harassment—or at least gauche. In a DHA environment where communication is easy and ephemeral and where users are shuffling multiple others, users might consider deploying a prefabricated dialogue in an attempt to increase their chances of payouts such as IRL sexual encounters. That said, DHA users are becoming increasingly skilled at distinguishing personalized messages (which are generally preferred) from those that have simply been cut-and-pasted (a lone “hey” or “’sup” rarely indicating deep engagement with a recipient’s profile).

*Hedging*, on the other hand,is an optimization strategy, useful especially if one already engages in spreading. It involves conversational strategies that stall, but maintain interest, without commitment for further interaction or meeting. A final decision for closer engagement or an IRL meeting takes place in light of a maximal number of other options: that is, after a DHA investor decides the time has come to start seriously crunching the numbers. Some people find it important not to commit one’s time and attention to someone who might not be a good match (whatever that might mean from the perspective of the individual user). In this case, avoiding false positives is as important as spreading one’s attention. Hedging makes it easier to avoid false positives, that is, cases where there is a match suggested by the app that does not end up being a match in IRL. While hedging supposedly increases the savvy user’s chances of finding high-value marks, both the strategy and the environment in which the strategy is deployed flatten users and render them fungible in a manner likely to obscure people’s subtle—and even substantive—points of difference. Splitting one’s attention and consciously or unconsciously engaging in conversational hedging also results in changes to communicative expectations and makes behaviors that were out of bounds a generation ago more socially acceptable. So, for example, it is common practice to abruptly severe conversations that don’t seem to be leading directly or swiftly enough to the desired outcome. This is typically referred to as “ghosting.” Online, DHA users have tacit permission to do this without anything by way of explanation, even though most disavow ghosting (as inappropriate) when asked (LeFebvre 2019). In a context of ubiquitous spreading and hedging, ghosting becomes almost imperative because time and resources are finite while potential dates are perceived as infinite—hence the importance of not indulging one’s limited attention in time-consuming inefficiencies of politeness.

Those from an era in which initial encounters were not mediated by DHAs (or where DHAs were not so pervasive) tend to hold onto the idea that ghosting is inappropriate in most relationships and interactions (Freedman et al. 2019). Although ghosting optimizes performance in the marketplace of intimacy in both online and offline contexts, given prevailing current expectations, there are reasons for thinking that ghosting as a “relationship dissolution strategy” (LeFebrve 2017) is morally wrong in most cases. The first reason has to do with the expectations of the person being ghosted, which are influenced by the prevailing norms of online dating. Since these norms and thus expectations are subject to change (like all norms of etiquette) it is possible that in some communities or in the future, ghosting will be not only expected but also seen in a morally positive light, perhaps as an efficient and respectful way of ending the relationship. Secondly, if the cutting off of contact is only desired by one of the persons in the relationship, the ghosted person is likely to experience it in a negative way. The strategy used to end a relationship has a significant impact on the amount of distress experienced by the person being rejected (Sprecher, Zimmerman & Fehr 2014). More generally, psychologists have speculated that DHAs are lowering the threshold for when people decide to leave an unhappy relationship IRL, because alternative partners are more readily available (Fetters 2018). This is not necessarily a bad thing from a moral point of view or from the perspective of the psychological health of those involved. This kind of social change induced, at least in part, by new technology would have to be assessed using a specific theory on the value of love or romantic commitment in a given sociohistorical context and in light of the particulars of the unhappy relationship at stake.

One take on those who ghost is that they wish to focus their relations on the people who matter most to them, and to protect their limited resources of time, attention, and desire from relations regarded as offering less of a return. While this, in itself, is not necessarily a bad thing, the proliferation of ghosting may at first appear puzzling, given that most users do not endorse the practice. But it shares the structure of other common forms of free riding behavior in which a self-interested person is at an advantage by being part of an institution or community that is generally rule following, while failing to follow the rules themselves. H.L.A. Hart (1955), John Rawls (1971), and Garrett Cullity (1995) argue that free riding is wrong under certain circumstances because it violates principles of fairness and involves unjustifiably giving oneself preferential treatment. We suggest that this behavior can be explained by the design of the DHA, which includes ghosting “scripts” (in Verbeek’s sense) and affordances, encouraging users to behave in ways that they, upon reflection, do not endorse. In line with our discussion in Section 2 about the prevalence of economic terms in parlance in and about online dating, interviewees who initiate ghosting may be running cost-benefit analyses of whether attempting to add a particular target to one’s romantic-sexual portfolio is worth the requisite investment of time and attention.

 DHAs promise to help their users find the match they want (payout) in the large quantity of users (reel). And to achieve this outcome, some users may adopt a strategy that is significantly different from the one that involves splitting one’s attention, hedging, and maximizing the number of potential matches. For instance, some users deploy the DHA equivalent of Boolean search strings (“all pansexual queers with moustaches except for those who identify as ‘420 friendly’”)[[8]](#endnote-8) in order to limit those who end up being presented to them on the reel. This resembles, at least in part, the *double-up* strategy in betting – an approach inspired by roulette or blackjack play in which players keep increasing the amount they bet in an attempt to cover their losses. The ability to set sometimes vanishingly narrow parameters on one’s searches exists to a larger or smaller degree in any DHA and users’ traits and attitudes play key roles in how these affordances are articulated (Chan 2017). For many mainstream apps, it is standard for users to be able to filter their searches such that race, religion, cultural background, gender identity, demographics, body size, education level, subculture, and hobbies of potential matches are specified (Zhang, Pentina & Kirk 2017). But there are also niche DHAs that cater to specific groups such as gay men, Christians, Jews, and Muslims (for example Grindr, Christian Mingle, JDate, and MuzMatch respectively), married people wishing to have discrete affairs (Ashley Madison), and people wishing to form connections with people who have been imprisoned (Meet-an-Inmate).

Users looking for specific sorts of people, either through preference settings or niche DHAs, don’t have to be firm about what they expect from others during interactions. Their wants and expectations straightforwardly determine who they interact with (presuming, of course, that other users are representing themselves in a reasonably accurate manner). The reel becomes smaller, so the bets have a higher chance of payouts, but at the same time what used to be a more amorphous pool of potential partners becomes a selection of whoever fits the user’s criteria.

One side effect of this preference-setting on norms is that the boundary between preference and bias becomes blurred (Harris & Raskin 2020). What may have been expressed as a preference for people with a particular skin color, religion, education, etc., in a DHA becomes a boundary condition for intimacy. For example, if a user selects race as a search criterion, either in a DHA’s settings or by using a race-specific DHA, they may never encounter people of another race on their reel. Conversely, through settings or selection of DHA, one can become invisible to others. Such features allow mainstream platforms to function as niche services (for instance, OkCupid’s “don’t let me see/be seen by straight people” setting can transform the site into something akin to Grindr or Her, aimed at gay men and lesbians respectively). Yet automatically removing, for example, all people of East Asian or Muslim background from searches might eventually give the impression that these people simply do not exist. It is beyond the scope of this chapter to interrogate the ethics of such practices and app affordances. Instead, we simply note that the technology facilitates racial, ethnic, and religious exclusion, without encouraging users to confront their reasons or motivation for engaging in such exclusion. These types of digital dating ghettos have much in common with the “filter bubbles” and “echo chambers” that are a feature of the online landscape in general. Filter bubbles and similar phenomena create interrelated epistemological and ethical problems that strain our ability to participate in democracies (Pariser 2011). A person whose media is filtered through a bubble or echo chamber will not be exposed to information or opinions that conflict with one’s already existing beliefs or values; the information and opinions they do have access to may be biased and they will not be aware of the imitations on their inputs. For example, Mark Alfano and Emily Sullivan argue that these phenomena undermine the intellectual virtues of humility and open-mindedness (Alfano & Sullivan 2020).

As Tristan Harris and Aza Raskin observe, both the business models and the infrastructure of the contemporary internet have deliberately been engineered to nudge like-minded people towards each other in a manner that does not just facilitate but *relies* on polarization (Harris & Raskin 2020). Users may intentionally seek out types of people that they would be unlikely to meet offline, just as Twitter users may, in principle, curate their feed to expose themselves to a maximum number of diverse political viewpoints.[[9]](#endnote-9)

In the context of DHAs, exclusion through preference has the effect of reinforcing roles and scripts that play out in social interactions between members of particular groups. For example, heterosexual men seem to opt for a strategy of maximally spreading their bets, while heterosexual women hedge more on Tinder (Tyson et al. 2016). Gay men, on the other hand, negotiate a number of roles (Rodriguez, Huemmer, & Blumell 2016) that they may present to other DHA users and can find themselves constructing their sexual identities as much as manifesting them in their DHA profiles (Wu & Ward 2018).For all these people the norms that govern expressions of preference, interest, or lack thereof are shaped largely by the logic of the casino and marketplace. Exclusion as a result of preferences is only one of the many options that can be used to maximize payouts. This obscures a potentially problematic connection to harmful stereotypes and bias. Optimization strategies that maximize efficiency and ensure success (however that is defined for an individual user) are *de facto* norms that govern intimate behavior, including the transition to a relationship or sexual encounter.

3.2 Anonymous misogyny

It is now widely accepted that—like the internet at large—DHAs can be a vehicle for systematic and institutionalized racial discrimination and forms of misogyny, including harassment, stalking, and violence that is generally regarded as unacceptable, if not outright criminal, in the broader culture.[[10]](#endnote-10) What is more contested is whether these platforms are facilitating an increase in racism and sexism or are simply revealing what was previously obscured. In the following section we argue that they do both. That is, DHAs provide a means to greatly amplify existing bias, stereotyping, and vilification. This is the second soft impact of DHAs that we refer to above.

More than half of participants in a recent study on DHA use reported being targeted for racism while more than one in eight admitted that they included text on their profile indicating that they themselves discriminated on the basis of race.[[11]](#endnote-11) A 2015 paper on “sexual racism” in sex and dating profiles (among platforms targeting same-sex attracted men) found that 96 per cent of users had viewed at least one profile that included some sort of racial discrimination, including profiles with statements such as “not attracted to Asians” (Callander, Newman and Holt 2015; Zheng, this volume). Revealingly, more than 70 per cent of gay men interviewed for this research disagreed that indicating a racial preference online was a form of “real” racism, instead framing it—among other things—as a useful time-saving mechanism.

Racism in DHAs is not always visible and crass. Sometimes communications on the platforms instead include microaggressions or harmful stereotyping. Corinne Lysandra Mason, for example, examines the practice of Tinder users presenting images of themselves in humanitarian and volunteer settings outside the Western world or Global North. She asks questions such as: “Why do people use humanitarian photos to generate hook-ups on social media?” and “How does holding an African baby make someone hot?” Conversely, many DHA users have a fetishistic preference for transgender, Asian, or (other) people of color. Nonetheless, on general platforms like OkCupid,

Black men and women get far fewer responses to their initial inquiries than virtually any other group across the board. White men get the most responses. White women strongly prefer men of their own race to all other races or ethnicities. Asian and Hispanic women are actually more likely to respond to white guys than Asian or Hispanic men. Despite being the most likely to respond to messages themselves, black women tend to have the lowest rate of messages received—from any race, including black guys (Sankin 2015).

Five years later, in 2014, fresh data showed that OkCupid users were no more open-minded than they used to be. If anything, racial bias had intensified (Sankin 2012). However, it is important to note that we are merely pointing out that one of the impacts of DHAs is to present this kind of discrimination as a reasonable option, given the types of filters from which one can choose. The open question is whether there are cases in which having a racial preference in dating is morally problematic and providing an answer is beyond the scope of this chapter, so we will bracket it as an important topic for further ethical analysis—at this point it is enough for us to simply point out that a careful ethical analysis is needed here.

 Misogyny, as discussed by Kate Manne (2018), “functions to *police* and *enforce* a patriarchal social order without necessarily going via the intermediary of people’s assumptions, beliefs, theories, values and so on ... to enact or bring about patriarchal social relations” (p. 79). This form of misogyny is also present in DHAs, which is in line with the extraordinarily high rates of misogyny online in general (Mantilla 2015; Jane 2016). In 2015, the UN Broadband Commission warned that cyber violence (defined by the Council of Europe as “the use of computer systems to cause, facilitate, or threaten violence against individuals that results in, or is likely to result in, physical, sexual, psychological or economic harm or suffering” (Council of Europe 2017)) against women and girls had become “a global problem with serious implications for societies and economies around the world.” It noted that 73 per cent of women and girls had encountered some form of violence online (Jane 2016).

Cyber violence and cyber hate here include a wide variety of behaviors, such as cyber stalking, unsolicited pictures of genitals, and messages containing sexist slurs. Women were 27 times more likely to be abused (e.g., by being sent threatening messages or being called abusive names) online than men; 61 per cent of online harassers were male; and women between the ages of 18 and 24 were at particular risk. The UN warned that, unchecked, cyber violence against women and girls risked becoming “a 21st century global pandemic with significant negative consequences for all societies in general and irreparable damage for girls and women in particular” (UNESCO 2015; look also: Amnesty International 2017)

While some studies suggest that women and men are equally likely to report experiencing digital harassment and abuse (see, for example: Powell and Henry, 2015), girls and women tend to be targeted for more severe abuse and tend to report more suffering as a result (Hess & Flores 2018). For instance, a 2014 study by the Pew Research Center in the United States found that men are more likely to experience name-calling and embarrassment – harassment of the types categorized as less severe: “a layer of annoyance so common that those who see or experience it say they often ignore it” (Dugan 2014). Young women, in contrast, are particularly vulnerable to severe types of abuse such as stalking and sexual harassment. These findings comport with Australian research showing that women are more likely to be “very or extremely upset”[[12]](#endnote-12) by online abuse and are more likely to take actions such as changing their online details or profile settings, or leaving a site (Henry & Powell 2015).

 The misogynistic affordances of DHAs can also be seen in social media accounts such as *Bye Felipe* and *Tinder Nightmares*, which feature screenshots of messages of sexist abuse and harassment received by women on DHAs. Laura Thompson identifies two dominant themes in these posts: the ‘‘not hot enough’’ discourse and the ‘‘missing discourse of consent’’ which “reveal a patriarchal logic in which a woman’s constructed worth in the online marketplace resides in her beauty and sexual propriety” (Thompson 2018 p. 69). The interface’s focus on images and looks further reifies existing norms surrounding the importance of women’s physical appearance. It is now well-known that technologies, especially algorithms, can reflect and reinforce gender and racial biases (Garcia 2016; Noble 2018). Perhaps unsurprisingly, it has been suggested that, at least to a certain extent, this results from toxic and misogynist cultures of tech companies which design, maintain, and profit from the apps (Kasperkevic 2016).

 We turn now to the question of whether DHAs are merely a new vehicle for the expression of already toxic attitudes, or whether they in some way contribute to this expression in a manner that would not be possible without them. In other words, to what extent are DHAs a medium and to what extent may they be the cause of the sorts of discourse that harms female DHA users in particular? To get at this issue, we need to take a closer look at DHAs’ soft impacts more broadly. Any technology’s soft impacts likely differs depending on the context in which it is used, the characteristics of the users, and the affordances built into the architecture of the app itself. This is to some extent also true of DHAs—they are a medium for expression of antecedent toxic attitudes. It is also true that some individuals and some groups tend to be more toxic online than others and their toxicity finds an outlet in DHAs.

When we look more closely at the sources of the antecedent attitudes that may inform ideas about intimacy (at least in the Western tradition), it seems apparent that the misogynist attitudes we find online have been present in social institutions, such as marriage, or literary discourse seemingly forever. So, the morally problematic behaviors we have so far discussed in DHAs are expressions of an antecedently existing culture that harms women in distinctive ways. Indeed, even in the earliest Mesopotamian legal codes (Arnold & Bryan 2002), laws about sex and marriage sought to control women’s bodies and access to them on par with property owned by men of a dominant group. It is only recently that legal rights and protections have been extended to cover women as legal persons and even more recently that these rights and protections started to extend to sexual and gender minorities.

The tradition of treating relationships as transactions (as in the women-as-property example just given) is so robust that it even appears in Western ethical philosophy. Immanuel Kant, for example, conceives of marriage as a transaction through which ‘man’ and ‘wife’ become a single entity, as depicted in traditional Christian interpretations of the Hebrew Bible and New Testament (e.g., Genesis 2:24, Mark 10:8). According to this Kantian tradition, the function of marriage is not only to render the two people equal, but to legitimize their sexual union in light of what Kant took to be important elements of human dignity, that is, that we not use each other merely as means to some other end, but as ends in ourselves.[[13]](#endnote-13)

The Kantian interpretation of marriage as a contract is just one example of this line of thought. A full discussion of the various ways in which the institution of marriage has limited the freedom and equality of women in particular is beyond the scope of this chapter and has received a full treatment elsewhere, for example in the first part of Clare Chambers’ Against Marriage: An Egalitarian Defense of the Marriage-Free State. Briefly, Chambers surveys the existing literature on marriage, from the writings of John Stuart Mill to contemporary liberal theorists, to argue that on all counts the institution leads to systematic disadvantage, discrimination, and harm (physical and symbolic alike) to women (Chambers 2017, p. 19-27, 52).

Furthermore, in Western culture we find scripts about intimacy *outside* of marriage that are similarly transactional. One telling example is from the courtly love tradition, wherein the Knight pays for the gift of his beloved’s affection and devotion by being “ever obedient, and willingly and completely [doing] whatever might please his sweetheart".[[14]](#endnote-14) In return for this “no one could describe anything that is prompted by Love [including otherwise inappropriate acts, such as a Knight sleeping with his Lord’s wife] as contemptible.”[[15]](#endnote-15)

To sum up these examples and discussion so far: there are good reasons to treat the transactionalism that we described in sections 2 and 3 as an expression of an already existing culture, merely amplified by the bullhorn of internet communication in general. Similarly, in many DHAs, a user bets on a profile, going on a metaphorical limb of swiping, liking, or whatever else constitutes the bet, and hopes for a payout from the potential partner, who until then is nothing more than a bit of text or a photo on their phone. On this view, whatever strategies the users pursue and whatever morally problematic behavior they engage in is not caused by the DHAs. DHAs merely amplify an antecedent culture of transactionalism that disproportionately harms women and, more specifically, contributes to their subordination under patriarchy.

That said, there are reasons to resist this view. Transactionalism embedded in laws, moral norms, and traditions may indeed be of the same variety as the transactionalism of dating and sex that is present in the DHA casino. However, one obvious difference between the two lies in the level of democratization of power. DHA users all use the same casino by choice, placing bets and hoping for a payout. This casino is not (to our knowledge) rigged to facilitate payouts for bets from one group of players at the expense of others. Transactionalism outside of DHA is often embedded in institutions and cultures where one group clearly has the “upper hand” in the transaction. Historically, as noted, intimacy has been imbued with values, scripts, and traditions that are particularly harmful to women and other disempowered groups, such as sexual and gender minorities. So, while DHAs may amplify brutal social capitalism, they also even out the playing field—or at least they have the potential to.

The democratization of access to DHAs, just like many other internet technologies, clearly results in a positive soft impact. Their architecture facilitates intimacy outside of norms that have historically been oppressive or discriminatory; in that sense, DHAs facilitate freedom from such oppression and discrimination. So, while some people may worry about the disappearance of traditions, others can, for the first time, be free to do what dominant groups have long been doing: deciding, accepting and rejecting intimacy, if they so wish. Furthermore, if DHA users are of a sexual or gender minority, they can do so in a way that is safer than ever. A further argument can probably also be made that this affordance leads to more sexual self-exploration and a more cosmopolitan attitude about intimacy in general. In sum, all positive soft impacts.

Nonetheless, there is a lingering worry that is perhaps best expressed by Michael Sandel in his critique of general commodification (Sandel 2000). Sandel argues that certain human activities should remain outside of the marketplace, for example, the sale of organs, student grades, or the ability to vote (see also Watson, this volume), for two distinct reasons: 1) the shift makes wealth even more important than it already is, preventing the poor from accessing things to the same extent as the rich; and 2) that inclusion in the marketplace corrupts or diminishes the value of the activity itself.

Although dating and sex technology does not explicitly monetize these things, it continues in the tradition of transactionalism and, as we have argued above, amplifies some aspects of this tradition. Even if we are right in thinking that DHAs also democratize access, Sandel’s two reasons may well apply and render DHAs morally problematic. There is some evidence that indeed DHAs have created a context in which wealth matters more than ever in intimate relations, even though what counts as wealth may have changed. There is little question that the paid level of any DHA ecosystem has its bets pay out better than the bottom tier. Furthermore, there are DHAs that increasingly cater to specific socioeconomic categories effectively pre-screening potential mates in a way that a matchmaker might do for the well-to-do in the pre-internet days.

Secondly, the thoroughly mercantile language, architecture, and logic of DHAs dispels any illusion of fate. It is a further question whether these ideals have been anything more than a cover-story for what is now finally made apparent, namely, that the dating market is and always has been a marketplace casino. Perhaps Juliette would have acted differently when confronted with Romeo’s advances, if she enjoyed the same rights and privileges that Romeo and other men did in 14th century Verona. For all we know, she would have swiped left, the way that many women do now on Tinder.

4 Designing for Values in DHAs

Recall that, according to mediation theory, the design, management, and moderation (the screening or monitoring of content by a webmaster or bot) of technologies—including DHAs—involves making many normative or otherwise value-laden choices and creating a new set of ways for humans to exist in and experience the world: here, the world of dating and intimacy. Yet many of the impacts discussed in this chapter are morally ambiguous and controversial, such as those that concern the extent to which DHAs are merely a conduit for transactionalism (although some, like encouraging misogynistic harassment are not). Designers and users of DHAs face a dual challenge: first, of evaluating these impacts and deciding which kinds of norms and values that come from pre-DHA dating are worth working to preserve and which ones should be radically reformed or even jettisoned. Second, is the challenge of how to design and operate DHAs in ways that reflect values stakeholders cherish or values to which they aspire.

One way of facing the second challenge is ensure that the architecture of the DHA and the business logic behind it is value sensitive. Value Sensitive Design (VSD) “is a theoretically grounded approach to the design of technology that accounts for human values in a principled and comprehensive manner throughout the design process” (Friedman et al. 2003, p. 1). Originating in the field of human-computer interaction, this iterative process consists of conceptual, empirical, and technical investigations, aiming to discover stakeholder values and ways of translating those values into design specifications (Flanagan, Howe, and Nissenbaum 2008; Jacobs 2020).

We briefly describe the three phases of VSD and explain some challenges to the method discussed in the literature. A conceptual analysis of a new or proposed technology involves investigating what values (moral and non-moral) are involved, who the stakeholders are, and consulting legal and ethical scholarship. The empirical analysis involves the use of social science methods, such as interviews, surveys, experiments, and measurements of behavior and impacts of the technology on potential stakeholders. Finally, the technical phase involves focusing on the material aspects of the technology itself, including an investigation into how these properties or mechanisms support or obstruct certain values.[[16]](#endnote-16)

The VSD methodology has potential to improve the DHAs by selecting which values are supported or hindered in interaction between people and technologies and designers facilitate certain kinds of interactions and not others (Van de Poel 2015).That said, VSD faces several criticisms relevant to its application to DHAs. One of the challenges relevant here has to do with the fact that the domain of sex and dating is an arena of particularly contested values. Applying the VSD method to this set of technologies is therefore particularly difficult because it requires practitioners to choose one set of values over another when two conflicting values are not simultaneously realizable–for instance those of DHA owners over DHA users.

As a methodology, VSD faces three related criticisms and its utility should not be overstated.[[17]](#endnote-17) The first of these standard criticisms is that the values of the designers will be covertly dominant in the design of the technology (Borning & Muller 2012). In this case, predominantly male software developers might create scripts for interaction within DHAs that maximize the values they prioritize, at the expense of others (Pearson Frank Java and PHP [Salary Survey](https://www.pearsonfrank.com/java-php-salary-survey) 2020; Mundy 2017). Secondly, VSD has been criticized for assuming that inventorying and understanding stakeholder values is sufficient to know which values should play a role in the technology design. In other words, the method seems to conflate facts and values by assuming that stakeholders get it right about values and that their values are the ones to be reified or protected, without considering the possibility that stakeholders could hold misguided or morally wrong values (Jacobs & Huldtgren 2018; Manders Huits 2010).

Third, it is difficult to specify precisely how designers can translate the values they identify as worth promoting (or at least avoiding undermining) such as privacy, mental health, gender equity, autonomy, or human flourishing, into concrete design requirements (Van de Poel 2013). Van de Poel has argued that before values can be “built into” the technology design, they must first be translated into norms, and only then can they be translated into design specifications (Van de Poel 2013). This is a complex process that is currently being theorized and elaborated (Oosterlaken 2015; Jacobs 2020). Respect for fellow users’ autonomy might be one of the values identified as crucial in the design of DHAs. On Van de Poel’s view, this value would need to be translated into one or more concrete norms. In this case, one of the norms might be one should have some kind control over explicit images that one is sent through the DHA. This norm can more easily be translated again into a design requirement, for example, a function that blurs explicit content in direct messages and prompts users with a question about whether they wish to view it.

**Conclusion**

In this chapter we argued that DHAs have the potential to be a socially and morally disruptive technology which is already and may continue to change the way people treat each other in the context of dating and hooking up; understand themselves in these contexts; and understand the practices in which they are engaging. The chapter does not commit to a broad assessment of DHAs as whole. Instead, we highlighted several features of the technology that encourage certain uses, behaviors, and attitudes and brought out some of their moral dimensions, using mediation theory, affordances, and soft and hard impacts. Finally, we introduced design for values methodologies, especially VSD. The aim of introducing this methodology is to suggest that, if we have convinced the reader that DHAs can have significant moral impacts, then we may want to intentionally design them with the values that we explicitly endorse. Users and designers alike must dispel the myth that DHAs are merely a new way of communicating for lust and love that is value neutral. Only once we are all aware of the scripts we are following can we question whether or not they reflect our values, goals, and conceptions of the good life in this context.

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1. Given that DHAs are in a such a rapid and perpetual state of flux (like iPhone software updates on steroids), it might be worth adding one footnote early on about the fact that all references to DHA apps and affordances were correct at the time of writing but may well have changed by the time of publication. [↑](#endnote-ref-1)
2. See for example Miller, B. (2020). A picture is worth 1000 messages: Investigating face and body photos on mobile dating apps for men who have sex with men. *Journal of homosexuality*, *67*(13), 1798-1822. [↑](#endnote-ref-2)
3. https://sensortower.com/blog/top-grossing-dating-apps-worldwide-february-2020 [↑](#endnote-ref-3)
4. This company blog is to our knowledge the only place where Tinder has publicly acknowledged this: <https://blog.gotinder.com/powering-tinder-r-the-method-behind-our-matching/> [↑](#endnote-ref-4)
5. Thanks to Karim Jebari from the Institute for Futures Studies for bringing this point to our attention during the 2017 Igrzyska Wolnosci (Freedom Games) event in Lodz, Poland [↑](#endnote-ref-5)
6. Thank you to Clare Chambers for emphasizing this point. [↑](#endnote-ref-6)
7. The discursive exchanges typical of msm [men seeking men] location-based apps— from the introductory interpellations, “hey,” “’sup,” “woof,” to the inevitable request for “pix”— reduce dialogue to a series of churlish grunts and crass propositions— a nightmare (or perhaps a respite) for those who pride themselves on eloquence, wit, or emotional expressivity. Adopting the discursive conventions of these forums—bluntness, eschewal of conversational niceties, near prohibition of confessional candor—is to learn a new language, one in which any acknowledgment of subjective interiority (“deep” thoughts, feelings, etc.) becomes a liability (Roach 2015: 57). [↑](#endnote-ref-7)
8. This slang term – extremely common on mainstream DHAs such as Tinder – refers to those who engage in recreational marijuana use or are comfortable around those who engage in recreational marijuana use. [↑](#endnote-ref-8)
9. DHAs, like all technologies, are multistable; they do not have a single essence but instead their meaning is constituted through their context and the ways they are actually used (Idhe 1993; Rosenberger 2014). [↑](#endnote-ref-9)
10. [↑](#endnote-ref-10)
11. Thank you to a reviewer for driving home the following clarification: we do not mean to imply that sexual orientation is a discriminatory preference in dating, love, and sex. In fact this is a highly contentious matter. See for example: Callander, D., Newman, C. E., & Holt, M. (2015). Is sexual racism really racism? Distinguishing attitudes toward sexual racism and generic racism among gay and bisexual men. *Archives of sexual behavior*, *44*(7), 1991-2000. [↑](#endnote-ref-11)
12. We thank a reviewer for pointing out that this language (e.g. upset) seems to focus on the emotional reaction of the women, rather than a reasonable response to the behavior they experience. It is not our language, but the language of the study. [↑](#endnote-ref-12)
13. Kant, Immanuel. *Lectures on Ethics*, translated Louis Infield. (New York: Harper Touchbooks) 1963. p. 167. [↑](#endnote-ref-13)
14. Troyes (2004: 25). [↑](#endnote-ref-14)
15. Ibid, p. 261. A similar form of transactionalism exists in Western pagan discussions of intimacy. In Plato’s *Symposium*, for example, Pausanias conceives of a transaction between an older man and younger boy as a virtuous exchange of knowledge for sex:

When a lover and his favorite come together, each in conformity with the principle which is appropriate to him, which is for the former that he is justified in performing any service whatever in return for the favors of his beloved, and for the latter that he is justified in any act of compliance to one who can make him wise and good, and when the lover is able to contribute towards wisdom and excellence, and his beloved is anxious to improve his education and knowledge in general, then and then only, when these two principles coincide, and in no other circumstances is it honorable for a boy to yield to his lover (Plato, *Symposium*, 184d-185a). [↑](#endnote-ref-15)
16. See for example (Azenkot 2011) a value sensitive design analysis of an assistive technology for deaf and blind transit riders. [↑](#endnote-ref-16)
17. The utility of VSD should not be overstated in part because of the multistability of technology. In other words, the way that stakeholders use DHAs when they are part of a living lab or other experimental set-up will likely diverge from how they use them “in the wild.” [↑](#endnote-ref-17)