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Sex Machines as Mediatized Sexualities - Ethical and Social Implications

Nicole Duller and Joan Ramon Rodriguez-Amat

Abstract Sex machines also are communication practices. This chapter considers sexual interactions with technological devices as mediatized sexualities. Media are “integral to very different contexts of human life” (Hepp et al. 2010, p. 223) and the mediatization perspective (Krotz 2007) enables an integrative cross-disciplinary approach to technologies across specific socio-cultural fields.

Sex machines, hybrids of fundamental humanness and artificiality/artifactuality, push the boundaries and raise social and ethical discussions about the limits of the integrated circuit involving society, individuals, culture, values, interactivity and intercourse. “Ethical reflection often begins only after damage has been done” (Debatin 2010, p. 319) therefore, facing sex machines enriches media discussions on technologies, communicative, social and cultural practices and ethical debates.

This chapter starts from existing six types of sex machines, to identify ethical issues also relevant for Media and Communication Studies pointing at robots, surveillance, psychological, sociological and body related concerns.

Keywords Media - Mediatization - Ethics - Media Ethics - Sex machines - Mediatized sexualities - Sex robots - Teledildonics - Governance

1 Introduction: Media Ethics and Sex (Machines)

“In times of *deep* mediatization (...) media (...) are (...) more connected with each other, omnipresent, and driven by a rapid pace of innovation and datafication” (Hepp 2017, p. 6). Sexuality, as cultural, social, economic, and mediatized practice, is all over the place: the first cover after Playboy Magazine’s no-nudity rebranding, was a Snapchat-like shot, shown on Twitter (Addady 2016). In 2016 Pornhub’s yearly review published that at 99Gb per second, 3110 Petabytes of video had been streamed adding to 4,599 million hours of porn on Pornhub only (this is half a million years!) of world-wide distributed consumption (Pornhub 2017). Sexual devices, languages, consumption, production, and cultural references epitomize the extension of mediatized sexualities, machine-mediated sex cultures. This field opens debates extending from politics of the body, to nano-integration of body-machine circuitry, from networked societies to cyber ethics. Indeed, the opportunity to connect and convey data threatens with surveillance and control; while, the creativity

of hybrid forms of pleasure articulates and stimulates transformations of desires while intriguing business models striving for commercial profit. Beyond the fascination and the possibilities, however, there are ethical and legal implications that arise not only at communicating, but while in *intercourse* with machines.

Sex machines are technological devices to intimately interact with. There is a wide range of machines out there and in the making. In a time of widespread use of smartphones and apps, rapid developments in the fields of robotics, Virtual Reality (VR) and Augmented Reality (AR), the computer-generated enhancement of one's senses (Kipper and Rampolla 2012), the Internet opens up new opportunities to Maker- and Do-It-Yourself (DIY)-cultures and pushes business models like crowdfunding and crowdsourcing. The connection of devices and objects, the network of internet of things, takes the convergence of media to a new level. Masturbational devices and sex toys can go online, enabling sensor motions in remote control from mobile devices . There are customizable human-like robots designed for sexual intercourse (Realbotix n.d.) and *Virtual Sex Worlds*, motors of kitchen aid tools detached, or drillers transformed into home-made *Fucking Machines* (Archibald 2005). Inventions and exploration within the fields of neuroscience and biology, biometrics in the bedroom (Machulis 2009) promise also *Brain-to-Brain-Sex-Interfaces* (Owsianik et al. n.d.). Technology-assisted self-love is changing the physical action of masturbation (Tallon-Hicks 2017) and even more so sex machines amplify, extend and transform sexual intercourse.

The technosexual life world articulated by the convergence of bodies, technologies and machines calls for a discussion on questions concerning individual and social impacts posed by sex with machines. The term machine is used in its broad sense, hybrid actors in form of networks of artefacts, things, humans, signs, norms, organisations, texts and many more (Bellinger and Krieger 2006). Machines are means for transformation. It is not their parts, but the performance that constitutes them as sex machines, incorporating their social value beyond their technical composition. Instead of closing a definition of sex machines reducing them to their materiality, this chapter opens their definition to their performance by considering the constellation of pieces of metal and flesh, connecting components of technologies with body parts with information flows with data infrastructures, with narrations of desires within histories of sexuality. In this broad sense, then, wired and connected sex machines are means of mediation and of production of meaning, of communication and of transformation. Sex machines are embodiments of mediatized sexualities.

This chapter contributes to the research on sex machines from the Media and Communication Studies. The turn consists in moving beyond the media representations of sex devices, by exploring the network of communication practices -devices, bodies, social understandings, cultural meanings,

technopolitics, political economies- on *mediatized sexualities*. The field of sex machines arises questions involving ethical issues of responsibility; particularly because sex machines, far from being neutral devices, are power imbued technologies and extensively to sexuality of the human being dispositifs of power (Foucault 1983). Sex machines inform a field of political tensions, including norms of imposed normality and patterns of hegemony, dissonance, negotiation, discrepancy and resistance.

However, sex machines so far have mainly been discussed from the side of Human-Robot Interaction (Levy 2007), Human-Computer Interaction (HCI) (Kannabiran, Bardzell and Bardzell 2011), Porn Studies (Schaschek 2012; Cruz 2016), Queer and Gender Studies; and most prominently of course at the *Arse Electronica*, an annual conference on the intersection of technology and sexuality. Our aim here, once again, is to extend research on sex machines also involving the field of Media and Communication.

The intentions of this chapter are to map the lines of ethics discussions open from the field of sex machines. As it has been anticipated, the debates emerge in the double context: from one side, an amount of prejudices and cultural displacements of the field of sex machines, and from the other an extensive integration of media devices within the social fabric. In this chapter, this situation is taken as an opportunity. It starts with a section on mediatization, mess and machines that describe the coordinates within which this discussion takes place and there, the debates on ethics. The presence of sex machines is slowly brought to the centre until section three turns around them. First, an introduction of the field of research and afterwards the link of sex machines as media devices. The final section of this paper maps the fundamental ethical debates that emerge against a previously existing typology of sex machines. The typology points at a hybrid network of actors and relations and helps arising each one of the concerns that should be considered while anticipating the development of this field that grows exponentially within the human deep mediatized society.

2 Mediatization, Mess and Machines

Considering the (meta)process of mediatization in its social constructivist approach (Couldry and Hepp 2013), the discussion about sex machines can adopt this abovementioned broader sense. This section will consider the possibilities of mediatization as a frame for the development of a discussion on sex machines as communication practices and the opportunity for opening ethical debates on the matter.

2.1 Mediatization and Mess

Mediatization “includes the thesis that human communication as the basic activity of human beings refers more and more on media in a specific cultural and historical way – and this is how everyday life and identity, culture and society are changing in relation to media development” (Krotz 2014, p. 79). Mediatization seeks to answer questions around how and why media and communication develop and are developed and which consequences this holds for human beings, identities, culture and forms of living together (Krotz 2007). The meta-process of mediatization itself is strongly intertwined with the processes of globalization, individualization, economization (Krotz 2012a) and commercialization (Hepp 2013). Mediatization research therefore engages not only with the changes taking place within the media system but also with the transformations of communication on the micro-level of people’s everyday life and social relations; on the meso-level it looks into the changes within institutions, and on the macro-level mediatization research asks for the changes within the fields of politics and economics, socialization, society and culture (Krotz 2012b). Furthermore, as stated by the thesis of deep mediatization, there is no place in society which is not related to “technologically based media of communication, which are all becoming digital” (Hepp 2017, p. 14). Deep mediatization then is characterized by its *cross-media quality*, which calls for studying the relatedness between the different media, that are increasingly taking on hybrid forms, its *multifacetedness*, rendering the field highly contextual and its *character of reflection* in form of integrated feedback, modification and self monitoring (Hepp 2017). Furthermore, considering the possibilities of development of those devices and in particular the capacity of some of them to connect online, brings them within the constellation of the Internet of things. This is a factor that multiplies the whole debate and its political economy, and with it the debates on ethics, profit, ownership of data and privacy. The Internet of things was initiated in 1999 as a global consortium of retailers and academics based at the Massachusetts Institute of Technology (MIT), and therefore the whole issue on ownership, profit and opportunity is intrinsic to the whole project itself (Dodson 2003).

In a messy world of ubiquitous computing (Dourish and Bell 2011) and media convergence, an actor-network-theory (ANT) approach (Latour 2008, 2010), highlighting processes in front of substances, enables from one side, to follow and trace the actants (Wieser 2012) in the sex machine networks. Considering sex machines as actors in an exchange process without imposing any separation between human and non-human figures. The ANT approach also highlights the circulation of information within the interaction system showing flows of meaning, of understanding, of practice. The heterogeneous networked systems of modern technologies form hybrid constellations

of distributed actions (Rammert 2007). Wieser proposes then to focus on where and how mediatization takes place and which actors are involved (Wieser 2012).

The ethics discussion suggested in the second part of this chapter organizes thus along six types of sex machines. Each one of them constructs a constellation of actors and relations setting also particular ethical questions. This is how a map of links between sex machines and ethics can be drafted. However, before getting there, it is necessary to explore a little further what ethics and media is about.

2.2 Ethics and Media

The rise and extension of media reaching all the corners of the life-world has multiplied ethical concerns. Actually, whatever the origins and nature of the mediatization metaprocess, all along the scholarly and philosophical concerns on the social presence of media, discussions on ethics have emerged in parallel and almost one to one to the historically competing theories of communication.

Ethics are regarded as a permanent reflection on the moral norms that guide actions while sensitizing everyone's responsibility in front of normative conflicts enabling them to opt for good (Brosda and Schiecha 2010; Wiegerling 2015). This sense of responsibility is the basis of a sensitive governance. Ideal norms, such as the categorical imperative are often too general, vague and rigid to serve as practical rules. Therefore ideal norms must be translated into practical norms that apply for specific fields such as media ethics, machine ethics, medicine ethics, information ethics, and so on. Cultural transformation leads towards new intersubjectively constituted moral norms; and the transformation of values holds a delicate balance with the changes in the regulatory frames; and even if ethical concerns direct attitudes and actions of the individual, ethical concerns are in a constant basic tension with legal-political concerns (Wiegerling 2015). For instance, having interests and desires does not actually mean, that they are justified or legal; and opposite, the presence of formal hierarchies of responsibility -and execution of law- does not imply that responsibility can be passed over: legal discourses do not replace ethical ones and vice versa (Wiegerling 2015). This tension grounds the relevance of research and understandings involving governance requiring the consideration and combination of the competing views and values.

In a mediatized world, debates on communication processes applied ethics cannot be anymore reduced to media ethics. From classic debates involving journalism and representations of truth, or discussions on the crossings between economic, political and social drives of media corporations, the critical public sphere, a democratic media order and the responsibility of the public and everything

involved in the principles of media governance, these are fundamental rights and freedoms, like the freedom of expression and information and the democratic obligation to a diversity of opinions and media pluralism (Krainer 2005; Debatin 2010; Funiok 2011). “Social media are promising spaces of enhancing democracy and human rights and spaces of control at the same time” (Sarikakis and Rodriguez-Amat 2012, p. 556).

2.3 Sex Machines in a Discussion on Mediatization Ethics

Ethical reflections involving new media and technology tend to start too late (Debatin 2010). And before sex machines get (in)famous for some damage caused it is worth preparing the terrain for further regulation. Royakkers and van Est suggests a governance of New Robotics in form of “widespread public and political debate and efforts (...) to regulate all kinds of social and ethical issues” (Royakkers and Van Est 2015, p. 566), and the *European Union* is working on a *Civil Law Rules on Robotics* (Delvaux 2017). The development and implementation of this *Civil Law* has been proposed to address and govern general, legal and ethical principles regarding the growth, research and use of Robotics and Artificial Intelligence. Issues like „human safety, privacy, integrity, dignity and autonomy (...) standardization, intellectual property rights, data ownership, employment and liability“ (Delvaux 2017, p. 27). These are some of the topics, called to be governed.

Sex machines emerge at the edge of humanity. Enhancers of what is most intimately human, mediators of what the victorian legacy banned to the secret corners of the banal everyday life, sex machines materialize a double secret, the one that trivializes sex by explicitly enhancing it, and the one that mechanizes sexuality and pleasure trespassing a thought-to-be strictly human realm. Furthermore, strong assumptions and hard displacements socially inflicted to sympathizers of these devices are extended to those who dare to open the pandora box and inquiry about them.

In October 2015, the second annual conference on *Love and Sex with Robots* that would have taken place in Malaysia was cancelled. In a video record of the press conference announcing the cancellation, Tan Sri Khalid Abu Bakar, Malaysian Inspector-General of Police tells the officers: “I am warning the organizers: do not try to be funny to hold such an abnormal event in this country. We will take stern actions against them. This nation does not condone free sex. It is an offence here to have anal sex, what more with robots? This is ridiculous. These people are trying to bring an unnatural culture to this country and this is forbidden. There is nothing scientific about sex with robots. No reports have been lodged. There is no need to do so. I have forbid it. There are many laws that we can take against the organizers. I am giving warning to hold such an event here in Malaysia” (Khalid Abu Bakar 2015). The Reporters Without Borders annual report ranking the countries on

press freedom places Malaysia 146th place; the United States, where the annual *Arse Electronica* takes place ranks 41th, Austria ranks 11th and Germany 16th (Reporter ohne Grenzen 2016). For this reason, the second conference on *Love and Sex with Robots* was held in London in December 2016, instead - Great Britain ranks 38th (Reporter ohne Grenzen 2016). As this example shows, media and 'moral judgement' already articulate a discourse on the topic of sex machines involving the de-humanisation of sex or the social and normative impacts of machinized sexuality. The following discussion about freedom of expression and scientific debates on sex machines usually mentioned thoroughly are not enough to build an understanding of the whole action in policymaking.

Sex machines form a field of power that can be fully visible if approached from a broad understanding of governance perspective. The concepts of governance (Donges 2007) and of media governance refer to complex and multilevel forms of "steering, managing, and directing (...of) actors, institutions, and principles that shape a particular area of public life" (Sarikakis and Rodriguez-Amat 2013, p. 339) and, that "regulatory field is a space of power struggle and debate, tension, and intention" (Sarikakis and Rodriguez-Amat 2013, p. 338). Sex machines, then, do not exist in a void of machine neutrality and of spontaneous use, instead, they appear within a world of values, righteousness and interests that confirm the presence of that field of power struggles and debates. Governance of sex machines seems to be an emerging and relevant field that demands an urgent thorough discussion on ethics, this chapter is only a first orientative step. After all, research becomes an act of dissidence in certain territories.

The merging of human bodies and machines fails when substantial traditional categories are taken for granted. The shortcut that assumes a prior untouched entity -body/machine- tends to leave outside what is actually meaningful. A creative and interdisciplinary analysis is, instead, necessary. In the field of sex machines, Kant's categorical imperative and Aristotelian ethics meet with Asimov's laws of robotics. Asimov's laws were first formulated in 1940 to articulate his science fiction robot stories: a robot should not injure humans, must obey them, and protect himself (Asimov 2007). And even more, biotechnologies and communications technologies "become the crucial tools recrafting our body" (Haraway 2004). Haraway's cyborg and Foucault's governmentality are key concepts to deal with these sex machines as meshed networks of body, machine, values and pleasure, regulation and practices, power and empowerment.

This exploration also requires a triple lense of approach that deals with micro, meso and macro levels. At the micro-level, sex machines render visible transformations of intimate communications, everyday sex life and the notion of human relationships. At the meso and macro levels, research shows changes within institutions of politics, economy, society and culture. The extended tradition of

mediatization, and this also means considering the traditional debates on media ethics, is a useful standing point from which to understand the process of development and produsage of new media (Rath 2014); and this includes love and sex with robots.

3 Sex Machines

Sex machines have a long presence in science fiction and popular culture. Even early referents such as when Ovid's Pygmalion fell in love with his own carved statue, were updates from previous Greek and of Phoenician myths. From Pinocchio to Gothic literature and romantic Frankenstein wiring the cinematographic Maria by Fritz Lang in *Metropolis* (1927) and the animated TV series *Futurama* or the current TV series *Real Humans*, the possibility of love and sex with robots has been a common place. Also publicist and filmcritic Seeßlen wrote a trilogy about sexuality within the high-tech world (Seeßlen 2011a, 2011b, 2012) in which he analyzed a range of examples around technology and sex.

However, the insight to many topics, research lacks empirical studies and conceptual sources. Sex machines also appear in pornography and in art. Photographer Archibald published a book that captures the machines accompanied by interviews to U.S. inventors and distributors providing insight into this subculture (Archibald 2005). Similarly, in 2013 Spike Jonze directed *Her* (2013), a man in love with a voice activated operating system, anticipating a very current trend: "26% of regular voice tech users say they have had a sexual fantasy about their voice assistant" (Pounder and Cherian 2017). Of course, Amazon's Alexa, Apple's Siri, Windows' Cortana and Google are computer managed voice assisted devices that fit the label of sex machines.

3.1 Sex Machines as a Field of Research

Authors agree that it is crucial to empirically study sex machines (Royackers and van Est 2015; Bendel 2015). Most of the debates start with sex-robots. This is a reduction but it is a start. Robots in general have already engaged authors around robot ethics (Lin et al. 2012; Levy 2012; Whitby 2012; Bendel 2015). Ethical concerns for robot care for the elderly, and considering the realms of human contact, privacy, personal liberty, and objectification and control (Sharkey and Sharkey 2010). Ethical and legal implications of sex robots (Levy 2012; Sullins 2012; Whitby 2012), also have been explored from islamic perspectives (Amuda and Tijani 2012).

Discourses on sex robots turn around emotional attachment and the philosophical readiness to emotionally and romantically get involved with robots (Turkle 2011). Discussions also turn around cost and availability of humanoid robots for sexual interaction (Levy 2012; Bendel 2015) and around

sexbots as prostitutes (Levy et al. 2012; Yeoman and Mars 2012) or the features of these machines (Bendel 2015, Royakkers and Van Est 2015). Yeoman and Mars (2012) predict that by 2050 there will be mainly android prostitutes in Amsterdam's red light district "clean of sexual transmitted infections (STIs), not smuggled in from Eastern Europe, and forced into slavery, the city council will have direct control over android sex workers controlling prices, hours of operations and sexual services" (Yeoman and Mars 2012, p. 365). This is also the time frame for the normalisation of sex with robots for Levy (2007).

Bendel points out, that the use of sex robots is considered in the healthcare segment, for assisting and supporting sex of disabled or older adults, i.e. (Bendel 2015). The author claims, that the use of sex robots could "enrich life and contribute to good health" (Bendel 2015, p. 29) whilst there are also risks like the lack of human-human sex, the sentiment of being substituted and rejected, or the feeling of disadvantage due to not being able to afford a sex robot (Bendel 2015).

Royakkers and van Est (2015) categorize sex robots as entertainment or amusement robots in the category of home robots that invite us humans to act out both in physical and social interaction (Royakkers and van Est 2015). The authors claim, that not much is known yet about the motivations and the mechanisms encouraging interaction and the actual communication between robots and humans. They also identify several aspects of ethical and regulatory issues, that need to be addressed, such as: emotional development, de-socialization, sex with robots in regards to issues of adultery, illicit sexual practices, sex slavery and sex trafficking, prostitution and sex with child-robots (Royakkers and van Est 2015).

Extending from robots, research on sex machines has been a disperse set of names providing inputs from multiple strands and perspectives. For instance, from the side of the devices and inventions, there is some archaeology available. *American Sex Machines* (Levins 1996) describes devices and inventions from 1840 until the mid 90s of the 20th century. Linked to the history of psychotherapy, Maines (2001) overviews the history of hysteria and its *treatment* with mechanical devices like the vibrator. Isaac Leung (2009a, 2009b) explores the cultural representations of sex machines and suggests some early classification. But the published anthologies of the *Arse Electronica* events (Grenzfurthner et al. 2008, 2009, 2011, 2013) are still the most elaborate discussions on the topic of sex machines, so far.

In Human Computer Interaction (HCI), Kannabiran et al. (2011) provide a general overview from HCI and sexuality: if HCI is a discipline in charge of designing technologies for supporting, enhancing and

improving human life “to relegate sexuality to the margins is to shirk that responsibility” (Kannabiran et al. 2011, p. 702).

Some literature focuses on the empowering possibilities of sexually interacting with machines (Levy 2007; Lutschinger and Binx 2008; Grenzfurthner et al. 2008, 2009, 2011, 2013): the gender subversive potential of the narration of the female robot (Kang 2005) is an ambivalent and challenging alternative to traditional gender dualisms. Female robots thus, are one of the strands showing the “possibilities of empowerment and liberation in technology” (Kang 2005, p. 18). But there are more opportunities of sexual interactions: for example, in cases of physically disabled people who struggle sometimes with the possibilities of realizing their own sexuality (Withnall 2017) or the possibilities of enhancing relationships, by solving mobility derived issues between geographically separated human partners (Archibald 2005).

Of course, there are also critical voices around sex machines. Rheingold (1991) pointed out already twenty years ago, questions regarding ethics, security and privacy of teledildonics. Cybersex is a highly technologized masturbation with new means (Eerikäinen 2003) and therefore the concept of “post-sex” becomes the ultimate link in a long tradition of disciplination of the body and the senses. Opposite then, to the thesis of the liberation of sexuality from physical limitations, Eerikäinen criticizes that the technological fragmentation of the organic body results in the desire for organs without a body (Eerikäinen 2003). Chunks of technology materializing desires of the body and mind.

3.2 Sex Machines as Media

Sex machines are technology that mediates, enhances, connects and communicates humans with and between themselves - with the inner *intimate* parts of themselves. As far as they *mediate*, sex machines are media. Generally speaking, media are objects or circumstances that enable communication and it is their functional or relational and transformational aspect that defines media (Mock 2006). Advanced technologies like artificial companions and social robots will transform culture and they will be integral of the social and communicative actions (Pfadenhauer and Dukat 2014).

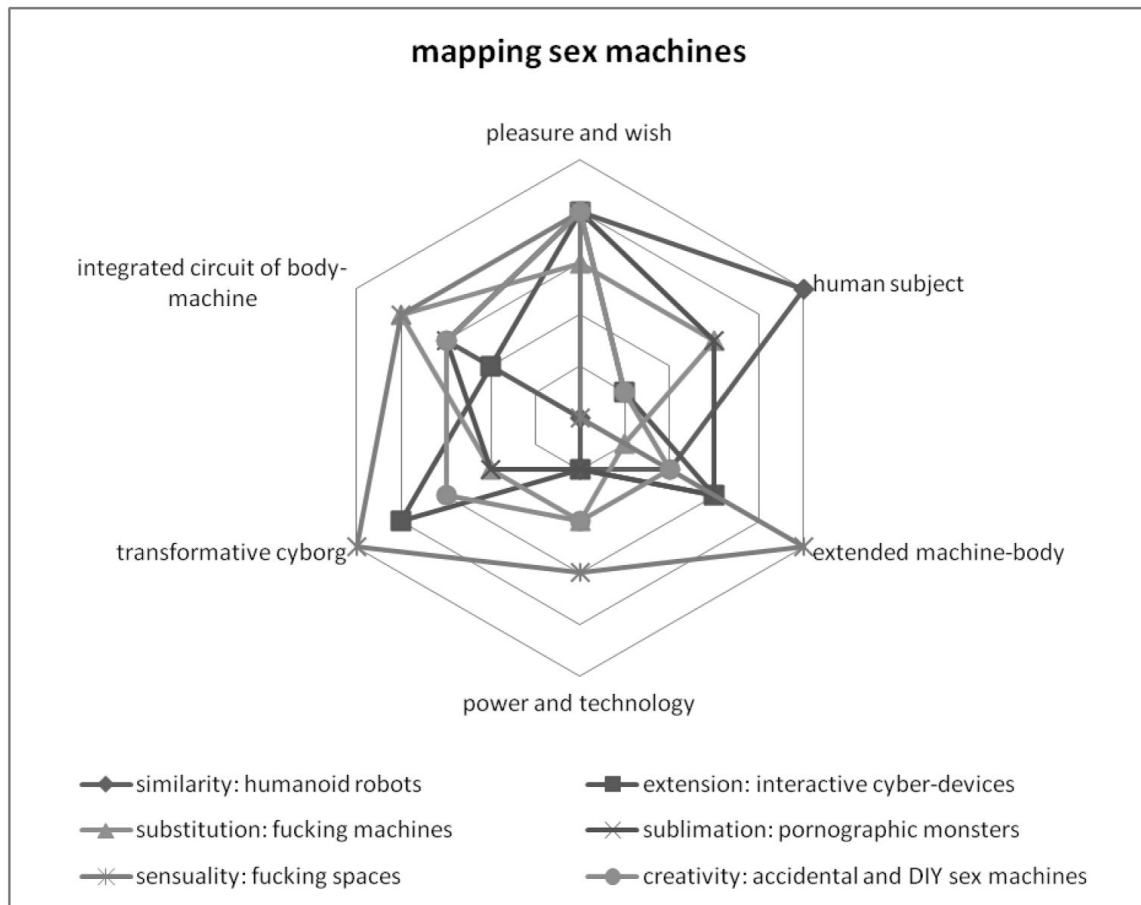
Media “have become integral to very different contexts of human life” (Hepp et al. 2010, p. 223) in this metaprocess of mediatization that started before the rise of *new* media (Krotz 2007). As a consequence of the emergence of the digital media, other forms of communication have been made possible” (Krotz 2014, p. 82) and as communication forms the basis of emotional and social relations, any change in the conditions for these relations might transform emotional and social links and the ways we live and make sense of the world (Krotz 2014). The use of devices to create and mediate

pleasure has been a long extended practice too, that within the last decade though has accelerated and spread as new media and technologies popped up enabling the emergence of numerous forms of sex machines. Discussing sex machines from the mediatization approach brings light to the interrelations between devices, cultural meanings and their mutual transformation. Furthermore, approaching mediatization from the field of human-computer-robot interaction opens the field to the extension of mediatization research strand. Finally, tracing the the circuit of integration of society, individuals, culture, technology, values, interactivity and mediating sex machines as a process of mediatization of sexuality would also shed light to the ethical implications of the process opening questions about responsibility sharing between robots, emotions, sensuality, and humanity; or about the hybridity of fundamental humanity in their artifactuality, or the artificiality of their humanity. The discussion about sex machines within a field of mediatization of sexuality would also open a critical front according to which sex machines are embodiments of a discourse of sexuality that involves power and understandings; in this sense, a proper analysis of sex machines as mediatization, would help taking them as “discursive facts”. This is, analyzing “the way in which sex is put into discourse” (Foucault 1979, p. 11). The mediatization approach allows dealing with sex machines as significant systems of inter-device mediations, of cultural meanings and their mutual transformation; and to include the internet of things to a certain extent that will have to suffice for this article.

4 Six Types of Sex Machines and Six Ethics Debates

In an earlier work six different types of sex machines were identified following the criteria of their mediating function (Duller and Rodriguez-Amat 2012). That classification includes sex machines of similarity, sex machines of extension, sex machines of substitution, sex machines of sublimation, sex machines of sensuality and sex machines of creativity. As it has been stated in previous work, these six types of sex machines set different debates about power and they can also be considered as a form of approaching the ethical debates. In the forthcoming paragraphs, each type will be shortly described together with the ethical discussion that it triggers.

Table 1. Six types of sex machines according to their mediating function (Duller and Rodriguez Amat 2012)



Sex machines of similarity imitate the human body. As humanoid robots, they might even include the mimics of the face and the texture of a skin-like surface. Sex dolls are sex machines of similarity and one timely example is *Harmony*^{AI}, released as the *Realbotix* first sex robot with Artificial Intelligence on April 17th, 2017 (Realbotix n.d.). Its owner “will be able to mould *her* personality according to what they say to *her*”(Kleeman 2017). Sex robots seem to be the most prominent type so far: science fiction and the collective imaginary to the god-playing creation of humanity. Considering the business proportional growth to Moore’s law on speed computing development, soon robots will be as ubiquitous as computers are today (Lin 2012). Robots will progressively integrate social environments and adopt socially relevant roles: taking care of the elderly and nursing, or take care of intimate care in the private environments of home or in the equivalent to brothels. Their abundant normality is in tension with their difference as machines: “Once a robot like

Harmony is on the market, she will know a lot more about her owner than a vibrator ever could” (Kleeman 2017). As in the Uncanny Valley, the more robots resemble real human beings, the more they make us feel uncomfortable (Mori 2012).

The ethics debates triggered by sex machines of similarity involve the “humanity” of the robots and whatever implications that their appearance might suggest. Ethical debates open then in two directions: from one side, the rights of robots as beings owners of rights themselves acquired from living within humans; and from the other, the alleged threat to human rights such as the freedom from degrading treatment (and the right to preserve one’s reputation). The former type of debate has generated a great amount of literature for a long time (McNally and Inayatullah 1988; Freitas 1985; Henderson 2007; Levy 2012 or Redan 2014); the latter, instead, generates more debate in the specific cases: for instance, McMullen, owner of Realbotix and creator of Harmony, refuses to make animals or children and considers that to produce dolls inspired on celebrities he will need their permission (Gurley 2015).

Sex machines of extension are not humanoids. They are interactive devices that extend the human body towards what has been called interpersonal globalization (Auhagen 2002). Teledildonics or interactive cyber-devices are cases of this type of sex machine: *Fleshlight* is a flashlight-like shaped masturbational device for men made of silicon and moulded resembling a human orifice. The device includes an automated option that can be synchronized with VR content or connected online to other users (Fleshlight n.d.). Similar to the Fleshlight, *Kiiroo Onyx* is a masturbational device for him whereas *Kiiro Pearl* is a teledildonic device for her. Both Kiiroo devices can connect via Bluetooth and wirelessly to the Internet enabling intercourse with other Kiiroo users. The online interface of Kiiroo includes video-chat and possibilities to socially network (Kiiroo n.d.).

These devices do not present debates or discussion about their eventual humanity; because they are not more human than a mobile phone. Instead, they raise issues related to their (online) connectivity. Access online and internet navigation require identification and connection, and this means that the use of those connected devices involves the loss of anonymity and of privacy. Actually, those devices will inevitably produce amounts of data and metadata that will be stored in a computing cloud. Which is the same as saying that whatever data generated will be stored in somebody else’s computer. The discussion is not about the eventual generation of data: the technicalities of connected devices demand the identification of the device; only with help of policies, that identification could be encrypted or made inaccessible, but the data will still be generated; and it is most likely that brands, producers and whoever profits of the products will be interested in collecting that information. The ethics debate emerges then, when one asks about the

ownership, access and utility of that information; and when one asks about the threats that these informations might pose. In this sense, the DEDA by the Utrecht University (DEDA 2017) could help or the recent critical research by Andrejevic (2016) on drone theory, or the automated generation of data; is referential as are the more ethics oriented works by Zwitter (2014) on big data and Catellani (2016) on connectivity.

Not limited by the expectation to imitate or resemble the human body, *sex machines of substitution* look like machines. They have the appearance of an assemblage of parts - motors, metal, silicon, lubricated for play and pleasure. They are often customized or handmade and emerge surrounded by an industrial aura. The fantasy they appeal to involves both, the pleasant action of the machine, and the nudity of its machinery. Machines free of bodily conventions stimulate phantasies and integrate what Bataille identified as "the two primary motions (...) rotation and sexual movement, (as) expressed by the locomotive's wheels and pistons" (Bataille 2008, p. 6). The best known example of machines of substitution is *Fuckzilla*, a sex robot created for the pornographic website fuckingmachines.com.

The ethics debates triggered by sex machines of substitution are those mostly related to health and safety. Obviously, the discussion about the limits of a device produced harm is intrinsic to the notion of a machine; but the case of machines of substitution makes the claim particularly relevant: their intentionally designed nakedness makes them particularly dangerous, because the hiding of bolts and wheels, pistons and engines, is not merely aesthetic but for safety reasons, as in the review of the Arlan Robotics Service Droid 1.0 when the journalist wrote "... even if it doesn't injure your genitals, (...) it will injure your notion of self-worth" (Maiberg 2017). The health and safety ethical debate would ask questions about the materials -their hygienic condition, the possibility of having them cleaned and the solidity of the components- and about the machinery -the prevention of risks of harming, the safety buttons, as well as the supervision and maintenance. All those aspects might eventually become regulatory matters with the commercialization of the devices, particularly considering their production origins; but before that point, the issue can only be an ethical concern.

Sex machines of sublimation are the products of fantasy and fiction in their most wondrous and creative kind. They are pornographic monsters as cultural bodies: attachable tentacle shaped sci-fi dildos, 3D transmedia objects originated in monster porn sites or such as the fantasy-themed sex toys of *Bad Dragon* (bad-dragon.com) delivered each with an erotic story of a fictional character created around the device. This fictional narrative of the monstrous penetrates the factual flesh in unusual, stimulating and seducing, terrific and horrible ways. Sex machines of the sublime then, come into being as hybrid figures and fragments, expressions of the cultural and social phenomena.

The transgressive monstrous “embodies sexual practices that must not be committed, or that may be committed only through the body of the monster” (Cohen 1996, p. 14).

The dangers that inspire ethical debates when considering machines of the sublime start at those derived from the loss of reference of the fictional world and what Coleridge called suspension of disbelief. Storytelling requires the joy of disbelieving and the narrative contract can be easily confused amidst the body pleasures. The question about the extension of both worlds in contact and the harm that could allegedly derive from the loss of the limits between the game and the real are a danger: psychology and psychiatry have described this loss of reference of reality and helped setting the criteria for its diagnose. But when the principle of wish meets the principle of desire, when the fantasy touches the skin, the limits must be considered. It is an ethical thin line that mediates between the fairplay, the foreplay, the arousal condition and the actual body in its limitations. Sado-masochism practices might float around the premise and illustrate the dangers of the sublime. Classically, Valverde (1989), Warner (2000) or France (1984) have dealt with those debates.

The fourth type of *Sex machines* are *sex machines of sensuality*. These are those destined to enhance the human senses by providing *environments of pleasure*. The body is “where paths and spaces come to meet” (Foucault 2006, p. 233). A cold breeze on warm skin, the smell of fully pink raspberries on a hot summer day, sharp rocks in the sea penetrated by the moon’s gravitation tide. Erotic landscapes, spaces and rooms intentionally crafted to stimulate pleasure, are also sex machines. Haptic responses from mobile devices, sensors detecting and transmitting data and motions, 3D holograms, VR and AR, all of these play a role and transform the ordinary into sexual spaces. Woody Allen’s classic fictional device *the orgasmatron* (Sleeper 1973), fits as an example of this kind of machines. The abovementioned voice assistants could be considered as machines of sensuality, or pushing it a little further, Brain-to-Brain-Sex-Interfaces, pleasure implants and the sexnet of things (Owsianik et al. n.d.) are forthcoming inventions for the near future.

Similar to the case of the voice assistants, here was that of ELIZA. The precedent to Artificial Intelligence (AI) (Bammé et al. 1986) invented by Weizenbaum in between 1964 and 1966 led its engineer to state that had he known what he was initiating, he would not have done it (Schanze and Malek-Mahdavi 2010). The ambient simulates the communication raising ethical and cultural issues (Krotz 2014). In this sense, if the dangers mentioned in the machines of sublime were of psychological and perceptive nature, the discussion here falls in the social dimension and the “effect” of the social being substituted by a computing device. The dangers of addiction and of social disconnection emerge as a possibility and as an ethical concern.

Finally, *sex machines of creativity* are self-made and improvised or emerge by chance. A bicycle jerking over rough slopes, a vibrating washing machine, an instrument oscillating. Allen Stein, inventor of the thrillhammer, “one of the first commercial Internet controlled sex machines” (Stein 2009, p. 151) remembers his discovery of technology for pleasure when playing the trombone in his high school band, when reaching the low tunes: “I filled the bottom with my deeper rumble and was very amused that my genitals would tingle on some lower notes. Wow! I was playing a giant musical vibrator!” (Stein 2009, p. 152). These are the sex machines built by oneself (Do it yourself style) and they raise another strand of ethical debates: the one that shadows creativity, intellectual property. The right to invent, the ethics of originality and the subsequent issues derived from potential market and profit making and struggles of interests.

An example of a problem related to this issue is when in 1998 a *Method and device for interactive virtual control of sexual aids using digital computer networks* was patented. It now rules the field of teledildonics “blocking the development in the interactive sex arena” (Owsianik 2015a). TZU Technologies owns the patent that expires in 2018 and has filed lawsuits against any efforts trying to bring innovation to the field (Owsianik 2015b). This intellectual property debate aligns with the last ethical debate: the regulation of creation -via intellectual property- *marketizes* an area of improvised invention and of innovative possibilities.

The field of sex machines grows in the struggles of commercial interests, moral and legal discussions, and threatens with psychological and social concerns amidst a symbolic and cultural context of values (sometimes against sex machines). Furthermore, the link of sex machines with the spheres of the intimate, and of privacy -sometimes related to health- makes the discussion about surveillance and data very relevant. All of them, are rather seducing reasons to theoretically build and explore a field of sex machines further both empirically, normatively and critically.

5 Discussion/Conclusion

“We must not think that by saying yes to sex, one says no to power (...)”
(Foucault 1978, p. 157).

The discussion on ethics of sex machines has barely started, this chapter mapped the field and outlined the potential areas of reflection that will open. The idea that sex machines could be better understood within the frame of mediatized sexualities helped incorporating the equipment provided

by the mediatization tradition into play. There is a serious and urgent need to scaffold the growing field of research on sex machines with a properly mapped set of debates on ethics, beyond reductive religiously induced judgement or victorian prejudice. Sex machines are multiplying and naturally sneaking within the daily lives of vibrating phonecalls, of robotized care, of sensual voice assistants.

Indeed, the fascination of this promise, so close to the uneasy discussion of the untouched intimacy and secretive spaces to which masturbation and intercourse are cornered, sex machines appear in their double marginalisation as a space of power struggles and as a space of ferocious industrial competition concealed by the shadows of the unspoken privacy and by the condition of their machinistic non-humanity. Research on sex machines calls for interdisciplinary and open approaches, rather daring and straightforward and the background of Media and Communication Studies provides the tradition and the frame within which to critically study sex machines.

This chapter built on a previously existing classification of sex machines to explore the arising debates of ethical responsibility. The six types of sex machines are similarity, extension, substitution, sublimation, sensuality, and creativity. Instead of discussing the six types or the eventual overlapping or glitches between categories, this chapter has let them inspire the areas of ethical discussion that each one of those types of machine would have to deal with. The initial operation of distinction between types of sex machines makes it easier to identify the fields, the dangers and the threats that sex machines, in general, could pose in ethical terms.

Of course this does not mean that each type particularly poses one single type of threat; it is rather that all sex machines could pose all the various questions; but the thinking and identification of them comes easier with an aprioristic classification that distinguishes multiple typologies of sex machines. Further research, and probably more applied, will require a crossing of boundaries and specific analysis of how the debates are ultimately taking place in the public spaces or in the regulatory scene.

For the time being, the map shows that the ethics debates on sex machines involve, for as soon as the robots acquire roles in the social spheres, the protection of their rights; but also the rights of own image and reputation -particularly considering that without the proper attention some humanoids could harm or injure in degrading someone's dignity; including the danger of promoting discrimination and abuse in terms of gender, sexuality or age, or reproducing rape culture and child abuse. The chapter has also identified three areas of possible harm to the user that need to be considered as part of the ethics in sex machines: *body-physical harm*, *psychological harm* and *social harm*. The first is the one that involves health and safety regulation and attention to the dangers of

operating with machines: materials, protection, etc. It was identified in sex machines of substitution, but of course, it applies to the whole extension of machines; the second type is the psychological harm that was particularly identified in sex machines of sublimation: the loss of reference and the pathologizing distinction between fantasy and reality; the third, that emerged with the sex machines of sensuality, involved the sociality and the social skills of the users: the interaction with intelligent compliant machines impacting on the social skills and on the social expectation-disappointment of the users. The next area to be aware of is that of privacy and surveillance: the connectivity of the new devices -as identified in sex machines of extension- implies the generation of identification cues and all sorts of information data, the ownership and uses of which will have to be considered carefully as much as the sexuality and the intimate practices need to remain private. And last, the question that might lead to a new discussion on political economy of sex machines is the issue of creativity and intellectual property. The novelty of the market has enabled a very general patent to block the commercialization and at the same time, the subculture of DIY sex-machines seems to have grown. In this tension, the ethics debate would turn around originality and profit making and the limits of the paradox in terms of property, profit and governance.

These areas of ethical debate also announce that the need of a debate on the conditions for the regulation and, extensively, the governance of sex machines. The field of struggles and conflicting interests crosses, at least, the political territories of health care, body and gender, economy and entrepreneurship, culture and creative media and privacy and surveillance; and this means that it will be necessary to pull together a discussion that checks to what extent the current frames of regulation and of political action can incorporate the new sex devices.

Indeed, “sex technology is about to take a giant leap forward. The market is ready” (Stein 2009, p. 155). Are we?

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