



Article

# The Cyborg Mermaid (or: How Technè Can Help the Misfits Fit In)

Martine Mussies <sup>1,\*</sup> and Emiel Maliepaard <sup>2</sup>

<sup>1</sup> Independent Researcher, Zambesidreef 68, 3564 CD Utrecht, The Netherlands

<sup>2</sup> Department of Human Geography, Radboud University, Comeniuslaan 4, 6525 HP Nijmegen, The Netherlands; e.maliepaard1@gmail.com

\* Correspondence: martinemussies@gmail.com

Academic Editors: Adrian David Cheok, Cristina Portalés Ricart and Chamari Edirisinghe

Received: 1 January 2017; Accepted: 16 February 2017; Published: 24 February 2017

**Abstract:** In feminist studies, the figure of the mermaid has long been regarded as flawed, disabled and less-than-human. Her theoretical counterpart in that respect would be the cyborg, an image used to show that with the aid of robotics, humankind could be larger than life. What would happen if we could combine those two images and apply them to create “super love” more-than-human relationships? This article explores the possibilities of technology for “mermaids”, people who normally fall outside the norm, to satisfy human desires in a new way. Two case studies will be presented, first we will look at people who identify as having ASD (Autism Spectre Disorders) and second we explore the use of technology for people who have BDSM-oriented desires (related to Bondage and Discipline (B&D), Dominance and Submission (D&S), and Sadism and Masochism (S&M)). We briefly discuss the added value of practice theory for exploring how people are altered by technè.

**Keywords:** mermaid; cyborg; more-than-human; practice theory; autism; BDSM; hug machine; pegging

## 1. Introduction and Background

### 1.1. Cyborgs

Part-robot, part-human. The image of the cyborg goes back a long time. As early as 1843, Edgar Allan Poe described a man with extensive prostheses [1]. However, its name, “cyborg”, was first coined over a century later, in 1960, by Manfred Clynes and Nathan S. Kline, as an abbreviation for “cybernetic organism” [2]. As Cecilia Åsberg explains, this cyborg as described by Clynes and Kline is “the strange product of double fertilization by two fathers, sprouted from the neo-colonial sciences and the militarism of the superpowers during the Cold War between East and West” [3]. Their far-reaching visions of beings with both organic and biomechatronic body parts were soon echoed in popular culture. Popular examples of cyborgs are Darth Vader, Inspector Gadget, the Borg, RoboCop, The Terminator, the Daleks from Dr. Who and the Replicants from Blade Runner. However, the cyborg is both virtual and real, as Haraway explains [4,5]. She is present in us, in our imagination, in our SF movies and literature, and in the world around us. As Despina Kakoudaki writes in her book *Anatomy of a Robot: Literature, Cinema, and the Cultural Work of Artificial People*, Haraway’s cyborg image offers new possibilities for identity, based on three premises: “it exceeds the boundaries between human and machine, it resists the hegemonic premises of ‘organistic’ science, and it lacks a gender, a genealogy, and thus an investment in master narratives and myths of origin”. [6]

Nowadays, the idea of the cyborg can be found all around us, in medicine (think about pacemakers), in the military (DARPA), in sports (Paralympic Games) and in the so-called “disability studies”. Joseph Michael Valente describes cyborgization as an attempt to codify “normalization”

through cochlear implantation in young deaf children [7]. Drawing from Paddy Ladd's work on Deaf epistemology and Donna Haraway's Cyborg ontology, Valente takes the concept of the cyborg to challenge constructions of cyborg perfection. In his article, Valente, who was raised oral deaf himself, recounts a visit to a school for young deaf children, where he discovers that young d/Deaf children and their rights are subverted by the cochlear implantation empire. He concludes that "young children and their parents [ . . . ] are under the sway of audism, as children and parents become unquestioning subjects of the ubiquitous phonocentric colonial empire." [7] (p649). Valente refers to the quest for perfection and normalization as fundamental principles for cyborgization. While we do not want to engage in critique on the acceptable body in this paper, we agree with Valente's observation that cyborgization is mainly dedicated to repairing missing biological conditions and creating more functional human beings.

It is commonly understood that defining cyborgs is a difficult exercise; an understanding that was confirmed at the Love and Sex with Robots 2016 conference. We propose a definition of the cyborg as a fusing together of technology and human beings. This melding can happen in many different ways, intensities, and stages. We identify three stages in the process of cyborgization, i.e., three different types of cyborgs. The first stage is the basic idea of a human merging with one or more aids to become a more acceptable and normal human being. Examples of technè that are arranged with the "misfit" are glasses, pacemakers or hearing aids. This add-on has a normalizing effect; glasses, for instance, correct a disability by improving impaired vision to the level of a "normal" functioning person. As such, people who have one or more imperfections can become as good, able, and human as other humans because of being involved in arrangements with specific forms of technè. Pamela Kincheloe describes people wearing cochlear implants as cyborg; we understand this type of cyborg as a first stage cyborg [8].

The potential of technology is virtually indeterminate as the stage two cyborg shows; the merging together of technè and human beings does not only lead to correcting people's functionalities, but could create a more-than-human cyborg. With more-than-human we mean an arrangement between human bodies and non-human bodies/entities/things that result in human beings that are more advanced or better when compared to the average able bodied person. A clear example of this second stage cyborg is arrangements between humans that are often conceived as less able bodied and technology in sports. A person who runs on blades can run faster than an Olympic runner with legs.

The third stage is the cyborg in which the technè is not only an add-on or creating more-than-human bodies. This stage consists of arrangements between human beings and technology in which technology also has particular forms of agency. Examples are indeed the future love and sex robots as envisioned by David Levy [9] and Yann Zhang [10]. This article is limited to stage one and stage two cyborgs as we examine current arrangements of human bodies and non-human bodies, entities, and things.

### Mermaids, Misfits, and Cyborgization

While surfing on various websites and forums about autism as well as about kink, it struck me (Martine) that people often refer to the little mermaid, her feelings and her position as an outcast or misfit in her surroundings. Delving deeper, I even found a whole sub-culture of transgendered women, such as Jazz Jennings, who identify as "mermaids". Why would people from a subculture choose a mermaid to represent themselves?

Amidst all the subjects in the folklore of Europa and the Near East, one of the more common mythical creatures is the mermaid. From Ariel to Undine and from Lorelei to Rusalka, nearly every culture has its own version(s) of the "water woman". Most mermaids seem to lead a tragic life, as they feel stuck between longing and belonging, in a space that Homi Bhabha [11] calls "Unhomeliness". Mermaids seem helpless at the mercy of the vagaries of life, tossed about by the choices of male figures in their narrative. Also, in modern versions of the water woman, including Andersen's version, she is often positioned as a tragic figure, often a victim of love, often relegated to the sea.

Mermaids occupy a different position as compared to cyborgs. In fact, they function as opposites. Mermaids and cyborgs are both seen as partly human (and often half human), but their social position differs. Whereas the cyborg is regarded as being larger than life and an improvement of Mother Nature, the mermaid is often described as flawed, disabled and less-than-human (e.g., [12]). Andersen's mermaid, for example, cannot reach humans or connect with human beings. In the first place, because she has no legs. She literally cannot reach humans. When this problem is "cured" by a trick or technique—technè in Greek—she becomes voiceless and therefore unable to connect with humans and function as a human being. "There it is for you," said the witch. Then she cut off the mermaid's tongue, so that she became dumb, and would never again speak or sing." [13]. Nevertheless, the little mermaid maintained her strong desire to become a human being; such a strong desire that she even wants to become a human for one day: "Why have not we an immortal soul?" asked the little mermaid mournfully; "I would give gladly all the hundreds of years that I have to live, to be a human being only for one day, and to have the hope of knowing the happiness of that glorious world above the stars." [12].

In *The Little Mermaid*, her inability to connect with human beings plays a central role in this understanding of being a misfit. Nevertheless, she was also a misfit in her underwater world. For instance, "When the sisters rose, arm-in-arm, through the water in this way, their youngest sister would stand quite alone, looking after them, ready to cry, only that the mermaids have no tears, and therefore they suffer more." [12].

Pioneering disability studies scholar Rosemarie Garland-Thomson developed an argument to show how the idea of the misfit manifests itself in three ways: First the disabled body itself (as compared to the perfect functioning human body), followed by the vulnerability and dependence of the misfit on others (incl. things and entities) and, lastly, social devaluation because of being given lower positions in the functioning social world [14]. As a symbol for the misfit and the less-able bodied the mermaid struggles with her feelings between longing and belonging and has to biologically change to become accepted as a human being, to be seen as an acceptable human being (Of course, this only goes for "mermaids" in the literal sense, the maids of the water/sea, who have fish-tails, and not for their birdy counterparts, the Sirens, who are anything but disabled or less than human, for they are dangerous femme fatales and almost more than human).

### 1.2. Cyborgization: Shifting Positions

Does the mermaid have to be a victim of her fate? Not necessarily. As the following excerpt suggests: "You, poor little mermaid, have tried with your whole heart to do as we are doing; you have suffered and endured and raised yourself to the spirit-world by your good deeds; and now, by striving for three hundred years in the same way, you may obtain an immortal soul." [13]. During her life, the mermaid received multiple pieces of technè to overcome her biological barriers. After she received legs, but lost her tongue and voice, she received another piece of technè to overcome new barriers and finally become in the position to marry the prince. This idea of being a "misfit" needing to be cured by technè is very present in disability studies. An early account of this idea can be found in "The world I live in", the 1908 collection of personal essays by Helen Keller [15]. From the opening line of her first essay—"I have just touched my dog"—the deaf-blind Keller makes contact, by sharing her embodied sense of touch. But as she cannot speak or make eye contact, she needed writing, a technè, to overcome the distance between herself and the outer world.

Similar to Keller, by empowering herself with technè, the mermaid tries to break through societal barriers to become a powerful, and above all, more accepted body. With the advent of games she became a background trope, that is now gaining agency. And in the mermaid game *Ariel's Symphony*, she offers the player a moment of mindfulness, bringing the principles of Soto Zen in practice. Mermaids mirror their context, reflecting developments in society and in our personal experience. However, with other attributes than just their mirrors and combs etc., mermaids can become more powerful and mirror the technological developments of the 21st century, by co-opting what has

excluded them in the first place. This process of cyborgization can be regarded to as a metamorphosis or transformation, just as the mermaid transforms into a human being and into a daughter of the air. As Sue Short notes in her work “Misfit Sisters: Screen Horror as Female Rites of Passage”, it is interesting that the work of Andersen involves so many processions of young women, such as Gerda from ‘The Snow Queen’, Sleeping Beauty and most notably: The Little Mermaid. [16] (p26). In terms of cultural anthropology, such a change is called a rite of passage, a term coined by ethnographer Arnold van Gennep. Rites of passage have three phases: separation, liminality, and incorporation. As van Gennep described. “I propose to call the rites of separation from a previous world, preliminal rites, those executed during the transitional stage liminal (or threshold) rites, and the ceremonies of incorporation into the new world postliminal rites.” [17]

Since the Stone Age, people (or half-humans like Lucy) have overcome their bodily limitations with the use of technology. As an Enlightenment project, these ideas found a very convenient vehicle in modern techno-sciences. This human capacity is especially valuable for people with so-called disabilities, who can become cyborgs to overcompensate, thus out-competing “natural humans”. As mathematical biologist Christian Yates noticed, “in every distance race further than 400 m, the world record times of wheelchair athletes are faster than their able-bodied counterparts” [18]. In this light, we do not change the image of the misfit as Other—a mermaid—but we perceive this Other as being “better” – a cyborg. Without suggesting that being Other is a flaw or that cyborgization aids misfits unilaterally, this leads us to our main question: “What is the impact of the cyborgization on “mermaids”—people who are considered as misfits in our contemporary society?”

## 2. Case Studies

### 2.1. *Carly Fleischmann and Temple Grandin: Technè and People with ASD*

Our first case study for the idea of the cyborg mermaid is the autistic person. My (Martine) personal experiences as a high-functioning Asperger, in teaching the piano to autistic children and in researching autism, have ignited in me a wish to critique current views of autism as a condition that renders the autistic as being more or less than human—the first in the case of extraordinary rational and musical abilities, the second in the case of a seemingly defective intelligence and supposedly impaired social abilities. As a liminal figure the autistic person does not fit the human stereotype. When I (Martine) was sixteen, I wrote in my diary that “I felt like Ariel with the dinglehopper”. In this particular scene, the little mermaid sits on the royal banquet and starts to comb her hair with a fork. It is a very workable solution for tangled up hair and very original. However, too far out of the box, which leads to the mermaid being even more “Othered” than with her mutism alone. In her MA thesis on autism autobiographies and the theoretical cyborg figure, Teunie van der Palen states that the critical academic discussion of autistic persons tends to advance a post-humanist image of the autistic [19]. As she describes it, the post-human is both what comes after the human, in terms of its incorporation of technology, and what comes after the liberal humanist subject, in terms of normative rationality, empathy, independence and selfhood (For a more thorough discussion, see: Katherine Hayles “How we became Posthuman” 1999).

Thus the autistic is an example of both: she uses technologies to organize her world, to recognize faces and to produce language and so on. In that sense, she already is a cyborgian creature. To explore what this means, after a general description of ASD – Autism Spectrum Disorders – we will take a look at how technè has improved the lives of two successful female autistic authors: Carly Fleischmann and Temple Grandin.

Under the DSM-5, Autism Spectrum Disorder (ASD) is characterized by persistent deficits in social communication and interaction across multiple contexts, as well as restricted, repetitive patterns of behavior, interests, or activities. However, as Hannah Ebben describes in her MA-thesis, “[i]n terms of just the word and not the assemblage of symptoms that it signifies, autism is a concept that has been used to define deviant behavior as well as identity categories in the Western world

for the past 70 years" [20]. However, as she continues to explain, the term "autism" is even older. The word was first coined by Swiss psychiatrist Eugen Bleuler in 1911. He used this variation on the Old Greek word "autos" to describe (schizophrenic?) people who lived enclosed in their own world [21]. About 30 years later, two Austrian psychoanalysts independently followed in his footsteps, Leo Kanner used the word autism as a defect in relating to other people and a preoccupation [22], while Hans Asperger characterized his "little professors", the talented children who lived in a highly individualized and intellectual world [23]. This view of a world of one's own is recognized by many autistic persons. In their definition of autism, the British National Autism Society writes that it "affects how a person communicates with and relates to other people, and how they experience the world around them." Autistic persons are often referred to as Other, which has led to media representations of them as being non-human (alien, robot, computer), puzzles (many organizations about autism have puzzle pieces in their logo's) and "spatially distant" (from another planet, being locked up, traveling through / breaking through autism etc.). Because they often have troubles fitting in, the main struggles for the autistic frequently lie in making appropriate contact with the outside world. A desire which is often hard to fulfill. Or as Disney's little mermaid sings "Wish I could be – part of your world". [24]

On her website, Carly writes: "I am not able to talk out of my mouth, however I have found another way to communicate by spelling on my computer. (and yes that is me typing on the computer by myself)" [25]. With her computer, Carly crosses the boundaries of her autism, making her more 'human,' as Carly Fleischmann's sister remarks [26] (p172). As a cyborg, she even works as a journalist, writing books and articles, and interviewing people on her own YouTube Channel: Speechless with Carly Fleischmann. Of course, this public voice makes her very powerful. Carly openly writes about her desires when growing up. Not only did she crave friendships, but she also took pleasure in flirting with boys [26]. For the nonverbal woman with autism, or: mermaid, those desires became reality with the help of robotics, leading her father to note: "Unable to feel or share emotions? Nothing could be further from the truth" [26] (p277). In a way, with her shift from mermaid to cyborg, robotics empowered Carly by giving her access to new forms of love. It fulfilled her desires in terms of human contact and communication. The same goes for Temple Grandin (1947), an autistic American professor of animal science at Colorado State University. While she was attending college, Temple invented a therapeutic, stress-relieving device, now known as the "hug machine". This hug machine, also described as a hug box, a squeeze machine, or a squeeze box, is a deep-pressure device designed to calm hypersensitive persons, usually individuals with autism spectrum disorders [27]. People with ASD often experience problems in both social interactions and sensitivity to sensory stimulation, often making it uncomfortable or impractical for them to turn to other human beings for comfort. The hug machine can help them, so that by becoming more cyborg, there become less stressed as well as less dependent on other people. Just as Carly, Temple thus uses robotics to empower herself.

## 2.2. *Technè in sexual practices: BDSM and kink*

The second case study is the person with BDSM-orientated desires. As a research assistant for Manuela Alizadeh, I (Martine) interviewed many "kinky" people about their experiences of pain. What struck me is that many participants said that they used pain as a way to establish contact, just like the little mermaid used it, when she walked on knives and had her tongue cut off. Pain is often regarded to as a sublime event that cannot be represented or mediated by technè (see for example Elaine Scarry on "The Boy in Pain"), but as a way to connect to (an) other human being(s), pain becomes both the medium and the message. For this desire, the respondents call themselves kinky. However, what exactly is "kinky"? Miriam-Webster gives "1: closely twisted or curled, 2: relating to, having, or appealing to unconventional tastes especially in sex; also: sexually deviant 3: outlandish, far-out." of which we obviously need the second one. However, this strikes me as being a very external and functional definition. What does it mean for a person to be kinky? That he or she has sexually loaded desires that are separate from the prevailing norm, but that one longs to see satisfied for a sense of happiness and/or meaning. Thus, setting the kinky person apart as an outsider, a misfit in the usual

standard. One respondent said that she felt like a “creep”, because “pain is healing for me. Addictive. A whirl in which I feel stronger.” However, there is nothing creepy about this hormonal effect, in the contrary, this has been known for a long time. There are Japanese traditions in which monks slap their pupils, not to punish them, but to deliver the surge of adrenaline that comes with such a pain stimulus and can help in concentration and focus. Thus, it is the social context that makes kinky people “other”.

Under the DSM-5, sexual sadism and sexual masochism are included as paraphilia, in the category “algolagnistic disorders” – derived from the Greek words *algos* (pain) and *lagneia* (lust). These two conditions characterized by “abnormal” sexual desires are part of the spectrum of BDSM. BDSM is defined as sexual behavior in which pleasure is experienced by pain and this creates a psychological or sexual satisfaction [28]. The abbreviation BDSM refers to three predominant concepts: Bondage and Discipline (B&D), Dominance and Submission (D&S), and Sadism and Masochism (S&M). While these concepts are related to each other, every individual will make a choice between them individually, or a combination of them based on their personal preference, to integrate them into their sexual activities [29]. Thus, a person can play a dominant role, a submissive role or a switch role depending on the occasion [30]. The most common activities within BDSM include role-playing, bondage, fetish, and spanking [31]. Several studies indicate the number of people participating in BDSM. A study by Masters, Johnson and Kolodny shows that about 10 percent of the North American population regularly participates in BDSM [30]. Kolmes, Stock and Moser conclude that fourteen percent of men and eleven percent of women participate in any form of BDSM [28]. In other research, 50 percent of the respondents indicated to experience sexual excitement with biting [32]. Additionally, about 65 percent of the respondents fantasized about being tied up and 62 percent fantasized about tying up their partner [33]. Despite these large numbers, BDSM is still associated with a social stigma. It is often thought that BDSM participants are psychologically unhealthy and participating in BDSM is often seen as perverse [34–36]. Due to this stigma, respondents often kept their desires to themselves and away from public spheres and places.

The BDSM scene is a versatile community consisting of many different preferences, roles, activities, and practices. Nevertheless, we can focus on the position of non-human bodies (“external prostheses”) in the different practices that consist BDSM and kink practices (e.g., strap-on dildos, whips, chains, virtual reality Healslut or vacuum beds). For instance, a practice known as pegging (a person penetrates another person’s anus with a strap-on dildo) involves a human-technè interaction to increase pleasure during sexual practices. While an obvious end could be enhancing sexual pleasure, pegging is organized by different orientations towards more specific ends such as domination, stimulation of male genitalia, increasing intimacy, and/or exploring sexual boundaries. These ends are often manifested in the practice itself as a range of moods, emotions, and embodied experiences [37]. The strap-on dildo plays an important role in facilitating the practice of pegging as facilitator of multiple potential sexual doings and sayings.

Pegging is often seen as a collaboration between people and technologies, but we understand this practice as a fusion of technology and human beings to create a more-than-human body (The notion of the more-than-human is a perpetuation of an Enlightenment ideal, that found new uses within the field of post-humanity), or bodies, and experience(s). The strap-on dildo, in all its different forms and shapes, is not necessarily a substitute of a human penis but an extra genderless bodily option for the one to wear the strap on, which opens up possibilities for new doings, to meet different ends. This extra option is not only there for female on male use, but also for female on female, male on female, and male on male use. Notions to gender performances are not always made by practitioners of sexual practices which include the use of strap-on dildo’s (irrespective of the genders involved); A more practical interpretation based upon the use of a strap-on dildo as a practice consisting of specific doings such as carrying a harness, connecting the dildo(s)/vibrator(s), using lubricants, etcetera, is primarily dedicated to enhance physical and psychological sexual, and possibly relationship, satisfaction by creating atmospheres in which sexual preferences are practiced and experienced. We should not forget

the importance of the senses as it does not all come back to functionality but also to the looks, sounds, smell, and texture of both the technological addition and the more-than-human entity (e.g., [38]).

The strap-on dildo is just one example of a fusion of technology and human beings to intensify sexual practices and create more powerful and intense embodied experiences. Use of technology increases the power, capacities, and capabilities of the direct user, for instance in the flogging practice. In this practice a whip fuses with its user, both physical and psychological, to create a more dominant and powerful human being who is able to give more pain and pleasure to the submissive partner(s). Nevertheless, we prefer to speak of creating more powerful and intense embodied experiences and practices instead of speaking of powerful people as technology could also help to restrain someone and render another more powerful such as the use of a leather harness in Bondage and D/s play: The direct user of the harness is constrained whereas it enhances the power and dominance of someone else or others.

Technology is already widely used in sexual practices, sometimes because someone is not able to perform certain practices (empowering powerless mermaids to become powerful cyborgs) but more often to meet other ends. This fusion of technology and human beings in sexual practices creates more effective (read: in meeting certain ends) and powerful sexual practices, and thus, embodied experiences for the direct and indirect users. This does, however, not mean that the mechanisms behind the mermaid are irrelevant here. In essence, incorporating technè requires ideas about, and experiences of, misfits, people who fit in, and how people can fit or function better in society.

### 3. Reflection

As Verbeek observes “technological development has reached a stage in which technology has started to interfere explicitly with the nature of human beings” [39] (p. 394). Our focus here is on two theoretical levels. Firstly, how cyborgs are helpful to further merge rationality, the physical body, mind, embodiment, and skills. Mermaids are an example of how identities are shaped and reshaped by materialities as well as by cultural fictions and personal characteristics. Secondly, we focus on how intimate and sexual practices could potentially be reshaped by technological developments. Instead of looking at future developments, we explored current use of technè in intimate and sexual practices. Different approaches can be used to better understand the interaction between human bodies and non-human bodies, in particular theories which fit the relational approaches. Examples are actor-network theories [40,41], more-than-representational theories [42,43], and theories of practice [37,44,45]. One of the main differences between practice theories on the one hand and actor-network theory and more-than-representational theories on the other hand, is the positioning of either practices (theories of practice) or arrangements of bodies (ANT and more-than-representational theories) as building blocks of social life and social order [45]. People position themselves and create meaning by participating in particular practices, including sexual and intimate practices.

Practices not only constitute social life and impact how individuals position themselves in relation to the social world, participating in specific practices also impacts how people experience their lives. Schatzki rejects a body versus mind (or embodiment versus rationality) divide and contends that the human body is the manifold of biological conditions and conditions of life (i.e., body/mind). The former refers to one’s physical state of being and the latter to one’s being in the world (*Zustände*). One’s being in the world is for a small part natural but foremost the result of social learning and training; conditions of life are “a state of affairs that, in particular circumstances, consists in, is expressed by, particular bodily activities” [37] (p. 34). In other words, how things stand, including in relation to the wider social world, and are going. The emphasis on body/mind and bodies as carriers of practices emphasizes the importance of the human body (including mind) and also raises questions about who is acceptable *and* who is acceptable or correct enough to properly participate in our practices? Being a mermaid might be a significant burden for humans to participate in practices and, at the same, by not participating in practices people might take up mermaid positions as misfits

in our society. For instance, the impossibility of the Little Mermaid to connect with human beings results in non-participation and non-acceptance.

While practice theories focus on human bodies as constituting society alone, it has been recognized that social ideologies, including theories of practice, “treated the social as a domain of human affairs alone” [46] (p. 104) and thus missing the contribution of nonhuman bodies to our contemporary social life. Of course, it would be wrong to ignore how technè can alter the biological conditions of human bodies and what this means for participating in practices and experiencing life. Alteration of biological conditions can happen in multiple ways such as (1) repairing something that is missing and (2) creating a more-than-human body. The former focuses on the mermaids in our society, i.e., how misfits can be corrected to having more acceptable biological conditions. The latter is not specifically focused on mermaids but follows the same logic: to make more acceptable or, perhaps, more correct and functioning human beings. We expect that technè has the potential to increase the number of possible doings and sayings, and enables participation in more practices for “normal” human beings and thus positioning oneself, and being positioned, as a more accepted or acceptable human being. As such, by altering the biological conditions, one can increase one’s potential to relate and participate.

This does not mean, however, that cyborgization automatically leads to creating more acceptable humans or more powerful humans. An important question is whether people have access to technology, are capable of melding with technology, or want to use technology. Not incorporating technè in one’s life and everyday practices—for reasons of access, skill, principles, stances, attitudes, and more—will result in less advantageous biological conditions and thus constraints regarding participating in different practices (e.g., [47]). Ultimately, this may result in creating new mermaids or misfits in a society which tries to become better or, at least, create more acceptable human beings.

Nevertheless, the question remains how nonhuman bodies or entities contribute to our practices, or how these meld with our practices. Instead of only focusing on bodily doings and sayings as constituents of practices, we need to think about how to incorporate nonhuman bodies in co-creating and sustaining practices. In fact, how can we include technè in our practical understanding of intimate and sexual practices knowing that practices are primarily habitual? Reckwitz contends that (1) non-human bodies, or things, are necessary components of many practices and (2) that practices often consist of routinized relating between humans (body/mind) and things [47] (A more recent viewpoint is that non-human bodies not only mediate practices but also actively constitute practices. Inspiration can be drawn from, amongst others, actor-network theory). In other words, practices are materially interwoven, or materially mediated, arrays of activities [45,46]. More relevantly, however, Reckwitz rightly argues that “carrying out a practice very often means using *particular* things in a certain way” (*emphasis* ours) [47] (p. 252). Which things are used and how are they used in sexual and intimate practices? And is the use of technè acceptable or correct within these intimate and sexual practices? In other words, do people accept technè as part of our intimate and sex lives? For instance, Dutch goalkeeper Stefan Postma (ex-Aston Villa and Wolverhampton Wanderers) was involved in a “sex scandal” when his ex-girlfriend leaked a private video in which he was penetrated by her (using a strap-on dildo); a scandal with far-reaching consequences as he was constantly reminded of this video during the rest of his career. At the same time, pegging might be more accepted in certain subgroups of our society such as the BDSM scene. Temple Grandin’s hug machine is now used in different therapies to reduce stress and anxiety.

The two above case studies have shown the large potential of existing technè for our sexual and intimate practices and how the hug machine and strap-on dildo have become part of our practices. We are convinced that a hug machine and a strap-on dildo contribute to our social lives and our intimate and sexual practices by being fused with them (or part of them); it could help, in particular in the case of the hug machine, to create more acceptable doings and saying for people who are considered as misfits. While we do not believe that technè is exclusively meant to make the misfits fit in our society, we understand the potential of technè to reshape our practices, even create new practices, or increase the possibilities for people to participate in more practice; and, thus, provide new opportunities for

people to position themselves in relation to the social world. Here we need to focus on how people make use of technè—people use things in particular ways—as this manifests people’s understanding of arrangements and practices, and orientations towards what matters and how things stand.

#### 4. Conclusions

What is the impact of the cyborgization on “mermaids” —people who are considered as mitfits—in our contemporary society? As the examples of Carly Fleischmann and Temple Grandin show, people with ASD are able to participate in more practices and be considered less ‘other’ by melding with technè and thus becoming cyborgian creatures. This too is the case for people with BDSM-orientated desires, as the example of pegging shows. Thus, we see robotics as an opportunity to fulfill dreams (including sexual lusts) in situations where it would be biologically difficult or, sometimes, impossible. In the words of Daniel Levy, name giver of this conference: “Many who would otherwise have become social misfits, social outcasts, or even worse will instead be better-balanced human beings” [9] (p. 304). With the image of the cyborg mermaid, the unacceptable can now be made acceptable. The ability to manufacture change (“manufacturability”, malleability and/or manipulation) in the mermaid can thus be pulled further from the Internet and put in physical forms. This way, robotics can add a valuable contribution to our love lives by making it both better and more diverse. Discussions on teledildonics [48], however, show that changes to our love lives require time before being understood as acceptable additions, or, preferably, improvements to our biological conditions and our sexual and intimate practices.

When we avoid the human-technology divide and bring forward a dialectic and inclusive approach to human, more-than-human (or semi-human or superhuman), and non-human bodies, we arrive at a future-now as described by Deleuze and Guattari: “There is no such thing as either man or nature now, only a process that produces the one within the other and couples the machines together. Producing-machines, desiring machines everywhere, schizophrenic machines, all of species life: the self and the non-self, outside and inside, no longer have any meaning whatsoever” [49]. As our paper shows, by incorporating robotics in human sex and love lives, powerless mermaids can become powerful cyborgs.

**Acknowledgments:** We would like to thank the two reviewers for their valuable and critical comments which helped us to restructure our argumentation. Secondly, we are grateful to the three reviewers of the Second International Congress of Love and Sex with Robots for their valuable feedback on our presentation. Finally, discussions with participants of the aforementioned congress helped to become more acquainted with discussions on cyborgs and cyborgization

**Author Contributions:** Martine Mussies and Emiel Maliepaard both wrote the paper and conducted literature reviews. Additionally, Martine presented our paper at the Second International Congress of Love and Sex with Robots (19-20 December 2016 at Goldsmith University, London).

**Conflicts of Interest:** The authors declare no conflict of interest.

#### References

1. Poe, E.A. *The Man That Was Used Up*. Available online: <http://librivox.org/the-works-of-edgar-allan-poe-raven-edition-volume-4-by-edgar-allan-poe/> (accessed on 1 January 2017).
2. Clynes, M.E.; Kline, N.S. *Cyborgs and Space*. Available online: <http://web.mit.edu/digitalapollo/Documents/Chapter1/cyborgs.pdf> (accessed on 1 January 2017).
3. Åsberg, C. Het lichaam als strijdtoneel: De cyborg en feministische visies op de biologie. In *Gender in Media, Kunst en Cultuur*; Buikema, R., Van der Tuin, I., Eds.; Coutinho: Bussum, The Netherlands, 2007; pp. 53–74.
4. Haraway, D. *Simians, Cyborgs, and Women: The Reinvention of Nature*; Routledge: London, UK, 1991.
5. Haraway, D. The promises of monsters: A regenerative politics for inappropriate/d others. In *Cultural Studies*; Grossberg, L., Nelson, C., Treichler, P.A., Eds.; Routledge: New York, NY, USA, 1992; pp. 295–337.
6. Kakoudaki, D. *Anatomy of a Robot: Literature, Cinema, and the Cultural Work of Artificial People*; Rutgers University Press: New Brunswick, NJ, USA, 2014.

7. Valente, J.M. Cyborgization: Deaf education for young children in the cochlear implantation era. *Qual. Inq.* **2011**, *17*, 639–652. [CrossRef]
8. Kincheloe, P.J. Do Androids Dream of Electric Speech? The Construction of Cochlear Implant Identity on American Television and the “New Deaf Cyborg”. Available online: <http://journal.mediaculture.org.au/index.php/mcjournal/article/viewArticle/254> (accessed on 22 June 2015).
9. Levy, D. *Love and Sex with Robots*; Harper Perennial: London, UK, 2007.
10. NOS. In de Toekomst Beschouwen We Seksrobots als Persoonlijkheden. Available online: <http://nos.nl/op3/artikel/2128895-in-de-toekomst-beschouwen-we-seksrobots-als-persoonlijkheden.html> (accessed on 1 January 2017).
11. Bhabha, H.K. *The Location of Culture*; Routledge: London, UK, 1994.
12. De Martelaere, P. Een Verlangen naar Ontroostbaarheid. Available online: [http://www.dbnl.org/tekst/mart003verl01\\_01/mart003verl01\\_01.pdf](http://www.dbnl.org/tekst/mart003verl01_01/mart003verl01_01.pdf) (accessed on 1 January 2017).
13. Andersen, H.C. *The Little Mermaid*. (1836) English Translation: H. P. Paull (1872). Available online: [http://hca.gilead.org.il/li\\_merma.html](http://hca.gilead.org.il/li_merma.html) (accessed on 1 January 2017).
14. Garland-Thomas, R. Misfits: A feminist materialist disability concept. In *Rethinking Disability: World Perspectives in Culture and Society*; Devlieger, P., Miranda-Galarza, B., Brown, S.E., Eds.; Garant Uitgevers: Antwerpen, Belgium, 2016.
15. Keller, H. The World I Live in. Available online: <https://archive.org/details/worldilivein00kellgoog> (accessed on 1 January 2017).
16. Short, S. *Misfit Sisters: Screen Horror as Female Rites of Passage*; Palgrave Macmillan: Basingstoke, UK, 2006.
17. Van Gennep, A. *The Rites of Passage. Routledge Library Editions Anthropology and Ethnography*; Psychology Press: Hove, UK, 1977.
18. Yates, A. Can Disabled Athletes Outcompete Able-Bodied Athletes? Available online: <https://www.theguardian.com/sport/2016/sep/08/can-disabled-athletes-outcompete-able-bodied-athletes> (accessed on 1 January 2017).
19. Van der Palen, T.A. *Cyborg Autobiography: Autism & the Posthuman*. Available online: <https://universiteitutrecht.academia.edu/TeunievanderPalen> (accessed on 1 January 2017).
20. Ebben, H. In Constant Encounter with One’s Environment: Presenting Counter-Metaphors in the Study of the Discourse of Autism and Negotiations of Space in Literature and Visual Culture. Available online: <http://theses.uibn.ru.nl/bitstream/handle/123456789/624/18--08--31%20Ebben%20Thesis.pdf?sequence=1> (accessed on 1 January 2017).
21. Bleuler, E. *Dementia Praecox, Oder Gruppe der Schizophrenien*; Leipzig: Saxony, Germany, 1911.
22. Kanner, L. Autistic Disturbances of Affective Contact. Available online: <https://simonsfoundation.s3.amazonaws.com/share/071207-leo-kanner-autistic-affective-contact.pdf> (accessed on 1 January 2017).
23. Asperger, H. Die “Autistischen Psychopathen” im Kindesalter. Available online: [http://www.autismus-biberach.com/Asperger\\_Hans-\\_Autistischen\\_Psychopathen.pdf](http://www.autismus-biberach.com/Asperger_Hans-_Autistischen_Psychopathen.pdf) (accessed on 1 January 2017).
24. Menken, A.; Ashman, H. *Part of Your World*; Walt Disney Studios Home Entertainment: Burbank, CA, USA, 2013.
25. Fleischmann, C. Carly’s Voice. Available online: <http://carlysvoice.com/home/> (accessed on 1 January 2017).
26. Fleischmann, A.; Fleischmann, C. *Carly’s Voice: Breaking through Autism*; Touchstone: New York, NY, USA, 2012.
27. Grandin, T. Calming Effects of Deep Touch Pressure in Patients with Autistic Disorder, College Students, and Animals. Available online: <http://www.grandin.com/inc/squeeze.html> (accessed on 1 January 2017).
28. Kolmes, K.; Stock, W.; Moser, C. Investigating bias in psychotherapy with BDSM clients. *J. Homosex.* **2006**, *50*, 301–324. [CrossRef] [PubMed]
29. Haymore, C. Sadomasochism: The Pleasure of Pain. *Undergrad. J. Psychol.* **2002**, *15*, 50–56.
30. Wismeijer, A.J.; Van Assen, A.L.M. Psychological characteristics of BDSM practitioners. *J. Sex. Med.* **2013**, *10*, 1943–1952. [CrossRef] [PubMed]
31. Stockwell, F.M.; Walker, D.J.; Eshleman, J.W. Measures of implicit and explicit attitudes toward mainstream and BDSM sexual terms using the IRAP and questionnaire with BDSM/fetish and student participants. *Psychol. Rec.* **2010**, *60*, 307–324.

32. Masters, W.; Johnson, V.; Kolodny, R. *Human Sexuality*, 2nd ed.; Little, Brown, and Company: Boston, MA, USA, 1995.
33. Renaud, C.A.; Byers, E.S. Exploring the frequency, diversity, and context of university students' positive and negative sexual cognitions. *Can. J. Hum. Sex.* **1999**, *8*, 17–30.
34. Bezreh, T.; Weinber, T.S.; Edgar, T. BDSM Disclosure and stigma management: Identifying opportunities for sex education. *Am. J. Sex. Educ.* **2012**, *7*, 37–61. [[CrossRef](#)] [[PubMed](#)]
35. Bourdage, J.S.; Lee, K.; Ashton, M.C.; Perry, A. Big Five and HEXACO model personality correlates of sexuality. *Personal. Differ.* **2005**, *43*, 1506–1516. [[CrossRef](#)]
36. Gosselin, C.; Wilson, G.D. *Sexual Variations: Fetishism, Sadomasochism, and Transvestism*; Simon & Schuster: New York, NY, USA, 1980.
37. Schatzki, T.R. *Social Practices: A Wittgensteinian Approach to Human Activity and the Social*, 4th ed.; Cambridge University Press: Cambridge, UK, 2008.
38. Brown, G. Ceramics, clothing and other bodies: Affective geographies of homoerotic cruising encounters. *Soc. Cult. Geogr.* **2008**, *9*, 915–932. [[CrossRef](#)]
39. Verbeek, P. Cyborg intentionality: Rethinking the phenomenology of human-technology relations. *Phenomenol. Cognit. Sci.* **2008**, *7*, 387–395. [[CrossRef](#)]
40. Latour, B. *Reassembling the Social: An Introduction to Actor-Network Theory*; Oxford University Press: Oxford, UK, 2005.
41. Murdoch, J. Inhuman/nonhuman/human: Actor-network theory and the prospects for a nondualistic and symmetrical perspective on nature and society. *Environ. Plan. D Soc. Space* **1997**, *15*, 731–756. [[CrossRef](#)]
42. Thrift, N. *Spatial Formations*; SAGE: Thousand Oaks, CA, USA, 1996.
43. Thrift, N. *Non-Representational Theory*; Routledge: London, UK, 2007.
44. Bourdieu, P. *Outline of a Social Theory of Practice (Translation Richard Nice)*; Cambridge University Press: Cambridge, UK, 1977.
45. Schatzki, T.R. *The Site of the Social: A Philosophical Account of the Constitution of Social Life and Change*; Pennsylvania State University Press: University Park, PA, USA, 2002.
46. Schatzki, T.R. Wittgenstein and the social context of an individual life. *Hist. Hum. Sci.* **2000**, *13*, 93–104. [[CrossRef](#)]
47. Reckwitz, A. Towards a theory of practice: A development in culturalist theorizing. *Eur. J. Soc. Theory* **2002**, *5*, 243–263. [[CrossRef](#)]
48. McCain, C. Let's Get Digital. 2016. Available online: <https://www.1843magazine.com/design/the-daily/lets-get-digital> (accessed on 1 January 2017).
49. Deleuze, G.; Guattari, F. *Capitalisme et Schizophrénie 1: L'Anti-Oedipe*; Editions du Minuit: Paris, France, 1972.



© 2017 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).