Green and gendered? Cultural perspectives on the road towards electric vehicles in Norway

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# Abstract

With Norway currently representing one of the few successful electric car markets in the world, our study provides early insights into the emerging electric vehicle culture. In this article, we argue that this culture challenges and modifies previous gendered constructions of cars as well as actual driving practices. When interviewing electric vehicle (EV) owners about the process of buying and owning an EV, we found stereotypical claims of feminine environmentalism and masculine fascination with technology. However, we also observed counter-narratives that destabilise such accounts, reframing the car in more hybrid terms. As a hybrid construction, the EV seems to appeal equally to both women and men, framing their enthusiasm within differently gendered narratives. We also found that owning and using EVs influenced driver identities and actual driving practices. Factors attracting EV users in Norway are many, extending beyond environmental concerns and financial savings. These insights bring crucial nuance to EV user representations and illustrate the significance of cultural inquiries in mobility transitions.

# Introduction

Electric vehicles (EVs) are currently positioned as a promising step on the road towards sustainable mobility (Hawkins, Singh, Majeau‐Bettez, & Strømman, 2013; Muneer et al., 2015; Richardson, 2013). In Norway, the majority of new cars sold are currently electric[[1]](#footnote-2), making the country a forerunner in transforming its mobility system from fossil fuel based to electricity based (Ryghaug & Skjølsvold, 2019). While the term EV also includes plug-in hybrid vehicles (PHEVs) and hybrid electric vehicles (HEVs), this article will mainly deal with battery electric vehicles (BEVs).

So far, there has been little effort towards understanding *electric* mobility cultures and the role of electric car users in the low carbon mobility transition. Our article is an attempt to fill this gap by investigating how EVs are domesticated in Norwegian households and how this domestication is gendered. Sovacool (2014) has called for the consideration of gender as a way to deepen and broaden energy research. Rezvani, Jansson, and Bodin (2015) have also stressed the need to investigate wholesale, unforced adoption of EVs in contrast to studies that consider only intentions to adopt or that involve test driving in limited, controlled settings. Given the presence of cars in most people’s everyday lives, it has also been argued there are too few studies of cars in a social scientific perspective (Michael, 2001; Miller, 2001; Urry, 2000). Our article is a response to these calls, focusing solely on how real users and owners domesticate their electric vehicles and investigating how these domestication processes are gendered in terms of practices as well as in how users produce meaning.

Phenomenological studies of the car have not previously employed gendered analysis. Instead, they have predominantly been investigating driving as a social and embodied practice, with a particular focus on the physical affordances and emotions of driving (Bull, 2001; Sheller, 2004; Sheller & Urry, 2000; Thrift, 2004; Urry, 2004). Within Science and Technology Studies (STS), the car has been studied as a sociotechnical construct (Kline & Pinch, 1996; Sørensen & Sørgaard, 1994) and as a driver-car or human-machine hybrid (Callon, 1986; Michael, 2001) inspired by the concepts of the cyborg (Haraway, 1991, 2004) and assemblage (Dant, 2004; Latour, 2005).

Studies of the car from a gender studies perspective are often conducted within an anthropological and cultural studies tradition. These studies have focused on the car as a cultural object instrumental in shaping particular, and often gendered, identities, practices and communities (Balkmar, 2012; Bengry-Howell & Griffin, 2007; Garvey, 2001; Maxwell, 2001; Mellström, 2004; Stotz, 2001). Such studies show how cars, as physical and cultural signifiers, are co-produced with particular masculinities and made “into subjects […] of a heterosexual, masculine, technical sociability and subjectivity“ (Mellström, 2004, p. 368). Such associations between cars and masculinities can also be found in studies on particular car focussed subcultures such as Amcar enthusiasts (Lamvik, 1996; O’Dell, 2001) and so-called ‘greasers’ (Balkmar & Joelsson, 2016). Feminist studies of technology have also argued that cars have a special place in modern male culture: that they contain masculine fantasies, identity and ideology as part of their symbolic and ideological makeup (Wajcman, 1991).

Within transport and urban studies, there is a vast literature on the car as a means of transportation and its role in the city and urban life. Here, the issue of automobility and environmental harm is salient, with some studies arguing that women prefer to employ more sustainable travel modes than men. Polk (2003, 2004), for instance, finds that Swedish women on average drive less, use more public transportation, travel more by foot, are more critical of automobile usage and more likely to associate cars with environmental harm. Similarly, Simićević, Milosavljević, and Djoric (2016) find that men drive more and longer distances, primarily for work, while women use cars less and use them predominantly for duties related to household and family (see also Miralles-Guasch, Melo, & Marquet, 2016; Rosenbloom, 2006; Vance & Iovanna, 2007). These findings largely hold true for the Norwegian context. Hjorthol (2001) finds that in Norway men are the primary car users in one-car households and that women have more positive attitudes towards public transportation. Further, Hjorthol (2008) notes that women are more likely to see the car as more of a practical device than men. In sum, women are considered more likely than men to adapt to a sustainable transportation system and to constitute positive change agents for a more sustainable transport sector (Kronsell, Smidfelt Rosqvist, & Winslott Hiselius, 2016; Polk, 2004).

Other studies nuance this perspective of cars and gender. Sørensen and Sørgaard (1994) find that the symbolical gendering of the car is complex and evolving as more and more women become car owners and drivers. The result is not a gender-free car as such, but, as increasing numbers of women buy and use cars, more women are expected to consciously express themselves through their cars. When considering autonomous cars as the next iteration of the personal vehicle, researchers further suggest that these will be gendered differently (Mellström & Balkmar, 2018; Redshaw, 2018; Weber & Kröger, 2018). A central point in this line of research is that driverless cars alone will probably not ‘de-gender’ the driver or ‘de-masculinise’ the car, but rather reconfigure gender and create “more fluid and pluralised forms of masculinity” (Weber & Kröger, 2018, p. 20).

Previous research on EVs has mainly focused on the dimension of sustainability. For instance, Axsen, TyreeHageman, and Lentz (2012) investigate how lifestyles and identities influence consumers’ decisions to adopt environmentally friendly technologies, finding a correlation between commitment to environmentalism and adoption of EVs. Scott, Hopkins, and Stephenson (2014) find that EV users modify their travel behaviour, opting for more efficient travel practices, possibly contributing to more sustainable future mobilities. Additionally, from a sociotechnical perspective, Ryghaug and Toftaker (2014) find that the adoption of EVs increases awareness of energy consumption, spurring pro-environmental values more generally. Studies of EV users in Norway find that EVs are domesticated as comfortable, environmentally friendly and easy to use. The practice of driving electric cars alters user habits by making transportation needs more noticeable, while also raising the technological competence of users and awareness of their energy consumption (Ingeborgrud & Ryghaug, 2017; Ryghaug & Toftaker, 2014).

Studies of EVs and gender are scarce. However, in her seminal work on the early history of cars, Virginia Scharff (1992) shows how both fossil-fuelled and early EVs were gendered in the early 20th Century. Victorian gender roles connected masculinity with car culture while the early version of EV’s were primarily marketed towards women: “To the well-bred woman – the Detroit Electric has a particular appeal. In it she can preserve her toilet immaculate, her coiffure intact. She can drive it with all desired privacy, yet safely”(Scharff, 1992, p. 38)*.* The Victorian notion of separate spheres extended further to the perception of differing engines: “[G]as cars were for men, electric cars were for women” (Scharff, 1992, p. 37).

To summarise, not many contemporary studies explores how gender plays out in the emerging EV culture. However, in the research of cars and gender reviewed here we see that cars, as cultural artefacts, have been associated with men and masculine subcultures. Moreover, this research has argued that women have different practices and preferences concerning cars because they are more likely to associate automobility with environmental harm. Thus, even when considering studies that moderate these findings somewhat, this suggests that cars are imbued not only with stereotypical gendered meanings, but also gendered practices when it comes to usage. In this article, we will analyse these gendered associations and how they pertain specifically to *electric* vehicles. We will explore how Norwegian EV users describe the acquisition, ownership and use of EVs and how gender is made relevant in these processes. We explore this through the theoretical concept of domestication.

# Domestication

The concept of domestication describes how particular technological artefacts become integrated into daily routines and lifestyles and what symbolic meaning they come to possess (Silverstone & Haddon, 1996; Sovacool & Hess, 2017). The theory recognises that technologies—like electric vehicles—are not fixed, stable, or immutable entities, but rather they acquire specific meanings and forms of use as they are adapted to household situations and, in turn, influence pre-existing household dynamics (Hargreaves, 2012).

Sørensen, Aune, and Hatling (2000) and Sørensen (2006) specifically invite a focus on three dimensions of the domestication process:

* Cognitive: Learning about the artefact, or to the intellectual appropriation of new knowledge
* Practice: The construction of a set of practices related to an artefact. This could mean routines in using the artefact, but also the establishment and development of institutions to support and regulate this use.
* Symbolic: The production of meaning and the relationship between meaning, identity, and the public presentation of self.

Domestication emphasises the reciprocal relationship between technology and use, stressing that both technologies and users may change as technologies are adopted in everyday life (Ask, 2016; Sørensen, 2006). The same dynamic movements can be seen between the dimensions of the model as illustrated by the multi-directional arrows in Fig.1. In the following analysis, we will focus on these three dimensions in order, as well as their mutual shaping and entanglement.



Fig. 1: Illustration of the EV domestication process and the interconnectedness between the three separate dimensions. ©Martin Anfinsen via Canva.com

The integration of gender perspectives with the concept of domestication has previously proved fruitful (see for instance Aune, 1996; Berg, 1998; Haddon, 2004; Sørensen, 2006). Additionally Lie and Sørensen (1996) have shown that domestication processes can be sites where both gender and technology are negotiated. Thus, the reciprocal relationship between technology and its users will also necessarily pertain to how technology is understood in relation to gender and vice versa. Research has shown that there is often a discrepancy between how people generally, and often stereotypically, are ‘gendering’ men and women (especially when explaining other peoples’ practices) and the way practices are actually gendered (Faulkner, 2007). In this article, we will pay attention to these typical stereotypical accounts, where interviewees consider differences between men and women, both in terms of practices described or constructed, as gendered (Ridgeway & Correll, 2004), and actual practices described by the interviewees (that may not invoke gender).

# Methods

The analysis is based on in-depth interviews with 47 EV users, mostly conducted in the interviewees’ homes. Seventeen of these interviews were with couples: 16 couples with a man and woman living together and one couple consisting of two women. In total, we interviewed 25 women and 22 men. Interviewing several household members at the same time gave us excellent access to the everyday negotiations concerning the acquisition and use of the EV. The interviews were semi-structured and covered a wide variety of topics related to EV purchase and everyday usage, and they included explicit discussions of driving practice, technology, gender and environmentalism.

The data that comes out of an interview is highly co-produced (Holstein & Gubrium, 1995). Which questions are asked, how they are asked and what information is given in advance represents an important context for interpretation of the data. We did not want to ‘produce’ gender, even if that may be unavoidable when asking questions about gender (Lagesen, 2010). We did, however, ask our interviewees, near the conclusion of the interview, whether they believed there are gender differences when it comes the purchase and usage of EVs. In this way, our interviewees could reflect on their relationship with the technology without gender being raised as a previous frame of interpretation. We have anonymised the interviewees by assigning names corresponding to letters in the order of the interviews. Partners interviewed together was given pseudonyms with the same first letter.

Invitations to participate in the interviews were circulated by email, message boards, social media, and through professional and private networks. Further interviewees were found using ‘snowballing techniques’ (Atkinson & Flint, 2004), where the interviewees themselves connected us with other acquaintances using EVs. We conducted interviews in two different cities in Norway targeting both commuters and people living in central areas in each city. However, geographical variance did not appear thematically salient for this article’s primary focus on gender.

The interviews lasted from 1-2 hours. They were recorded and transcribed verbatim. The quotes used in this article have been translated from Norwegian to English while attempting to retain intention and tone. This translation was conducted by the authors, who are native speaking Norwegians with a good command of the English language.

The analysis of the interviews is inspired by grounded theory (Strauss & Corbin, 1998), and was later coded using Atlas.ti. Consequently, the codes and categories stemmed directly from the data, but the analysis were also abductive (Reichertz, 2007) in that we employed domestication theory when refining and combining our codes. This approach made us better equipped to develop concepts of gendered EV domestication that can be analytically generalised (Schwandt, 2007).

# The domestication of EVs

In the following, we will look at how EVs were domesticated by the users. We begin by analysing the undertaking of purchasing an EV.

## Cognitive Domestication

Purchasing an EV meant substantial change for many of our interviewees, especially in terms of charging methods and range issues, which necessitated cognitive work pre-purchase. This work often consisted of conferring with friends, colleagues and family members; searching online reviews, social media and specialist forums; speaking to car dealers and test-driving. Tormund’s story about the cognitive work prior to buying an EV included gathering many sources of information:

I looked online on a variety of webpages […] I’d test-driven, spoken to the salesperson, talked to my dad who’d bought an EV a couple of months earlier [...] I’d already made up my mind that it was the [e] Golf that was the only choice for me because of my car interest. I also have a certain fascination for German cars.

The search had started because his old car needed extensive repairs and he decided it was time to get something new. He ‘did the math’ – comparing gasoline, hybrids and EVs; checking what ranges would fit his daily commute; considering the environmental footprint of his next vehicle and weighing the costs versus benefits – before choosing a car that was in line with his car interest and preference for German brands. Matilda, on the other hand, stated no such specific interest in cars, but told a quite similar story before acquiring her used Nissan Leaf:

I did some research, so I wouldn’t throw 140,000 NOK out the window, right? I was pretty certain because I measured it against the risk of buying a fossil-fuelled car for the same price. What does that cost in insurance, annual road fees, gas and tolls? I live inside the toll-gates, driving out, so even if it’s only 10 NOK daily, it adds up. And it’s 25 NOK parking at work every day.

Doing economic calculations was a central aspect of the cognitive work. However, in households with several adults, the pre-purchase cognitive domestication work was not necessarily equally divided between the couple. For Agatha and Adele, the decision to purchase an EV was presented as an almost clandestine operation:

I like to hold back somewhat on the spending. I was a bit like: ‘No, we have a diesel car’. [B]ut, Agatha saw her opportunity when I was attending an event abroad. […] On my way home, a message popped up reading that she had ordered a Tesla.

It turned out that, at this point, Agatha had been in contact with a salesperson at Tesla, studied the Tesla in car magazines and taken it for a test drive, all without Adele’s involvement or knowledge.

Sara, however, left the purchasing decision to her husband, with the explanation that she was notinterested in cars and *“*absolutely not interested in technology”:

It’s my husband who’s googling everything online, checking the prices, checking the whole deal, to see if the car is something for us […] My husband is the prototype of that. He checks how fast the car goes from 0 to something in 4 seconds, right? How many kilometres, and horsepower… I’m not interested in all that and how fast and tough it is. […] I only require something that can transport me comfortably from A to B.

Sara called her husband a ‘prototype’, which resembles a masculine construct interested in speed, acceleration, motor powers and technology (Mellström, 1995; Wajcman, 1991). Here, she positioned herself as pragmatic, only interested in mobility as going ‘comfortably’ from A to B. Still, Sara was involved in the purchasing decision although, to her, buying an EV was part of retaining a green lifestyle:

I’ve been environmentally conscious all my life. I like green trademarks, I like to shop ecologically, I’m supporting ‘The Future in our Hands’[[2]](#footnote-3), and I make choices that don’t negatively affect the environment (…) And my husband was completely on board, so we checked the car out. We didn’t think it was the greatest looking car we’d ever seen aesthetically, but, when it came to comfort, it was excellent.

Thus, Sara’s green lifestyle and her partner’s technical ‘motor-related’ interest aligned in buying this car. Although they both considered it aesthetically inferior, it clearly met their needs concerning comfort and driveability. Another interviewee, Xandra, described the decision of car purchases in general to be men’s domain, claiming, “In our circle of friends, […] the man is perhaps often the decision maker when it comes to car purchases, or the one who’s driving that decision”.However, she also had some explicit requirements with respect to what kind of car related properties the family needed “such as roominess, space for child car seats, storage capacity and similar important practical requirements”. These were, notably, perceived by her as external factors in relation to car interest. Also, for Frida, the pre-purchase workload was delegated to ‘the man of the house’.

You know, it’s the man of the house that chooses the car. It’s probably like that in most other places and I’m a bit like, ‘I don’t bother running around, test-driving everything’, so I tend to say that he should find something he likes and then I can see if I like it.

Still, even when invoking a general stereotyped notion about men making the decision and having an interest in researching the options, Frida anticipated being part of the decision in the end.

To sum up, the main arguments put forward for buying EVs were economy, a fascination for the technology, EV specific comforts, environmental concerns and a green lifestyle. There was also a striking tendency to invoke gender when interviewees described their decision to buy the car. This related typically to men’s attributed technology fascination and interest in sourcing information as well as a specific ‘car interest’ that often seem to disregard factors like environmental concerns, economy, driving comfort and other practicalities. We also see that EV specific features, such as providing lower emissions and simple, comfortable driving were perceived to be more desirable to interviewees. Still, the enthusiasm and involvement in purchasing EVs seemed equally divided between men and women, even if they focused on different EV attributes. Next, we will look into the practical domestication and the experience of using EVs in everyday life.

## Practical Domestication

The new technological features of an EV involved practical considerations pertaining to the practice of driving. This was often related to battery capacity and driving range. With a shorter range, less developed charging infrastructure and lengthier ‘fill-times’ compared to fossil-fuelled vehicles, managing range through specific driving practices arose as a central concern. Here, a myriad of factors entered into the equation such as temperature, traffic and terrain. Eva highlighted how this was a learning process that became internalised after a while:

You learn a lot going along the way, like things you need to take into consideration […] So it’s a completely different way to think when you’re driving an EV. […] I needed to consider how many kilometres, the weather forecast says 20 below zero tomorrow. That amounts to a cold ride. […] I just turn off the heat...

As we see, the cognitive and the practical dimensions of the domestication process were closely intertwined. Gaining knowledge about battery capacity and range appeared as a complex calculation where driving practices were shaped according to knowledge and priorities. For Eva, range was prioritised over comfort, while winter coats, thermoses and blankets were employed to keep bodies warm and batteries long-lasting.

In addition to the bodily adaption, technical instruments also helped in optimising EV operation. Sara, for instance, emphasised the visual feedback provided on the car´s dashboard, which guided her towards energy efficient and economic driving:

I’ve always tried to drive economically. I’ve never been a speed babe. I drive safely, transporting my children safely and all that. But the thing with EVs that is great is that it’s measurable. You notice when you drive economically. In the beginning, I was very attentive to that, but now, when I’ve learned how the car works, I don’t pay much attention to that anymore.

In other words, the practice of monitoring visual feedback and the needs for calculations faded once the workings of the car was internalised and had become part of an embodied driving practice. Another new practice learned was managing faster acceleration and regenerative braking. Gunnar described this as being ‘closer to the technology’: “It’s a closer connection between me and the engine […] a shorter distance between me as human, and the engine that powers the car”.For Gunnar, this made him feel more in control of the vehicle, enhancing manoeuvrability. Matilda also talked about learning to ‘feel’ the EV and getting to know the different ‘margins’: “I feel like I know the car’s behaviour. You quickly get familiar with the behaviour of the car. […] It has completely different margins. It’s faster”.

These experiences of internalising optimal driving practice, and adapting to the new technology of the EV, were shared by almost everyone interviewed. However, some mentioned that the men drove more often and for longer stretches at a time, and that they therefore were more experienced in economical driving:

Viktor: I’m noticing that she uses way more electricity than me, but that’s most likely because I’ve driven it more ...

Vera: He is a bit more used to it.

Viktor: So, I’m employing eco-mode more and actively use regenerative braking.

Vera stated that she also enjoyed these aspects of EV driving and utilised the visual feedback from their Nissan Leaf in trying to conserve battery range, but she clarified that Viktor was “more in the feel of things”. A similar argument was also employed by Cornelia and Christoffer, who viewed efficient EV practice as mostly important on longer drives, thus less relevant for Cornelia who drove shorter distances. As explained by Cornelia:

It’s you [Christoffer] who drives more often, for longer stretches, and that’s where that is relevant, while I’m mostly driving back and forth from the university or back and forth to my workout. That is not the time for acceleration anyways. So, it’s very basic driving. It’s not much to gain from employing regenerative braking then.

Among the couples interviewed, men were reported as driving the longest stretches, making them more skilled in this kind of driving. Interestingly, the interviewees also said that they changed driving practice in general, with the skill of energy efficient driving also being transferable to fossil-fuelled cars.

Summing up, we see that there are substantial elements of cognitive work involved in developing new EV practices. In particular, the embodied experiences of using the EV and adjusting the style of driving both to the vehicle and to external factors such as weather and topography were emphasised. While there were no differences in how men and women accounted for learning how to drive an EV, we found that there was a tendency among both men and women to emphasise that men drove more often and longer distances. This has been found in previous studies (Miralles-Guasch et al., 2016; Polk, 2003, 2004; Rosenbloom, 2006; Simićević et al., 2016; Uteng & Cresswell, 2008; Vance & Iovanna, 2007), and in our study this was perceived as giving men more experience in developing energy efficient driving practices.

## Symbolic Domestication

The symbolic dimension of domestication describes how identities and meanings related to EVs are constructed. We have previously seen that EVs are understood as practical, economic and environmental vehicles that are compatible with having a green lifestyle. Interviewees also emphasised that driving an EV made them feel better and more environmentally friendly. Several of these associations were also gendered by our interviewees. In the following we will explore further how gendered meanings and identities were constructed in the EV domestication process.

### Electric ladyland versus masculine techno-utopia?

Even if some asserted that gender was not particularly relevant, two quite distinct tales of gender and electric vehicles emerged throughout the interviews. One highlighted perceived links between women and environmentalism, and placed women in the metaphorical driving seat on the road towards sustainable mobility. Such as in this reflection by Frida:

I’m imagining that women are more environmentally conscious to begin with, if I can use that term concerning EVs, and they want EVs because of that. As for men, I don’t think they primarily consider the environment. If there is a difference, I think that women are pushing towards EVs because of the environment.

Here we see that EVs were associated with women because of women’s perceived environmental orientation. Fredrik, however, came to the same conclusion from a different angle. He saw EVs as a car for women because of the vehicle size and gendered car purchasing patterns:

These kinds of cars are purchased as the second car, and the second car has traditionally been ‘the wife car’ in Norway. So, dad drives the big, nice, new diesel car while mom drives ´the little old rat´. That’s common in Norway, or has been, and the smaller car hasn’t appealed to men in the same way. So that’s why many women have driven electric cars.

This refers to a perceived gendered pattern in Norway, where big and expensive cars are driven by men, while women drive smaller, less valuable cars, referred to as the ‘konebil’ (wife car)[[3]](#footnote-4). However, some described smaller and less powerful cars in more positively framed terms, such as their ‘ease of use’, ‘lack of technical complexity’ and ‘better manoeuvrability’, like Matilda:

I don’t know if there are gendered differences. I have omitted a few girlfriends who are car-crazy. But for the others, who use cars as a means of transportation, I think they would be more prone to choose an EV, because it’s comfortable, easy and a nifty little thing that is easy to manoeuvre and does what it’s supposed to do. My men acquaintances would be more occupied with the engine, and the mechanics of it, to put it like that. It is connected to interests.

Here we see that Matilda refers to the notion that men are concerned with the more mechanical aspects of cars, while women focus on comfortable and easy manoeuvring. This frames ´car interest´ again as more of a hobbyist perspective, requiring time, tinkering and personal involvement that is linked to pleasure and recreation.

Another construction of the EV as linked to techno-oriented masculinity dominated the other narrative. Thus, quite contrary to the account above, some found EVs attractive because of the specific technical aspects of EVs, and the promises of this technology. Tormund, for instance, expressed great engagement and compared it with computers in the history of technological evolution:

It’s the technology I’m primarily interested in, and the gadgetry that makes things simpler for me. […] I’ve grown up in the period when computer technology was moving faster than ever, and that’s where my interest in technology stemmed from, and this [EV evolution] is like going from a Nintendo Entertainment System to a PlayStation 3, and when it will stop, we don’t know yet.

Even if Tormund also was enthusiastic about traditional cars, these new features and the promises of exciting new technology in EVs made them particularly attractive. Oliver also shared this fascination with the EV technology:

The future was always different when we grew up. We were brought up on science fiction and Science Illustrated, and if we were now where they expected us to be, we should be driving flying cars to work. But this, with the EV, that’s the closest we’ve come to a sort of paradigm shift. It’s a part of tomorrow.

Here we see how the technology becomes an important part of the symbolic domestication of the EV. In the case of Oliver, he had no previous interest in cars. EVs were rather a symbol of technological progress and the exciting opportunities of the future that captured his imagination while also making him wonder if he was an ‘unconventional man’ because of his lack of interest in traditional cars. Thus, in fact, two different forms of stereotypical masculinities were constructed: one related to interests for cars and one about an interest in gadgets and new technology. This was also mentioned by Olivia: “And the thing with acquiring new stuff, new gadgets like... A new gadget that is a bit of fun, a bit fancy and a bit innovative. I think that fires men up more than [women] in a stereotypical sense”.

Moreover, the notion that women were less interested in or knowledgeable about technology led some to conclude that women were less likely to acquire EVs. Hilde, for instance, extrapolated on her lack of EV specific knowledge and initial range anxiety when considering the gendering of EVs:

It’s common knowledge that most of us [women] are not very knowledgeable when it comes to what’s underneath the hood and EVs are uncharted waters. On top of that, you have the factor of range […] So, I have a feeling that there’s more scepticism [among women]. It’s because of range and […] your own [lack of] insight. Most of us know that this is something that we don’t understand and that it’s completely Greek to me, and on top of that I might ´run out of juice´. It doesn’t help to fill with gasoline.

Hilde´s account here reads almost as a complete inversion of Matilda´s earlier interpretation that women would be more likely to choose an EV because of the simplicity of the technology. This suggest that there was quite a lot of interpretative flexibility in the symbolic meanings attached to EVs.

### EV as hybrid construction

In spite of such stereotypical notions concerning men and women as seen above, there were many who also highlighted how the EV was a desirable and good choice for all members of the household. Even when referring to the gendered co-construction associating men with technology and ‘horsepower’ and women with environmentalism and small, practical cars, there were also attempts to both reconfigure and align these notions. Kristina said:

I think it’s very possible that it’s split two ways. That one of us would be more into the technology while the other is concerned about the environment. And that together makes an EV. But for us, it’s like having an environmental alternative is probably equally important for the both of us. The technology side of this is more important to Kristian than it is for me, but I feel that the environmentalism is equally shared.

Whether environmental concern itself was gendered was also negotiated by Cornelia and Christoffer who saw environmentalism and the appeal of technology as sliding scales with different levels of appeal:

Christoffer: I don’t think that environmentalism … I’m unsure if that’s a gendered quality.

Cornelia: I don’t necessarily think that either, but more in a stereotypical sense: Who has the car interest? I think you would buy something environmentally friendly if it were nice, while I could buy something bad and environmentally friendly.

Interestingly, there were several who explicitly said that driving an EV put them in a different category of drivers. Gunnar, for instance, said that driving an EV made him a new type of driver:

I think I’ve completely set aside that thing, when someone drives past me, or drives fast and accelerate faster than me, then I just think that ´I’m driving an EV´. I’m not a part of that thing at all. So, I feel part of another category, not a motorist, but an electric motorist.

Here we see that the symbolic connotations of the EV may have performative effects on both identity as well as driving practice. Being an EV driver was seen as a contrast to traditionally held assumptions of masculine motoring behaviour. Eva, on the other hand, told a story of a sceptical husband who gradually turned into an EV enthusiast:

I think it’s the prejudices against EVs that has been completely obliterated. That it’s not a real car. […] The appearance of a car means something for him, but then he just forgot about it and isn’t so vain when it comes to that anymore.

This shows how the symbolisms of earlier forms of automobility are malleable and are opened up for re-negotiation through EV domestication.

EVs constitute a heterogeneous group of car technologies in which different models with different characteristics are likely to be domesticated differently. This raises the question of whether different aspects of EV design and technology would cause different models to be gendered differently. This was very much the case in our data. The Tesla, for instance, occupied a contested position when it came to the gendered notions we have shown above. While some interviewees associated the brand with masculine shows of power and wealth, others were hailing its features as ideal for women. Ada, for instance, praised the Tesla for being a woman’s car:

It’s a real housewives’ car. You can put all the groceries in the back, and your handbag between the seats in front. If you haven’t bought the stupid centre console you can do that, at least. That’s what women have wanted. A place to put their bag.

In contrast, Olivia and Oliver clearly perceived the Tesla owner to be a man:

Olivia: It is a man who owns a Tesla.

Oliver: It is a man who owns Tesla. Yes, definitely!

Olivia: It is because a car should be not just a means of transportation, but something that should have a bit more power, and it should be a status symbol, signalling something more. I’m speaking stereotypically now, but I think the Tesla rather signals that you have status and money and are environmentally friendly.

Oliver: It can’t be overlooked that the Tesla is a badass vehicle. It signals one thing when you see it; that it moves fast. It does not signal much more.

According to Olivia and Oliver, the Tesla appealed more to men because it symbolised power, speed and status. However, the environmental profile of the Tesla also raised the general status of the car, according to Olivia. In other words, The Tesla was both coded as masculine and feminine in our interviews. This illustrates the considerable interpretative flexibility of the EV, being a new technology with ‘old’ connotations.

In sum, the EV was not primarily constructed as *either* masculine or feminine, but rather containing a host of different meanings and cultural characteristics attracting a wide variety of users. This could be viewed as a reconfiguration of what has been perceived as traditionally masculine car cultures. One particularly interesting finding is how EV domestication had the capacity to also change traditional identities and practices. As we have seen, constructions of gender do not suddenly disappear when talking about EVs, rather these associations seemed to open up for renegotiation and change.

|  |  |  |
| --- | --- | --- |
| **Dimensions of the domestication process** | **General domestication** | **Gender related domestication** |
| **Cognitive domestication:**Assembling the information needed to facilitate the domestication process. Learning the skills necessary to operate the technology efficiently.  | Substantial information gathering pre-purchase. Information from acquaintances, sourced online and/or through sales channels. Budgeting EV incentives against cost of owning and operating fossil-fuelled vehicles.Internalising effect of temperature, terrain and traffic on range. Embodied knowledge.  | Men either take, or are given the role of pre-purchase information gatherer and decision maker. Explained by men’s technological enthusiasm and/or traditional purchase patterns. Men engaging in specialist forums, social media and online discussions. A tendency for women to underplay their own role in the acquisition of the vehicle, deeming their contributions and interests as external to ‘car interest’.  |
| **Practical domestication:**The establishment of practices and routines in using the artefact | Optimising driving efficiency to conserve battery and reduce operational cost. Using regenerative braking and employing specific driving modes for changing conditions. Ease of use highlighted.  | EV specific driving practices associated with men. Changes in overall driving practice reported for men: Replacement of a previously more aggressive style of driving with ‘even’ driving (less acceleration/deceleration).  |
| **Symbolic domestication:**The production of meanings and identities related to the artefact. | Environmentalism (and consequently pride) a strong component. Changed perceptions of what a car can be. EV represents a specific set of technologically oriented promises for the future. Techno-optimism.  | The EV is understood variably as masculine and feminine by different interviewees focussing on differing attributes. EV as symbolically hybrid.When coded as masculine, the focus is primarily on gadgetry, flashy design and shows of power, while ease of use and environmentalism is highlighted when EVs are coded as feminine.Changes in stereotypically masculine driving practice leading to new EV specific identities. |

For a more general summary we have organized the central points of this article in table 1. Here we present some facets of Norwegian EV domestication, both in general, and in relation to gender. This is however a simplification highlighting marked differences over the dynamics of gender and identity, and should be read as such.

# Conclusion

In this article, we have aimed to enhance the understanding of an emerging electric vehicle culture by exploring how EV users domesticated their electric vehicles cognitively, practically and symbolically, with a particular focus on gendered interpretations. We found that EV users were a highly heterogeneous group of actors who performed cognitive work in the acquisition phase motivated by getting an economic, practical and environmentally viable car. Among couples, there was a tendency to divide the work between them, often based on stereotypical notions about men and women. However, in practice both men and women took an active part in the decision to buy the EV. Thus, EV specific qualities seemed to communicate equally well across these stereotypical notions of gender.

Both men and women EV users stressed the good feeling and experience of driving with an environmentally clear conscience. We also found that driving an EV was an embodied, technical learning process, which often began with cognitive calculations of barriers and affordances which subsequently became internalised. While both men and women learned through this process, men were sometimes seen as driving more, and, therefore, as more competent EV drivers. Thus, we see how traditional gender stereotypes still carried meaning for some of the interviewees, though they were not influencing the cognitive and practical aspects of EV domestication in practice to a large extent.

The stereotypical gender notions of men and women may be seen as part of the symbolic aspects of domestication. The research literature on gender, cars and technology is vast, and it has stressed close, historical links between car culture and masculinities. We found such links also to be noticeable in our data. Still, our analysis suggests that stereotypical gender constructions, despite being used to make sense of car practices in daily lives, were quite malleable. Here, the EV seems to open up new possibilities for symbolic re-definition partially due to environmental benefits, which again invites interpretations of the car in new and less stereotypically masculine ways. Some accounts primarily associated EVs with women through emphasis on environmental concerns and the practicality and comforts of daily EV use. However, the new EV technology also served to reconfigure stereotypically masculine constructions of cars by making the EV more of a technological sublime – more 'academic', ‘sci-fi’-oriented – thus differentiating it from masculinities more frequently found in previous studies of cars. A key finding is that EV technology can be instrumental in changing actual driving practices as well as identities when domesticated. EVs aroused a focus on energy-optimising driving – driving 'smart' rather than fast. This resulted in drivers identifying themselves as belonging to a different category of drivers motivated towards a different, less aggressive style of driving. Or rather: A new driver identity.

The different types of EVs also spurred different interpretations. The Tesla, for instance, showed the flexibility in such symbolic interpretations. When portrayed as feminine, the emphasis was put on practicalities such as hauling groceries and having a convenient place for a handbag. When the Tesla was coded as masculine qualities like power, speed and displays of wealth and status were highlighted.

When analysing the domestication process, we found that a wider variety of people are taking a larger degree of ownership, pride and pleasure in their EVs when compared to fossil fuelled cars. Even if traditional entanglements of cars with masculinities and women with environmental concerns were still highly evident, these were clearly contested by new norms, identities and practices. These are important to acknowledge when considering the possible roads towards sustainable mobility. As demonstrated in this article, the qualities attracting users to EVs in Norway are numerous and extend further than the usual representations of EV users´ environmental concern or the potential for financial savings. In this way, this article contributes to the research literature on the role of users in low-carbon transport innovations by providing more comprehensive representations of users within cultures of electromobility, while further demonstrating the salience of cultural inquiries in mobility transitions.

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1. According to Opplysningsrådet for Veitrafikken (The Information Council for Road Traffic), 59.01 % of new cars registered in Norway before November 2018 were electric (Elbilforeningen, 2018). This includes electric vehicles (EVs), plug-in hybrid vehicles (PHEVs) and hybrid electric vehicles (HEVs), with the corresponding percentages: 29.12% EVs, 18.35% PHEVs and 11.54% HEVs. [↑](#footnote-ref-2)
2. The Future in our Hands (Fremtiden i våre hender) is a Norwegian environmental NGO. [↑](#footnote-ref-3)
3. This dynamic is also noted by Wajcman (1991, p. 135), who also highlights how this is an intended feature in the design and scripting of cars. [↑](#footnote-ref-4)