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HATSUNE MIKU:
WHOSE VOICE, WHOSE BODY?[1]

Abstract: This paper focuses on certain aspects of the Hatsune Miku phenomenon, a highly popular Vocaloid character from Japan. Hatsune Miku began her "life" as a software for vocal synthesis released by Crypton Future Media Inc., and has, since her first "birthday", become a virtual pop star. Despite being a fictional character, Miku takes on many of the traits a human has. She exists in a realm between human and artificial, mass media and personal space, between real and fantastic. This paper will discuss some basic information about Hatsune Miku and her large fan base, the issues of gender performativity and materiality of the body and voice, as well as the euphoric response of fans known as *moe*.

Keywords: Hatsune Miku, Vocaloid, *moe*, gender performativity, voice synthesis, materiality

Introduction

Hatsune Miku is, to put it vaguely, many things. She is a program for singing voice synthesis, developed in 2007 by Crypton Future Media using Yamaha's Vocaloid software. Hatsune Miku is a Japanese virtual idol (Guga 2015), a pop star whose official image was created by manga artist Kei (Hasse Jørgensen, Vitting-Seerup and Wallevik 2017), but also the result of the imagination and affective labor (Hasse Jørgensen, Vitting-Seerup, & Wallevik, 2017, 9) of millions of fans, an object of desire, a simulacrum. She is, essentially, a phenomenon that allows us to view the importance of technology and media in our contemporary societies. Also, she is a

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"she" in as much as her visual identity and her voice corresponds to certain gender norms we perceive as female or feminine. Given the fact that she is "not real" – as in, she is not a biological organism – there is no material body that *is* Hatsune Miku, despite this she is immensely popular, especially in Japan, so naturally the Vocaloid attracted the attention of academics. A number of academic studies were dedicated to, among other things, viewing her as a "body without organs" according to the philosophy of Deleuze and Guattari (Annett 2015; Guga 2015), focusing on the importance of fans and the audiences in creating Miku (Hasse Jørgensen, Vitting-Seerup and Wallevik 2017; Le 2013), and on her many virtual qualities (Lam 2016).

In the text that follows I intend to focus on three aspects of this phenomenon that are apparent, but whose connection and intersection are worth examining: gender, music and voice. First and foremost, Hatsune Miku is a voice, or rather, she is a Vocaloid, whose developers "digitized separable and transportable fragments of recorded voice and integrated them into a singer library" (Lam 2016, 1109–1110). She is also a software for making music and an animated female character popular with hundreds of thousands of fans. The fictional character that is Hatsune Miku does not exist if she doesn't sing, there is no Hatsune Miku without the voice. In other words, she is represented with a body, although it is not a biological body, and she has a voice that comes from *another place*, being a "nonorganic embodiment of an organic subjectivity" (Lam 2016, 1114). What we see and hear when we experience Hatsune Miku is a performance of gender – as Judith Butler understands it – and voice is an important part of that performance, happening without any explicit biological body shaping the performance and, yet, simultaneously being shaped by it. In this sense, I would like to shed light on who (or what?) is shaping her gender performance – having in mind the context of the Japanese music industry, the popularity of Vocaloids, and admiration for fictional characters in fan culture and so on. This begs the question of whose gender and what kind of gender is being performed by Hatsune Miku?

What/Who is Hatsune Miku: The Facts

The "life" of Hatsune Miku began in 2007 when she was officially released by Crypton Future Media. The name, roughly translated to English means "the first sound of the future," and it refers to a Vocaloid software voicebank that offers users the possibility of creating music for a singing voice without requiring access to a "live" singer. Miku uses Yamaha Corporation's Vocaloid 2, Vocaloid 3, and Vocaloid 4 singing synthesizing technologies, as well as Crypton Future Media's Piapro Studio, and a singing synthesizer VSTi Plugin. Other than being a voice synthesis software, she is also a fantasy character that has become something of a trademark for the software itself.

Figure 1: Official Hatsune Miku Character

Her voice was created based on the voice of Japanese actress Saki Fujita (藤田 咲), so it originated from a "live" person. The voice samples recorded by Fujita underwent substantial modifications in order to be turned into samples which can, in turn, be used to create the singing voice of Hatsune Miku:

> To develop a human-like singing voice for Miku, the Vocaloid developers digitized separable and transportable fragments of recorded voice and integrated them into a singer library. In the transmission of these fragments to Miku's voice, they were melodically modified and integrated with Miku's bodily expressions. Human voices are decomposed into binary codes and reassembled into the vocals of Hatsune Miku to mimic the naturalness of real human voices. The developers of the singing synthesis technology aim to generate the singing voice that imitates a human singer and to provide what human ones cannot do (Lam 2016, 1109–1110).

Describing the very begning of a Vocaloid's life, Daniel Black writes:

> Once extracted from the human body, this raw material can then be used to create entirely new performances independently of the body from which it was originally collected. The words and expression are provided by the owner of the computer software, who turns the generic, mass-produced raw material of the voice to whatever end he or she desires (quoted after Young 2015, 77).

After this initial modification, each software user has the opportunity to further change and adapt the voice bank sample to fit their own needs and goals as well as to match their own vision of Miku. "Basic parameters such as pitch and note length can be edited, while users can select different vocal colourings such as 'soft', 'vivid', 'sweet', 'light', and 'dark' to match the genre or mood of the song" (Prior 2018, 500). It is noteworthy that the appearance of another software that – like the Vocaloid – offers the possibility of synthesizing the singing voice, named the UTAU, was first released in March 2008 by Ameya/Ayame (Le 2013, 4). UTAU helped promote Miku further, as UTAU is free to use. The availability of softwares, as well as the fact that Miku was licensed under the Creative Commons licence, resulted in tens of thousands of songs produced and uploaded to the official Crypton Future Media website, as well as to other video sharing platforms.

Not just a singing voice synthesizer, Hatsune Miku is also a virtual character, with specific looks, movements, and gestures that are synchronized to the music. The practice of "adding" a visual image to a Vocaloid is not a new concept in Japanese culture,[2] but it seems that none of the other characters created reached the level of popularity Hatsune Miku has achieved. Other than being a voice synthesis software, Hatsune Miku is also the result of imagination brought to life thanks to 3-D animation software like Miku Miku Dance, developed by Yu Higuchi in 2008 (Le 2013, 4), which enabled users to create videos that would accompany their music, featuring Miku. "Recognizing her advertising potential, Crypton Future Media created a record label to gather and promote consumer-generated Miku tunes," which furthered her "reach," making her ever more popular (Guga 2015, 37). Her official look is that of a skinny 16-year-old girl, with big eyes, turquoise hair tied up in long pigtails, long legs, a school uniform, and a number of gadgets and accessories on her arms and head. Her figure and poses are eroticized, even more than most "biological" pop stars are.

Another important aspect of the phenomenon of Hatsune Miku is the audience, or rather, the fan base. Given the fact that she "comes to life" thanks to the use of softwares, theoretically anyone can create, recreate, and reimagine Miku. So, she is as much a product of the fans as she is a product of Crypton Future Media, and her popularity is tightly linked to the very strong culture of user-created content in

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2 For example, there is an entire wikia database dedicated only to Vocaloids. See https://vocaloid.fandom.com/wiki/Vocaloid_Wiki.

Japan. Linh Le links her success to the so called *doujin* culture:

> The word "doujin" can simply be defined as self-published works that can be either original or derivative works in fields including literature, comics, software, and music (…) For Japanese pop culture, specifically for the manga and anime industries, doujin activities constitute an integral part.

In other words, collaborative works of fan communities sharing, appropriating, changing, and expanding on the artistic output of others, represents one feature of popular culture in Japan. It is no surprise, then, that the rising popularity of Hatsune Miku is often attributed to her "appearance" on the website niconico (formerly know as Nico Nico Douga / ニコニコ動画 *Niko Niko Dōga/*), dedicated to sharing videos, much like the popular western platform YouTube. Slightly different than YouTube, niconico is more like a social media platform, as it enables users to create videos in response to previously uploaded ones, create playlists based on different rankings, add comments to existing videos, change lyrics, add remixes to existing videos, and so on (Lam 2016, 1108). That is, it enables the existence of a large network of interconnected content, providing grounds for the flourishing of a "highly participatory cyber-culture" (Lam 2016, 1109). Thousands upon thousands of fans have, thus, been able to upload their own songs composed thanks to the Hatsune Miku software, accompanied by animated videos of Miku dancing, singing, and/or moving sensually to the rhythm of her music. The ever-growing community enabled the rise of a number of now-famous producers, composers, and song makers who became famous thanks to their creative use of the Hatsune Miku software. It would seem that "you cannot become rich by composing a song featuring Miku, but the brand of Hatsune Miku can make you famous enough for people to hire you" (Hasse Jørgensen, Vitting-Seerup and Wallevik 2017, 11). The importance of fan culture for Hatsune Miku will be further discussed later in the text, as we must consider their euphoric response to her, know in Japan as *moe*. For now, it is important to emphasize the fact that the phenomenon of Hatsune Miku blurred the line between producers and consumers, enabling the audience to create the very thing they intend to consume. And, "as a reward, participants are granted with a deeply personalized, satisfactory experience of disseminating parts of themselves through these artifacts they took part in making" (Guga 2015, 40).

Figure 2: Hatsune Miku fanart: *End of the day 2* by beanbeancurd (available on deviantart.com)

Theory: Gender Performance, Voice, *Moe*

In the previous section, I offered some key facts about Hatsune Miku that enable us to better understand this phenomenon, as well as her immense popularity among the Japanese people. From the very beginning, I have referred to Miku as "she", implying possibly that she is, in fact, a person, a being belonging to the female gender. Yet, at the same time, it is obvious that Hatsune Miku is a computer program – albeit a very complicated, multi-layered one. Nevertheless, she is a phenomenon (which is term used in lieu of a more precise one) that is artificial and, in a sense, "non-material", for example, she can't be touched or hugged as most living creatures can be. To use terminology adapted from Judith Butler, Hatsune Miku is an artificial creation that reiterates certain gender norms that make her recognizable as a female.

In her book *Bodies that Matter. On the discursive limits of "sex"* (Butler 2011), Judith Butler further explains her understanding of gender as a performative practice. "Performativity", she writes, "must be understood not as a singular or deliberate 'act,' but, rather, as the reiterative and citational practice by which discourse produces the effects that it names" (Butler 2011, xii). She goes on to add that performativity "is not (…) the act by which a subject brings into being what she/he names, but, rather, (…) that reiterative power of discourse to produce the phenomena that it regulates and constrains" (Butler 2011, xii). In other words, Butler claims that gendered subjects are being created "within the framework of different norms; in acts of gender performativity, individuals repeat, change or 'decline' to accept those norms, and by

doing so they become subjects" (Sabo 2015, 2). The collection of norms represent ideals – ideal bodies, ideal persons – that are not necessarily attainable and they themselves often change over time, but, they still represent an imagined ideal that we are "judged" against, and that governs the recognition of individuals as men or women (or rather, "normal" men and women) based on the degree to which we accept and cite the norms. Some of these (stereotypical) norms, when it comes to female gender for example, are "substantial," like heterosexuality or motherhood, some are "visual"– slender figure, long hair, big breasts, high heels, makeup – some are biological – having a uterus, ovaries, and so on – and some are related to personality traits – emotional, prone to tears, loves shopping, loves children, has natural caring abilities, and so on. Butler also emphasizes that gender performativity is not a conscious act, one cannot simply choose which gender they will be – it is just the repetition of norms that isn't (always) conscious, but which push us to accept some norms as "natural," almost as a "physical part" of our beings. One other important feature of gender performativity (elaborated in numerous publications, starting with *Gender Trouble*) is that it "happens" for others and that it is important for others to *recognize* us and accept us. It is also often defined "to the extent that one is not the other gender" (Butler 1999, 30). In other words, *the others* represent an important part of gender performativity. Butler further emphasizes the difference between concepts of gender *performance* and gender *performativity*: "the former presumes a subject, but the latter contests the very notion of the subject" (Butler 1996, 112). That is, performance implies that there is a subject – a person, an individual – following a script, so to speak, consciously repeating and interpreting it. On the other hand, performativity sheds light on a kind of "circulation" in which the subject is created by the norm it accepts and repeats, reaffirming that very norm time and again. The title of Butler's book, *Bodies that Matter*, introduces a kind of word play, derived from the two meanings of the word "matter": bodies that matter, as in, bodies that are important, and bodies that (are) matter, which implies that she focuses on the very materiality of bodies that are "produced" through different performative acts. In other words, she explores the way physical bodies, and more precisely, "sex" is constructed through performativity, wondering "how and why 'materiality' has become a sign of irreducibility, that is, how is it that the materiality of sex is understood as that which only bears cultural constructions and, therefore, cannot be a construction?" (Butler 2011, 4). In other words, she aims to question the "unquestionable" status of one's sex as a bodily trait that is "given by nature" and in a way, precedes gender. It exists "before" society and almost independently of it. In this sense, Hatsune Miku can be understood as a very good example of the way a body and its materiality are "artificially" constructed in the context of a capitalist, consumerist, technologically advanced society.[3] It has been noted many times that our bodies are influenced, formed, and of course exploited by capitalism. When

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3 The interest in the ways technology changes out bodies is not in any way new and has been the cornerstone of a number of theories regarding cyborgs, post-human condition, virtual reality and so on.

Butler speaks of the way bodies materialize through acts of norm repetition, she is speaking about how biology and anatomy are shaped by society and culture. Since Miku has no material body, this process is rendered more visible, as her unique materiality is, quite literally, created by members of society. And again, she only exists as a product for consumption, as a "thing" created to be sold and bought and what we see as Hatsune Miku is a direct result of desires, ideas and ideologies of her fans, as well as the ideologies of the corporation that created her official look. And that look shows many negative, female gender stereotypes that speak volumes to how traditional and conservative values are easily incorporated with technological advancements.

In formulating her own view of performativity, Butler leans on the concept of speech acts, formulated by Austin, and later expanded on by many authors, such as Searle, Fish, Derrida etc. Yet, as Annette Schlichter notes, despite the fact that she focuses much of her attention on language – she even used the example of Aretha Franklin's performance of Carole King's "You Make Me Feel (like a Natural Woman)" to explain how gender is defined through "the restriction of gender within that binary pair" (Butler 1999, 30) – she completely omits the examination of the importance of voice for gender performativity, formulating gender performativity as a mainly visual concept. As Schlichter notes, Butler's "theory of gender performativity and the consecutive deliberations about the matter of bodies do not account for voice as sound, nor do they acknowledge the mediation of vocal acts through sound technologies" (Schlichter 2011, 32). In her attempt to expand Butler's theory to allow for the inclusion of voice, Schlichter emphasizes the fact that voice "marks a passage from the inside of bodies to the exterior, and its materiality is rather delicate, even paradoxical" (Schlichter 2011, 33), agreeing with Jacques Lacan and Mladen Dolar in claiming that the voice is "an object that emerges from the body but is neither fully defined by matter nor completely beyond it" (Schlichter 2011, 33). As Miriama Young claims that, "defining the voice is a slippery project, and one that requires a circumnavigational approach – we may only ever speak around the voice in order to get at its essence" (Young 2015, 1). Voice is, in a way, a very intimate "product" of the body, it "attracts the listener to its materiality," offering different "levels of intimacy and immediacy" (Young 2015, 2). This intimacy is in many ways complicated by the voice being mediated – whether the voice itself is changed through use of technology or whether it's transmitted to the listener via a medium like telephone, radio, TV etc. – extending the "elaborate mechanism of the human voice (…) through interaction with electronic technology" (Young 2015, 5). As will be shown later in the text, the matter of voice, gender performativity, and materiality get further complicated when applied to Hatsune Miku, given that she sings, dances, and performs without actually having a material body. The fact that a fictional character performs gender – as well as music – isn't necessarily revolutionary or strange, especially in the 21st century. What is worth noting, though, is the way that Miku's fans see her and the ways in which – within the context of the Japanese capitalist, technologically

advanced society – she is treated both as a "real" human and an artificial entity from the realm of fantasy.

Japanese popular culture is booming with imaginary, animated characters that have a very unique and special place in lives of the Japanese people.[4] As was previously discussed, the fan base – people using the software, making videos, sharing, commenting, and changing them – greatly contributed to the rise of Hatsune Miku. Her immense popularity can also be attributed to the fact that "Vocaloids (…) bec(a) me part of a system of iconic anime–style characters known as *kyara*: image–beings that fans both idolize and consume" (Annett 2015, 164). In other words, she is part of a larger culture whose "members", in many different ways, consume and create their own imaginary, animated idols. Another feature of this culture that has attracted a lot of attention from psychologists as well as theoreticians, is the euphoric, almost hysterical response to a fantasy character, and the peculiar relationship people have with them, that is at the same time highly sexual, but also distant or detached.

This response is called *moe*, which is a "neologism used to describe a euphoric response to fantasy characters or representations of them…often associated with a young, media-savvy generation of *otaku*, or hardcore fans of anime, manga and videogames" as well as being "used by *fujoshi*, zealous female fans of *yaoi*, a genre of manga featuring male homosexual romance" (Galbraith 2009). Furthermore, *moe* is:

> primarily based on two-dimensional images but can also include objects that index fantasy or even people reduced to '*moe* characters' and approached as fantasy. Both *otaku* and *fujoshi* access *moe* in what they refer to as 'pure fantasy' (*junsui na fantajii*), or characters and relationships removed from context, emptied of depth and positioned outside reality (italics in original text) (Galbraith 2009).

In other words, it is precisely the fact that a character is "not real", that it is separated from any context and is completely fictional, that triggers the euphoric response in fans. This concept is primarily connected to the contemporary, technologically advanced yet strongly traditional Japanese society, in which people are mostly alienated from each other and in which human contact has become difficult to obtain. Honda Touru sees *moe* as a result of the fact that "in Japan today fulfillment as a human being can only be found inside one's own brain as a reaction to fantasy characters" (quoted after Galbraith 2009). In that sense, "a relationship with a mediated character or material representations of it is preferable to an interpersonal relationship" (Galbraith 2009). Another aspect of this "escape from reality" is that it challenges highly traditional gender norms for both men – with the imperative of working and earning money – and women – burdened with domestic work

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4 This is also evident, for example, in the fact that most cities/towns in Japan have their own, animated mascot that represent them, as well as in communities of manga and anime lovers, different dating games that feature animated characters as well as the popularity of other Vocaloids and so on (Galbraith 2009).

and childbirth. "*Moe* allows men to stop performing socially sanctioned masculinity and indulge femininity, which can be very soothing (*iyasareru*)" (Galbraith 2009). Another aspect of the male response to fictional characters is the fact that the characters are highly eroticized and sexualized teenage (or even pre-teen) girls. Thus, these images are highly problematic as they, essentially, introduce young girls into the realm of sexual fantasy. Yet some psychologists view this kind of sexuality as "a sexuality deliberately separated from everyday life" (quote after Galbraith 2009), arguing that it "depends on 'fantasy contexts' (*kyokou no kontekusuto*), or (…) the 'reality of *kyara*'" (Galbraith 2009). One possible reason for this attraction to girls is their innocence, the fact that they "do not know the world" and are thus "fetishized as pure" (Galbraith 2009). In other words, there is a strong obsession with youth, which is why the school uniform as "the fetishized signifier of innocent status and character" is a necessary accessory.[5] The sexualization of girls is a manifestation of the desire to own or acquire youth in a typically masculine way: by creating and "owning" girls in a sexual way, men are given the opportunity to reach for the innocence and purity they so desire.

Figure 3: Miku by Bayeuxman (available on deviantart.com)

In conclusion, when trying to understand the phenomenon of Hatsune Miku,

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5 This obsession with youth, as well as the need to detach oneself from reality has also resulted in the popularity of a character referred to as "little sister" in uniform, which enables the consumer to return to days of innocence and the time in which they could have – but didn't – enjoyed free love. This character, however "does not equate to actual incestuous desire", but can be understood "as first a longing for a time of youthful possibilities and hope (signified by the uniform) and second a desire for an uncompromising relationship not conditioned by society (the little sister)" (Galbraith 2009). Another interesting way to trigger *moe*, is to turn "cats, war machines, household appliances and even men of historical significance into beautiful little girls" (Galbraith 2009).

one can't lose sight of the fact that her popularity is also the result of the budding and normalized "attraction" of Japanese men to fictional, two-dimensional, "pure" characters who are detached from context but are, despite the crucial role that their "fakeness" plays, envisioned as "real," highly sexualized girls in school uniforms with distinctly human features. I would also argue that it is precisely this "detachment from reality" that defines not just the visual image of Hatsune Miku, but her voice and music as well. Namely, certain taboos and restrictions that are imposed on human relationships – due to the fact that human beings have emotions, can be hurt, and can be physically harmed in a number of ways – are not in play when one can design their own fantasy. In the following section, we will explore the idea that what Miku is and what her music and voice are, is thoroughly defined by the need to emphasize her artificial character, that is, to render very explicitly that *she is not a human being*.

Hatsune Miku's Body, Voice, and Music

All of the aforementioned qualities of Hatsune Miku become highly evident in situations when she is "removed" from the computer screens in her fans' homes, and put on stage in a live concert, accompanied by the "Magical Mirai" band. "The Magical Mirai (マジカルミライ), is a band that plays during live concert events featuring VOCALOID vocalists from the company Crypton Future Media, Inc." (Vocaloid fandom n.d.). There is an event that takes place around the birthday of Hatsune Miku. During these concerts, a playlist is selected from the most popular songs – some of them created by official Miku producers and songwriters – and the audience has a chance to experience Hatsune Miku "live," much like they would with a pop music diva made of flesh and blood. This is also an instance where, in the more traditional context of a rock concert, we can witness Miku's gender performance, and how it is tightly connected to her musical performance.

What we see on stage is an animated figure of Miku – initially she was shown on a screen and eventually she became a holographic image – in her school uniform enhanced by a futuristic-looking silver shirt and boots, moving and dancing to the rhythm of music and replicating the movements of human pop stars – running left and right on the stage, jumping, dancing, cupping her ear to hear the audience sing and overall, seemingly enjoying herself and "basking" in the love of her fans. Her image is utterly artificial and anatomically "impossible": for example, she has a tiny waist, very long legs and hands, and huge eyes. Her movements are also perfectly timed to the rhythm of music. In other words, it is obvious that she is not a representation of a "real" woman, she is a character that is obviously from the realm of fantasy. She repeats certain gender norms that can be understood as "female" but fails to conform to many others. While she has no physical body that is shaping gender performance and being shaped by it, there is a large group of bodies belonging to her creators and her fans, who decide how her gender performance will look. In

other words, there is no biological woman who Hatsune Miku was "modeled" after, but her "subjectivity" was created according to other men's fantasies, to make her hyper-sexualized but at the same time two-dimensional and artificial. In this sense, Miku falls in line with other female characters that are often labeled as cyber-punk – one notable example in the west is Lara Croft, although she "exists" only in the realm of computer games (Flanagan 2002) – that are "primarily created and represented by men" (Flanagan 2002, 425).[6]

This delicate play of artificial, fantastic, and "natural" becomes apparent when listening to Miku sing. Specifically, it is clear that her voice isn't completely artificial, there is a real woman who offered the base for what later became an artificial voice. Her performances can be said to offer a "machine's rendering of a disembodied, often omnipresent, 'God-like' ideal" (Young 2015, 9). When it comes to Vocaloids, they are often understood as programs that enable the composer to have a voice that *sounds* human, but which also has a "mechanical" or "artificial" sound. So, in case of Hatsune Miku, it is her voice, just as much as her image, that provides the two-dimensional, detached feeling that excites her fans so much. Writing about Vocaloids, Miriama Young states that,

> these machine voices are designed as 'ideal' specimens, absent of bodily residue or the necessary signs of existence. They do not gulp, splutter, nor need to breathe. The voice is rendered in a virtuosic – albeit normalised – idealisation. The machine, then and now, enables the realm of dreams and imagination to become realised objects of desire (Young 2015, 77).

Despite the fact that it is derived from a human voice, Hatsune Miku's voice sounds completely artificial, and it is impossible to mistake her voice for that of a human singer. It is high-pitched and "sweet," as if the voice of a little girl was synthetically modified, she pronounces lyrics quickly and without taking a breath, the melody she sings is virtuosic, with many jumps and a very wide range. In other words, the voice is treated and used like any other electronic instrument – which is perfectly logical, given the fact that it is completely computer-generated. She is a simulacrum (as defined by Baudrillard), a copy without an original, and she exists mainly in relation to her fan's fantasies and imagination. Her voice, however, has a special form of materiality, given that its origin is not a human body, but a computer program. As Nick Prior puts it, her voice exists "in a different kind of materiality, one composed of diffuse digital bits spread exponentially through the circuits of corporate and peer-to-peer media" (Prior 2018, 501). This materiality is, thus, conditioned by technology, and the mediated intimacy it provides to the listeners. Technology offers the fans the possibility to have Miku all to themselves, and to adapt her voice to fit their own imagination and desires, so the materiality of her voice changes according to the carnal desires of others.

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6 For more details on women's cyber-punk artifacts, see Flanagan 2002.

In other words, the entire phenomenon if Hatsune Miku – her appearance, the voice, the fan-made songs and videos, her live performances etc. – represents a kind of "assemblage" of different elements. As Nick Prior puts it,

> the terms 'virtual' and 'simulated' are only partially helpful here. 'Assemblage' is better at capturing how Miku's voice is a convergent result of various human and non-human forces: silicon and carbon, corporate and grassroots, algorithmical and fleshy, local and infra-structural (Prior 2018, 502).

This multi-layered aspect of Hatsune Miku is also, interestingly enough, explored in a song titled "The End of Hatsune Miku" by cosMo that has "entered the Hall of Legend; with over five million views, it is cosMo's most popular work and one of Miku's most popular songs" (vocaloid.fandom.wiki n.d.). One of the song's main features is the speed of the lyrics (around 240 BPM) which makes it virtually impossible for humans to sing, this, in turn, emphasizes Miku's perfection as a virtual idol and her fantastical features. Lyrics of the song are about the uninstallation of Miku, as she *realizes* that she is a "mere imitation of humans" and that she does not exist unless she sings. She cries and looks at the sky, but she keeps singing (Vocaloid Lyrics Wiki n.d.). In other words, this is a song dedicated to something resembling an existential crisis of a computer program – or maybe the existential crisis of a fan identifying himself with Miku? – where she knows that she should feel something in the moment before being metaphorically killed by her creator, but she, in fact, doesn't feel a thing (Vocaloid Lyrics Wiki n.d.). This song can also be said to perfectly describe how fans see Miku – she is viewed simultaneously as an artificial creation, but is at the same time approached from a very human, emotional, physical viewpoint, being a kind of artificial catalyst for (sexual) desire, love, euphoria, and excitement.

Conclusion

As was suggested throughout this text, Hatsune Miku can be understood as a symbol of contemporary (Japanese) societies, dominated and shaped by technology that is still not independent of human influence. She appears to be a virtual idol, a simulation, and a completely artificial creation, yet she is the result of the labor, imagination, and desires of biological, human organisms. Despite the fact that she herself does not have a biological "body", there are "bodies that matter", when it comes to Miku: bodies of the fans who create and develop her, the body and voice of the woman who initially recorded the samples, as well as the holographic or animated body of Hatsune Miku herself who, despite not being made of flesh and blood, still possesses a form of materiality that fans respond to. When it comes to the way her gender is performed, we can detect very strict, traditional norms being inscribed into her virtual body – she is the result of male desire, designed to produce moe in

male fans. Her voice is sweet and tender, her body young and highly sexualized, and most of all, she is obviously a fantasy character, she is devoid of any context, she doesn't have her own "story" and is she is, in that sense, two dimensional. She exists between realms of the carnal – as a result of sexual desire, affect, strong emotion of others – and what seems to be its complete opposite – as an animated character that can never truly exist as a biological organism, as a phenomenon obviously "fake" and un-real, a result of technology. She is a subject that emerges through performative processes that "she" has no control over. Hatsune Miku can also be understood as a rather extreme and quite literal example of how social norms govern one's gender construction and performance, showing, in a radical way, that even the body, a biological entity, can be socially constructed. Lastly, Hatsune Miku is obviously the result of a highly traditional, patriarchal, conservative society which imposes strict gender norms on its people, a society whose every aspect is dominated by capitalism and consumerism and defined by the imperative of technological advancement.

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HATSUNE MIKU: WHOSE VOICE, WHOSE BODY?
(Summary)

This article focuses on Hatsune Miku, a virtual idol and pop star from Japan. Miku was released in 2007 by Crypton Future Media Inc. as a voice synthesis software that uses Yamaha's Vocaloid technology. As is customary in Japan, the Vocaloid was also equipped with the fictional character of Hatsune Miku, a 16-year-old girl with a slender figure, tiny waist, long arms and legs, long turquoise hair in pigtails, and big blue-green eyes. The fictional character that is Hatsune Miku, does not exist if she doesn't sing, there is no Hatsune Miku without the voice. One feature that is very important for understanding this phenomenon, is the highly precipitative fan culture that enabled her popularity. Namely, despite the fact that her voice and image were created by Crypton Future Media Inc., her "life" continued thanks to thousands of fans who created music and videos with the software, and shared them via websites like niconico (https://www.nicovideo.jp/). Hatsune Miku is created by fans and is part of the flourishing *otaku* community of male fans who experience *moe*, a euphoric response, when seeing and hearing a fictional anime or manga character. In the *otaku* community, *moe* is achieved through the image of a fictional character that, to put is simply, has no personality, no story, and is presented as a highly sexualized and eroticized teenage girl, wearing the trademark school uniform. For a better understanding of Hatsune Miku, I turned to Judith Butler's ideas of gender performativity, especially given the fact that she, in her book *Bodies that Matter*, examines this phenomenon in connection to the materiality of the body. In case of Hatsune Miku, we cannot speak to a material body that was later turned into an animated character, yet there are different material bodies that define the performativity of her gender. For one, there is the ideal body of a schoolgirl that is fetishized by the male fans and created through an animation program, in addition to the body of the voice actress whose voice was recorded and sampled for modification in the Vocaloid software. Finally, despite the fact that Hatsune Miku doesn't have a body, her fans and creators do, and her gender and body are, in a way, a result of her fan's bodies and their own gender performativity that finds pleasure in creating and consuming fictional schoolgirls.