

Article

# Reconstituting Automobility: The Influence of Non-Commercial Carsharing on the Meanings of Automobility and the Car

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**Abstract:** Automobility has long been understood as the normal and hegemonic way of moving and even without considering a global pandemic and the imperative of social distancing, disruptive change in everyday automobility seems far away. Based on 34 interviews with members of carsharing associations and private carsharing arrangements, this article argues that non-commercial carsharing, a self-organized form of carsharing, poses a twofold challenge to the hegemonic meanings of automobility on the level of everyday practice. First, the car's role as status symbol is fading and overridden as an object of utility that is only used when absolutely necessary and mostly for leisure purposes. Second, the car is losing its position as the realization of individual freedom and the coercive aspects of the car and automobility become strongly present amongst non-commercial carsharers. Thereby, automobility emerges as an ambivalent issue and becomes perceived as means of liberation and means of domination simultaneously. By working with and against automobility's hegemonic meanings on the level of everyday practice, non-commercial carsharing is changing the system of automobility from within and bears the potential for substantially altering the reproduction of the system of automobility.

**Keywords:** automobility; mobility transition; carsharing; everyday life; change; automobile subject

## 1. Introduction: The System of Automobility and the Automobile Subject

Transport is one of the main contributors to the climate and ecological crisis and in most countries the only sector that isn't contributing to reducing emissions [1–3]. Furthermore, air pollution and congestion through private car use are on the rise all over the world and are contributing to the death of many thousands of citizens, while the increasing mobility of individuals leads to the loosening of social ties and further individualization and atomization [4,5]. Therefore, from a perspective of mobility justice and climate justice, in order to prevent or at least slow down climate catastrophe and social collapse, mobilities (and the capitalist economic system) require radical change [3,6–12]. As the persistence of a system rests on its continuous process of reproduction, it follows that systemic change can occur when the reproduction process is altered [13–17]. Albeit or rather because substantial systemic change currently appears unlikely on a global and structural level [18–20], the issue of how bottom-up change can occur locally within a capitalist system of mobilities is the main interest of this article.

Specifically, I look at the example of sharing practices in mobility. Until before the global breakout of COVID-19, sharing mobilities experienced a technology-fueled revival as 'Mobility-as-a-service' [21–23]. In this development, hitchhiking becomes on-demand ridesharing (Uber, Lyft, etc.) and a huge variety of vehicle-sharing (carsharing, bikesharing, e-scootersharing, etc.) emerge from their roots in the environmental

(carsharing) and anarchist (bikesharing) movement [24,25]. This said, this article focuses on non-commercial carsharing. I define non-commercial carsharing as the shared purchase, ownership and/or usage of a car within an institutionalized process of a defined, local group. This can be privately between friends, neighbors and/or the extended family or formally organized through a non-profit organization. I look at everyday practices that can be called institutionalized, because they take place routinely and follow certain rules, while also using some sort of tool for their institutionalization, e.g., a calendar, verbal or written agreements or a messaging group. Sharing the asset of mobility shouldn't create a monetary surplus, because I particularly want to explore how forms of shared movement that are organized and operate beyond a market rationality of growth and profit-maximization relate to the goal of a socio-ecological mobility transition. Non-commercial carsharing (known as non-profit car clubs in the UK) hasn't been researched much in transport and mobility research, as I only found one article and two reports on it within the last 20 years [26–28]. Due to this lack in research no clear quantitative comparison can be drawn with commercial carsharing. Qualitatively however, the biggest differences lie in the ownership structure (collective ownership of the cars by the members) and the business model (non-profit and voluntary engagement by members) [29]. The operation is taken out as stationary carsharing. Ultimately, this article investigates how non-commercial carsharing, a self-organized non-profit form of carsharing, influences the meanings embedded in the 'system of automobility' [30] regarding the car and (auto)mobility.

Practices related to private car ownership are far from the only problematic practice within the contemporary capitalist mobilities system [3]. However, the private ownership of cars is the essential piece of the 'system of automobility', significantly contributing to ecological damage and the fragmentation of social relations [26,30–35]. By opening the discussion about reconstituting ownership, sharing mobilities in general and carsharing in specific offer the potential to debate, negotiate and reconstitute the broader everyday practices, meanings and logics behind the privately owned car and (auto)mobilities [36,37]. It is within this reconstitution of everyday practices and interdependent meanings where I locate this study and the PhD research it originates in.

Essentially, I want to investigate how non-commercial carsharing is reconstituting (auto)mobility. Therefore, in this article, I will present qualitative interview data from carsharing associations and private carsharing arrangements from the Greater Region of Munich suggesting a reconstitution of automobility through non-commercial carsharing, towards a more ambivalent formation of the meanings attached to the car in specific and (auto)mobility in general. This ambivalence towards the car deepens the cracks and fissures in the hegemonic system of automobility and alters its production and reproduction [35,38,39]. At this point, I deem it important to say that altering everyday practices of automobility isn't the only thing that is required for overcoming the system of automobility. As I point out, the systemness of automobility connects it to such diverse fields as tourism and steel production and matters such as a trend towards services and customer preferences and behavior are simply out of scope of this article [40–42]. For a full account of how hegemonic automobility can be overcome, these certainly deserve much attention. Nevertheless, looking into how everyday practices of automobility are altered through non-commercial carsharing is important as they bear the potential for altering broader cultures of (auto)mobility and ownership relations incorporated and reproduced through hegemonic practices [43,44].

First, I will deepen the relevant theory on automobility, its systemic nature, the role of meanings and the dialectic of freedom and coercion. The results consist of two sections, in which I will present interview data related to the reconstitution of automobility in terms of the changing meaning of the car from status symbol to object of utility and the meanings of (auto)mobility from freedom to necessity. The changing role of the car brings the coercive aspects of automobility to the fore, which are widely recognized by non-commercial carsharers. Thereby, automobility isn't the sole means of liberation anymore, but rather ridden with ambivalence. The discussion sets this data in relation with the presented theory and argues that the changing meanings are inherently connected to the emergence of alternative automobile identities and subjects, fostering a broader alteration of the reproduction of the hegemonic everyday structures of automobility.

To understand the hegemonic power of automobility, it is important to not think of the car as an isolated object, but as central piece of an interrelated system of institutions, infrastructures, objects, practices, meanings, ideologies, subjectivities and its interlinkages with humans as ‘car-drivers’ that was produced and is continuously reproduced—the ‘system of automobility’ [30,33,45,46]. It is impossible to grasp the lock-in of the steel and petroleum car without considering the role of the oil and construction industry or the fascination with road movies and race cars in popular culture [45,47–49]. This is also emphasized by Paterson: “To think purely in terms of the individualist account of ‘the car’ is to overlook most of the reasons why individual cars are highly prized commodities, objects of profound political significance and enormously ecologically problematic. It is the systemic nature of automobility which produces all of these effects” ([33], p. 226f.).

Automobility and the car not only provided a central object around which a whole regime of accumulation could be organized but further actively produced the ‘automobile subject’ around symbols, images, meanings and discourses legitimizing the regime of accumulation on a culture political level: “Automobility has been so dominant and successful because of its ability to reproduce capitalist society—its political economy—and its ability to mobilize people as specific sorts of subject—its cultural politics” ([33], p. 30). Importantly, this subjectivity is not the simple determination of the above described political-economic system but the constantly produced and reproduced outcome of the relationship between the car and the driver through everyday automobile practices and their governance [50,51]. Most importantly hereby is that the car enables people to organize their everyday life independently from public transport schedules and allows for a highly individualized spatial and temporal flexibility. Thence, instead of making individuals passive passengers in trains and buses, automobility makes individuals “active participants [and] makers of their own travel plans” ([33], p. 134) through driving their own car according to their own schedule, intimately interrelating the association of freedom and automobility with the production of the automobile subject. The automobile subject thereby emerges from the interrelation between the car and the driver conceptualized as the hybrid of the car-driver [50]. Meanings associated with the car and automobility are an integral part of this subjectivity and directly related to everyday practices of automobility [52,53]. For this article the car as status symbol and the association between (auto)mobility and freedom are the most relevant meanings.

The car was and still is a primary means of conveying personal status [8,45]. Owning a car today is synonymous with being adolescent and economically successful and the type of car serves as an important material signifier for personality and character traits of the car-driver [52–57]. Gorz describes the cars’ origin as a luxury product taking precious space from other modes of transport for the benefit of a few car-drivers: “every individual can gain and enrich more prestige on the cost of all” ([34], p. 53). Interestingly, also now as nearly everybody has access to a car, the car kept its function as symbol of prestige, distinction and personal status. Even more, owning a car became a coerced necessity, wherefore not owning a car often carries the meaning of not being able to fully participate in society. The car therefore is often interpreted not only as conventional status symbol but also as “a comment of citizenship” [57], providing the status of a full member of society [53]. Additionally, the status-bearing character of the car has to be understood in relation to a wide set of emotions towards the car and its use, so that “we not only feel the car but we feel through the car and with the car” ([52], p. 228). Thereby, daily car use, automotive emotions and the active involvement of individuals in their subordination to automobility produce automobile identities and subjectivities, which play a big role in how automobility became forcibly taken for granted and part of peoples’ “daily habits and routines, their assumptions about ‘normality’, [ . . . ] and ultimately their sense of who they are in the world. [ . . . ] Driving is what normal people do” ([33], p. 223, emphasis in original), whereby everyday car usage became established as the normal and hegemonic way of how movement is organized in modern capitalist societies over the last century [53,58–63].

The second relevant meaning are the dialectics of freedom and coercion present within automobility. Automobility and its central object the car on one side promise freedom and flexibility, while on the other side they entail coercive forces to subordinate other forms of movement and the car-driver

her/himself: *“Automobility is thus a system that coerces people into an intense flexibility. It forces people to juggle fragments of time so as to deal with the temporal and spatial constraints that it itself generates. Automobility is a Frankenstein-created monster, extending the individual into realms of freedom and flexibility whereby inhabiting the car can be positively viewed and energetically campaigned and fought for, but also constraining car ‘users’ to live their lives in spatially stretched and time-compressed ways”* ([30], p. 28). Paterson describes this dialectic as automobility being simultaneously means of liberation in terms of freedom of movement and flexibility and means of domination of the human body: *“Cars express human freedom but they simultaneously express it through the subordination of the human body not only to the technology of the car itself and the disciplines this imposes [ . . . ], but also to the whole panoply of regulatory mechanisms constraining the automobilist’s practices as a driver”* ([33], p. 142). Thereby he enlarges the understanding of coercion from being only the coercion into the affordances of the car to the domination of the car-driver through a whole mode of automobile politics and ‘governmobility’ [51]. However, the coercive aspects of automobility are obscured, because individuals play a substantial and active role in the production and reproduction of the system of automobility through the making of their own schedules, the perception of the car as status symbol and its normalization for everyday movement. Automobility is thus purely understood as means of liberation and people conceive practicing automobility *“precisely as the realization of their freedom”* ([33], p. 142) and a right to comfort instead of a mere possibility [60].

Taking these two aspects together implies that changing the system of automobility isn’t only a matter of inventing technology, political or economic regulation, but also of reconstituting deeply entrenched everyday practices and their attached meanings, identities and subjectivities, wherefore *“greening automobility entails a personal odyssey to remake one’s identity and re-engage others according to different social logics”* ([33], p. 223). The remaking of identity and social logics are how this article argues for the potential of change inherent in non-commercial carsharing. Like every structural process, automobility is continuously reproduced through everyday practices and meanings, wherefore *“automobility is neither fixed nor omnipotent, [ . . . ] [but] it always contains fissures that challenge its hegemony and suggest paths beyond it”* ([35], p. 12). This article will discuss two of these fissures and challenges in relation to changing meanings of the car as status symbol and automobility as the means of liberation. The outcome is a rather ambivalent subject position towards automobility in stark contrast to its hegemonic understanding outlined in this introduction. By producing alternative, potentially resistant, automobile subjects, non-commercial carsharing then also influences the local and broader reproduction of the system of automobility.

## 2. Methods: Data Collection and Analysis

This article and the data it is based on are part of my PhD research on the influence of non-commercial carsharing on local change of the system of mobility. Munich and its Greater Region are the political and cultural center of Bavaria and experience a constantly high population growth with congruent traffic problems. In the city, the car ownership ratio is at 47 cars per 100 inhabitants and considerably higher (up to 80) in the Greater Region, due to a comparably high average income and an ingrained car culture due to the presence of BMW [64,65]. Still, in the city of Munich carsharing membership is at 20%, also due to a very high parking pressure. However, in the surrounding districts it drops to 12% and in the Greater Region it goes down to 3%, mostly due to the unavailability of carsharing services [66]. The data corpus consists of 34 semi-structured qualitative interviews of 45–130 min with members of carsharing associations and private sharing arrangements. The interviews were conducted between March 2018 and May 2019 in Munich and the surrounding municipalities of Grafing, Markt Schwaben, Königsbrunn, Vaterstetten, Anzing, Erding, Freising and Grasbrunn (Table 1). Interviewees were recruited through e-mail contact with the associations, personal networks (trade union, friends, funding foundation) and outreach on social media and neighborhood meeting locations. In addition to these interviews I conducted participant observations at car cleaning parties, regular’s table and organizational meetings of the carsharing associations. All except one interview

were conducted in German, wherefore all the quotes in this article were translated by the author. Furthermore, all names are pseudonyms. As I refer to many different interviewees in the results section, Table A1 in the Appendix A gives a brief overview of all 42 interviewees in the 34 interviews. As I regard the interviews as the analytical entity, quotes are referred to by the interview they are from, not the specific person, albeit when relevant the person is mentioned in the written text. Table A2 in the Appendix A gives socio-demographic information on the interviewees.

**Table 1.** Interviews in the two forms of non-commercial sharing.

Carsharing Associations	Private Car- & Cargobikesharing
<ul style="list-style-type: none"> <li>■ 22 interviews with 24 interviewees</li> <li>■ 8 associations:               <ul style="list-style-type: none"> <li>■ Grafing (9)</li> <li>■ Markt Schwaben (4)</li> <li>■ Königsbrunn (3)</li> <li>■ Vaterstetten (2)</li> <li>■ Anzing (1)</li> <li>■ Erding (1)</li> <li>■ Freising (1)</li> <li>■ Grasbrunn (1)</li> </ul> </li> <li>■ Different stages (not founded -&gt; oldest) and different models, Vaterstetten', Flinkster</li> </ul>	<ul style="list-style-type: none"> <li>■ 12 interviews with 18 interviewees</li> <li>■ 11 private carsharing arrangements</li> <li>■ 1 private cargobikesharing arrangement</li> <li>■ Mostly in the City of Munich</li> <li>■ Arrangements mostly between 2 households with 2 to 4 participants</li> <li>■ Interviews in groups from 1 to 4 persons</li> <li>■ Different stages (planned to terminated) and different models (friends, neighbors, extended families; contracts, loosely)</li> </ul>

The interview data was transcribed and analyzed using the qualitative data analysis software *MaxQDA*. For data analysis I carried out two phases of coding on different levels [67,68]. The first phase of coding consisted of substantive coding and followed a bottom-up grounded theory informed approach [67,69,70]. The second phase of coding consisted of theoretical coding, in which I applied 70 codes in ten categories to all 34 interviews. These codes guide the theoretical interpretation of the data and enable an easier access and overview to the relevant theoretical content of the interviews [67–69].

### 3. Results: Changing Meanings of the Car and Automobility

#### 3.1. Status Symbol or Object of Utility? The Meandering Meaning of the Car

In this first section of the results I will present how the meaning of the car shifts from status symbol to object of utility. This shift however doesn't occur completely, but rather ambivalently, wherefore the meaning of the car meanders between the two poles of status symbol and object of utility.

##### 3.1.1. The Persistence of the Car as Status Symbol

The notion of status symbol of the car came up in many of the interviews, but mostly as general reference to the meaning of private car ownership for other people: *"It is a luxury to have a car at the snip of your finger and for that you pay of course"* (Family Schuster, Königsbrunn). Yet, the personal car was rarely described as a status symbol. Maxim was one of the few for whom the personal car remained a status symbol. He told me in great length about his 25 year old Mercedes that is parked in his garage, which he wants to become an antique car very soon and deeply appreciates: *"With my own car, as it is normal, I sometimes proudly walk around it and think: 'Woah, this just really looks nice'"* (Maxim, Grafing). He told me this in contrast to the carsharing cars which he *"just uses to use [them]"* (Maxim, Grafing) and serve the purpose of preserving his soon-to-be-antique car. For Maxim then the meaning of the car depends on the context in relation to ownership and personal history attached to it. Nevertheless, as it becomes clear from the first quote, he understands being proud of ones car as the normal thing to do, whereby the meaning of the car as status symbol strongly persists.

This also becomes clear as many carsharers are conscious of the status a car still has especially in more rural areas: *"The smaller the place gets and the more rural the thinking becomes . . . here I think that the car still is some kind of possession and many people drive, because they think it is cool to drive their own car"* (Family Schuster, Königsbrunn). Particularly Robert had to realize that having a personal car is considered the normal thing on the countryside. Before his family joined the carsharing

association in Markt Schwaben, they asked neighbors if they could go shopping with them to share the ride to the supermarket and the trunk for the weekly shopping. However, after a few times it was clear that their neighbors didn't really want to share the shopping trip and actually found it weird and didn't understand why Robert didn't have his own car: "On the countryside, people don't have [a life without cars]. Well, in Markt Schwaben many have two cars, both parents have a car and many don't understand that you don't have your own" (Robert, Markt Schwaben). These experiences are reminders of the kind of citizenship a car provides [57] and that without it one might have difficulties with being accepted as a normal member of society.

In addition to the more implicit perception of the car as a normal part of being a citizen, there also are occasions when the traces of the car as status symbol showed more explicitly. Helen, who says she usually doesn't care which kind of car she is driving, felt weird when she was taking a carsharing car to pick up a friend from the airport and drive through Munich: "*Somehow it was important to me, that it isn't some junky car, I have to say. I mostly prefer driving the Yaris, which is more or less in front of our door, but to pick up my friend from the airport I didn't want that. Red car, mh, really freaky, better to take the silver Polo. Somehow you are still driven by society . . .*" (Helen, Grafing). What bothered her the most was the logo of the carsharing association on the side of each car, through which she is clearly recognizable as not using her own car. Whereas she doesn't mind that when she is driving in Grafing or the surroundings, when driving into Munich she doesn't want to appear as if she can't afford her own car. Thence, the idea of the car as symbol of being a normal and full citizen and the personal status attached to it are rather persistent and traces remain even amongst convinced carsharing members.

In quite a few instances the idea of the car as status symbol, however, served as an explicit reference point for critique and for contrasting the car as status symbol with the own meaning attached to the car. Judith for example doesn't understand at all how the car can be part of personal status and thinks it is "*outrageous that it is part of self-esteem, which kind of car I have*" (Judith). She told me a story about when she was driving with the VW Golf she is sharing with her friend through their neighborhood looking for a parking spot, when she got into a conflict with a SUV. The roads are quite narrow in her neighborhood and there wasn't enough space to pass each other and the SUV driver was insisting that she makes space with her small car, so that he could pass with his big SUV: "*I can't empathize with how it feels to drive such a thing through Haidhausen and insist that I drive back with my Golf, because they don't have space. That says a lot. [ . . . ] I don't think it is ok that [SUVs] are even built. At least for the urban population, because they never go into the forest, they just don't . . . but that is a status symbol*" (Judith). Also for Henri the car as status symbol serves as distinctive point of reference. He thinks that cars have too high a social status anyways, whereas his position is that a car shouldn't bother him: "*The car for me is a means to an end. This means to an end should be made in a way that it doesn't rain inside, the temperature regulation, the air conditioning, should be working. [ . . . ] But I don't have an emotional relationship to the car. That is completely foreign to me. I also think it isn't compatible with carsharing, when you see the car as part of your own identity*" (Henri, Grafing).

Henri isn't the only one who thinks that regarding the car as status symbol isn't compatible with carsharing. August told me that before he joined the camping van sharing arrangement he asked a friend of his if he wants to share his bus. However, he quickly realized that for his friend the bus is kind of "*his baby, which he wants to protect*" (Camper), wherefore he quickly gave up on this idea. Interestingly in the camping van sharing they are now in a similar situation because their bus is old and has some peculiarities, wherefore they decided to not share it outside the group anymore. So, albeit the group is completely aware and actually critiques the protectionism of other people towards their cars, they are still protecting their own car. And although they all regard the car as an object of utility they thereby reproduce the meaning of the car as a precious possession that should have a clearly defined circle of users. What becomes explicit in the last paragraph and was implicit in many conversations I had, is that many interviewees show some kind of ambivalent relationship towards the car as a status symbol. The ambivalent relationship became especially clear in the case of Walter who describes his relationship as 'meandering': "*The meaning of the car was always a bit this leisure time, this being independent, this being*

able to do things, but [ . . . ] it was never this, I absolutely have to have a car. It was always like, well it is nice when you have it, but at the end it works without. [ . . . ] I have to admit, I think about getting a car every once in a while. On the other side, I think this is completely stupid. So there is still this meandering course" (Walter).

Thence, the car didn't lose its role as a status symbol through non-commercial carsharing, but is still an important and persistent aspect for the production and reproduction of automobility. Sometimes strong traces of its status-bearing nature remain even amongst people who made a conscious decision to part with the hegemony of the private car. However, as I will show in the next sub-section the meaning of the car as object of utility is strongly present in non-commercial carsharing, which pushes towards a more ambivalent and new understanding of the meaning of the car.

### 3.1.2. A New Meaning: The Car as Object of Utility

While the still hegemonic and dominant role of the car as status symbol within society is traceable, influential and persistent amongst the carsharers, overall, there is a strong understanding of the car as object of utility amongst the non-commercial carsharers I interviewed. I already talked about Walter and his meandering relationship with the car, not being able to decide if a car actually benefits him or not. On the other side of this meandering is his perception of the car as a pure object of utility: "There was no dependency on a car, but it is an object that we are not married to. It is an object of utility, right? [ . . . ] This is not my car with which I connect many things, but I just use it" (Walter). Also Erich regards the car mostly as an object of utility because he rarely just takes it for a ride, but mainly for trips with a clear purpose of getting from A to B. To underline his statement he told me how his car looks in detail: "It is an object of utility, not a beauty . . . so we don't have any ideals for the car . . . the most important thing is that it works, not that it looks good. If you would see our car, you would know why I say that. For example the protection in the front is hanging loose. Somebody sometimes broke it and then we put it back in and then again somebody broke it and again and again and put it back and put it back and now it is just hanging down" (Erich, Grafing). This understanding of the car as object of utility influences practices of carsharing and automobility towards managing the cars for utility and a more conscious relationship to automobility, which lastly result in the car always being used with a purpose.

The car seen as object of utility doesn't mean that the carsharers don't care about the car, quite the contrary. The carelessness that shines through with Erich is only for the outside appearance of the car and not its actual functioning. Simone told me that in the associations car wardens are responsible for detecting damages to the cars and bringing them to the workshop. However, in the case of small scratches normally nothing is done, because "basically, [with] a scratch, the car still is able to drive" (Simone, Freising). Furthermore, the boards of the associations pay a lot of attention to the cars being appropriate for the users' needs. Rosa told me, that they once bought a car that turned out to not have a trunk that was big enough, wherefore many of the members complained to her and her board colleagues. The members said they mostly use a car when they have to transport something and that a car that only fits one crate of beer is useless to them. Consequentially, this was also visible in the usage of the car as it was the car which was used the least. Since then the board only buys cars that are one size bigger and have the biggest possible trunk for their size: "The color doesn't matter, everything doesn't matter, as long as the trunk is big . . . it is quite funny . . . well, not everything doesn't matter" (Rosa, Markt Schwaben). Thus, the meaning of the car as object of utility is clearly ingrained in the way how the carsharing cars are collectively managed, by focusing on their functionality, usability and utility for the members' needs.

Additionally, the very basic principles of how carsharing works, support the stabilization of the new meaning through revealing the real costs of car driving and making the planning of car use necessary. Mariarosa describes the outcome of this as a more conscious relationship to mobility: "Every member in carsharing is more conscious about mobility. Because you think, well, what am I doing? How do I get there? Can I get there by public transport? Do I have time pressure, so that I then have to take the car? That is a huge learning process that one participates in" (Mariarosa, Grafing). Mariarosa was actually able to observe this process through the usage of the cars. Albeit the association gained many members in the last years, they didn't have to get new cars by the same proportion. So each car is used by more

members and each member uses the cars less. Rosa experienced this effect as an educational effect on the cost of driving a car: *"We always notice when a new member joins: Hurray, drives a lot. Then the first bill arrives. The trip to the super market is five euro. Do I need that? Is it worth it? The next time they prefer going by bike, when they don't have a lot. [ . . . ] This education is also an important effect"* (Rosa, Markt Schwaben). As there is only one Euro cent per kilometer for the overhead and the booking system, the price for using a carsharing car represents the 'real' costs of driving a car, however, still excluding the environmental and social costs. These costs are often hidden when using a personal car, because people don't take insurance, taxes, repairs and acquisition into account. [71] Through the regular bills each carsharing member is able to see for themselves what each trip costs and can decide more easily which trip is worth doing by car and which isn't. For most carsharers however, the cost comparison between a personal car and carsharing was mostly a general reason for joining carsharing rather than a specific reason for not doing a certain trip.

The main aspect for a more conscious usage of the car is the requirement of planning car use, due to the fact that if you want to use a car you have to book it in advance instead of just walking out the door. Most people told me about some kind of increased planning they have to undertake when making any trip since they are using carsharing: *"We always plan, no matter what we do, we briefly think about what makes the most sense"* (Walter). Frigga for example told me that she did start to plan her car usage better. She started to reduce the times she actually uses a car by only going shopping once a week or simply taking the bike more often. She said that this is because *"you have to think about it in advance. When do you need the car . . . and a week in advance you should start planning"* (Frigga, Markt Schwaben). Likewise, Hannah decided to plan her usage and also book the car in case she is not completely sure if she will actually use it or not: *"Yes, you have to look and book a car timely. I can reconcile with my consciousness, that I rather book more and earlier and then cancel again. Before I tended to wait too long and then it was too late"* (Hannah, Grafing). Having to organize car use is also an issue within private sharing arrangements, albeit the problems of overlapping were mostly dealt with when setting up the arrangement as they were seen as a general threat to the existing friendship, wherefore there either are clear rules on who can use the car when, a replacement such as StattAuto or the possibility for negotiating the need for a car between the sharers. For many carsharers planning car use and mobility more generally develops into a routine significantly changing their overall mobility habits and behavior, echoing Paterson's description of *"personal odyssey"* [33]: *"I think, that I overcome myself much less and say . . . for that the car is worth for me, that I travel a certain distance. [ . . . ] I don't just drive somewhere, but I am much more conscious about which vehicle I take"* (Clara, Vaterstetten).

The just explained aspects of carsharing - managing for utility on the organizational level of the association, making the cost of car driving transparent and making the planning of car use necessary—result in and develop from the car always being used with a purpose. Maxim for example only takes his personal or a carsharing car when he has to transport something: *"It is a bit a functional thing. From a certain amount of things that I have to transport or pull on a trailer I would then drive with the car"* (Maxim, Grafing). Another common occasion when the carsharing car was used, was when alternative modes of transport weren't feasible, especially when the distance was too far for cycling and there is no worthwhile public transport connection. Furthermore, members said that when they use a car they try to combine as many things as possible so that they don't have to use a car that often: *"I can't imagine a car ride, where we only do one thing. [ . . . ] It should also have a side effect, an organizationally sensible, in order to justify [the car] to a certain extent"* (Clara, Vaterstetten). Thus, for all the occasions when carsharers were using a personal or carsharing car they justify the purpose of their car use, whereby car use is always connected to a purpose with a specific reason. Hannah made the attitude most of the carsharers have towards the car explicit: *"The car is reserved for situations when it doesn't work differently. The priority is just different"* (Hannah, Grafing). Thence, for all carsharers the usage of the car had to be necessary in the sense of requiring the transport of goods or reaching a destination that otherwise can't be reached. The car isn't valued as such, but rather is valued for the specific purpose



that it enables be it transport, accessibility or leisure activities. Thence, the meaning of the car as object of utility allows for a different priority of the car—it actually becomes the last alternative.

### 3.2. Meanings of Automobility: The Dialectics of Freedom and Coercion

This section will present the expression of the dialectics of freedom and coercion inherent in automobility amongst non-commercial carsharers. In the first sub-section, I will present how freedom is still relevant for non-commercial carsharers in relation to automobility in specific and mobility in general. However, as I will show in the second sub-section, through perceiving mobility as necessity the coercing aspects of automobility gain significant traction and recognition amongst non-commercial carsharers.

#### 3.2.1. (Auto)Mobility and Freedom

The connection between mobility and freedom is widely present and recognized amongst the non-commercial carsharers and when this meaning of freedom was mentioned prominently it was often set in relation to the car: *“I made my driver’s license now finally with 27 or 28. And then I also had a feeling of freedom, what other people probably have already when they are 18. But this feeling, that you can now decide for yourself to drive everywhere with a car, [ . . . ] that definitely is a feeling of freedom”* (Karl-Theodor). David expressed this freedom as independence he gained through his driver’s license. Before he was able to drive a car mobility was cumbersome for him as he had to drive long distances by bike or was dependent on his parents. Now with his license and carsharing he is independent on when to move where: *“Well, a car as such [is always independence] and there is not much left to carsharing. There is not a big difference. So [carsharing] definitely is a piece of independence”* (David, Königsbrunn).

In other cases the connection between freedom and automobility wasn’t made explicit, e.g., by referring to flexibility. For many interviewees it was important to be flexible when they are moving, no matter with which mode of transport: *“Flexibility and uncomplicated, that’s how it should be. [ . . . ] For me it is like, ok, now I want to go somewhere and then it also has to happen somehow in the next month”* (Beverly). Selma even thinks that because the car is so flexible it will not disappear as a mode of transport. In this context she also sees carsharing critically, because having to plan in advance for her is the exact opposite of flexibility and freedom. Thence, the perception of freedom isn’t necessarily only connected to driving itself, but also to flexibly decide on when to drive as *“makers of their own travel plans”* [33]. Usually this is perceived as only being possible with a personal car, an understanding of which most interviewees are well aware and sometimes reproduce themselves. For Henri the easy and flexible access to the freedom and comfort of a car is even part of his quality of life. Having a car available allows for the flexibility of planning according to one’s own schedule and being independent from public transport or weather, while providing a high level of air-conditioned and non-strenuous comfort for moving. This resonates with the comfortability of the car that is often foregrounded and actually became naturalized as *“long held cultural beliefs that one has the right to be as comfortable as one can afford to be”* [60].

Thence, the association of freedom with (auto)mobility is still persistent amongst non-commercial carsharers, especially in relation to independence, flexibility and comfort. The societally valued connection of (auto)mobility and freedom remains intact through the car being used and valued for leisure activities. Suzanne told me that her car is mostly a leisure vehicle that she doesn’t use daily, e.g., for shopping or commuting, but for keeping contact with friends who live further away and leisure activities such as climbing or skiing in the mountains. Her current (privately shared) car is actually a test on how much she needs it, but she doesn’t want to become dependent on it: *“In any case I won’t become dependent on a car, that I say without the car, it isn’t possible anymore. And as long as I live in Munich and don’t move further out, I don’t really need it. It is a test for me so to say, how much do I use this car, do I actually take it? At the moment I wouldn’t want to give it away, because I already got used to it being in front of the door and that one can just quickly go to the mountains or visit someone somewhere, but . . . , if it’s gone, it’s gone. That would also be fine”* (Suzanne). Therefore, instead of the car being an indispensable

status symbol for free movement whenever to wherever, the car rather becomes a dispensable object of utility that enables more flexibility for leisure activities. Thereby, the hegemonic understanding that the car is always, necessarily and predominantly a signifier for freedom and means of liberation is challenged, enabling a more ambivalent understanding of the significance and meaning of the car and automobility.

This contestation is also visible in some carsharers describing situations and conditions under which a reduction or limitation of freedom is desirable. Also here Walter provided a good example: *“I don’t want to think every evening how I am getting from A to B. I somehow want to get into this daily grind. [ . . . ] This isn’t a dream come true, but that is reality. [ . . . ] I do the same rituals every day, drive there, drive back, leave it and go out again. I never have to think about if it works, it just works”* (Walter). Quite obviously getting into a daily grind and building rituals is far away from having full freedom, but nevertheless Walter sees it as reality and the essential aspect of using a car in everyday life. Other carsharers described the limitation of freedom more explicitly. Hannah for example is limiting her mobility through not flying a lot and says that she is *“willing to abstain from mobility, from the technologically possible”* (Hannah, Grafing). Just because it is technologically possible doesn’t mean for her that it is sensible or reasonable to be mobile.

Summing up this sub-section, I want to emphasize that as with the meaning of the car as status symbol the association of mobility and automobility with freedom isn’t disappearing through non-commercial carsharing. Rather, through the car becoming a leisure vehicle and decoupled from daily use, freedom and utility are co-present. Yet, the just described implicit and explicit references to self-chosen limits on freedom of movement by car actually hint at a tension and negotiation with an understanding of (auto)mobility other than freedom.

### 3.2.2. (Auto)Mobility and Coercion

Amongst the carsharers I spoke with the most prominent meaning of (auto)mobility besides freedom was seeing (auto)mobility as necessity, as already shone through when only using the car with a purpose. For example Murray never drives around for fun. He said, that maybe at his 18th birthday when he got his license he went for a cruise with the car, but for him mobility is a means to an end and a necessary evil. He actually understands every kind of mobility as something forced upon him. In case he has to move far with a car, e.g., to visit his father-in-law he tries to deal with it as normal life-time through talking or listening to the radio and never regards movement for its own sake, because it would push him into being annoyed of traffic. While this is on the extreme end of the meanings attached to mobility amongst the carsharers, it nevertheless illustrates that mobility can also be associated with force and as means of domination.

Ivan also doesn’t regard mobility as a purpose of its own but as necessary evil and reaction to a lack of something: *“I am convinced by the argument, that mobility isn’t a purpose on its own but [ . . . ] a symptom of deficiency. When I have to get from A to B, then I have to do that, because I have a lack of something in A. So I have to get to B to get rid of that lack”* (Ivan). Because of this meaning of mobility, he tries to reduce his movement to a small area where he can rely on his own body for movement and reduce his speed of movement. Similarly, Ulrike said that being able to walk is the most valuable form of movement for her: *“Mobility on foot is the most valuable for me. I want to get self-determined from A to B on my own feet without a wheelchair or something else”* (Ulrike, Grafing). She therefore chooses the place she lives according to the mobility options available, as it is important for her to be able to reach public transport on foot, allowing her to not depend on the car.

Karl brings many of the carsharers statements in relation to the meaning of mobility together when he describes mobility as a basic need of life, on which social relations depend. However, the satisfaction of this basic need produces traffic, which is *“the ugly twin sister of mobility. Because everybody wants mobility, but nobody wants traffic”* (Karl, Vaterstetten). Instead of demands for more freedom to move through increased transport infrastructure, for him this leads to the questions if every mobility is necessary or reasonable and how mobility can be organized to reduce traffic. This means that he

understands mobility not as 'God-given', but as something that is shaped. Mobility is produced and sometimes forced through decisions on where people live, which hobbies they have, where they make their vacations or how a city is planned. The resulting traffic is rarely taken into account when these decisions are made, creating unnecessarily large mobility needs: *"And then I suddenly have to drive somewhere. That is a burden for me. That is not fulfillment. That is forced mobility. I have to have it, but I don't want it"* (Karl, Vaterstetten).

The argument I thus make here is that besides associating mobility with freedom there is a strong association of mobility with necessity. The association with freedom is further challenged through a conscious abstention from speed by valuing walking and taking mobility into account when deciding on how and where to live. Thence, many non-commercial carsharers in my study have a differentiated understanding of mobility as a socially produced relationship between movement and stillness [72], instead of unrestrained movement and freedom.

These alternative meanings of mobility open the door for recognizing the coercive aspects of automobility and the car. Once again Walter described the coercive nature of the car and automobility very clearly: *"When they have their own car, then they have to use it, because otherwise it doesn't pay off. The simple fact that they have it, leads to people preferably doing everything with it, because otherwise they pay double"* (Walter). Paying double means that when he picks up his two kids by public transport somewhere within Munich, he easily pays 10–12€. With a privately owned car the perceived costs for this trip are marginal as the investment in the car is done anyways already, so the large investment that is made into the car creates a necessity to use the car for the investment to be worth it. Every additional form of transport, be it public transport or a well maintained bike are extra costs for mobility, that from a pure monetary perspective are not necessary, resulting in automobility *"subordinat[ing] the other mobility-systems of walking, cycling, rail travel and so on"* [45].

Other interviewees described the coercion more implicit and from the perspective of their personal history: *"It is the normal model in our neighborhood. One driver's license at least one car, if not more"* (Ivan). This normality and self-evidence of the private car is also a form of coercion, linking back to the cars' *"comment on citizenship"* [57]. Especially in rural areas this is a persistent relation, also due to the lack of alternative transport infrastructure, leading to a coercion into the car as a mode of transport. Christa and her husband, who have been living in more rural areas for a long time described this quite vividly. In Anzing the alternatives to the car are sparse with no regular bus service to many neighboring villages which would have access to the suburban trains. During our interview I talked with them about the reactions of the people in Anzing to their initiative for founding a carsharing association and they told me that many have the attitude of: *"We have our cars we don't need [carsharing]"* (Family Schmidt, Anzing). People in Anzing arranged themselves with the situation that they need to use the car to get around, whereas it became so normal that alternatives are hard to take into account or to imagine. Thus, I was intrigued if they took mobility into account when moving there. Initially they wanted to move closer to Munich, but the place in Anzing was what they could get so *"you just surrender somehow"* (Family Schmidt, Anzing). This is a telling statement about automobility as it signifies acceptance of a situation that one can't really change and carries a strong notion of powerlessness and coercion. Automobility remains the only feasible option and again demonstrates its strong coercive nature, which however at least is becoming visible.

Also the directly coercive aspects of automobility in relation to flexible schedules and attention to the road were described in the interviews. Robert told me that his life as car-dependent husband was really stressful: *"I always had to commute on a tight schedule. I was always stressed because with the car she called: 'Now you have to come home.' Then she knew exactly I am home in 15 min, because the commute is 15 min. So I quickly had to get to the car!"* (Robert, Markt Schwaben). This changed when the car broke and they moved to Markt Schwaben. Since then he takes public transport to work and can relax more on his commute and at work. In case he has to go home earlier, he now doesn't need to leave instantaneously by car but can just take the next suburban train, significantly reducing his stress. Not commuting by car anymore didn't only relieve Robert from the flexible coercion of the car

but also relieved him from the coercion into attention while moving: *“On the way there I could read”* (Robert, Markt Schwaben). Driving a car requires a lot of attention, wherefore automobility also coerces people into spending their time on driving a car: *“The driver’s body is itself fragmented and disciplined to the machine, with eyes, ears, hands and feet, all trained to respond instantaneously and consistently, while desires even to stretch, to change position, to doze or to look around are being suppressed”* [30]. While this is an aspect that is often neglected by car-drivers or attempted to compensate through conversations with fellow passengers or entertainment systems, like radios [60,73], many of the carsharers saw the attention that is required by driving as undesirable or even coercive: *“If it is possible with public transport I prefer that, because I can sit and look out of the window and don’t have to concentrate on traffic. Well, I don’t like driving a car”* (Mariarosa, Grafing).

Lastly, also private car ownership becomes understood as coercive as it is widely perceived as a burden by non-commercial carsharers. Understanding private car ownership as burden is a decisive break with understanding the car as personal status symbol that has to be cleaned and cared for regularly. Walter attributes carsharing with *“just a nice feeling. You always get a car, that is ready, that is maintained and at the end you give it back and have nothing to do with it anymore”* (Walter). For James this actually was his main reason for joining carsharing. He used to own a car for many years, which sometimes was standing around for multiple weeks or months and then had an empty battery, rusted breaks or some other damages that needed repairs: *“The car for me was just a burden, a cost factor. It has to go to the technical inspection and it . . . you know what I mean? These things . . . taxes, insurance have to be paid without me having a great benefit from it”* (James, Königsbrunn). For James carsharing actually is an improvement regarding the availability of a car, because he knows that when he needs a car he gets one that will work. With his own car this was reverse, making carsharing the more comfortable option, without carrying the burden of caring for a car.

Summing up, through relating mobility to necessity rather than to freedom the coercive aspects of automobility, such as car dependence in rural areas, being tied into flexible schedules, forced attention and the burden of car ownership, become visible for the carsharers. Hence, non-commercial carsharing challenges the coercion of the private car, especially when there is no personal car present in the household. Walter described this as the provision of full freedom of choice in terms of transportation. Instead of being forced to use the private car due to the costs sunk into its investment, he can choose the mode of transport that makes the most sense for every trip: *“Before travelling [my wife and me] think specifically what we are going to do, what is the most reasonable mode of transport. And for that you have the free choice. [ . . . ] [Carsharing] gives you the flexibility of not having to drive a car”* (Walter).

#### **4. Discussion: Shifting Meanings of Automobility and the Car: Reconfiguring the Automobile Subject**

In this article I explored two meanings of automobility, specifically the role of the car as status symbol and automobility as means of liberation and their reconstitution by non-commercial carsharing. Through the production, reproduction and (self-)governance of the automobile subject, these aspects provided the system of automobility with an immense stability over the last century [33,51,52,60]. Nevertheless, fissures and cracks in the reproduction of automobility open the possibility for a reconstitution of the hegemony of the private car [38,39]. In the last sections I delineated two of these fissures and thereby outlined how the meanings of automobility are influenced by non-commercial carsharing.

First, through practicing non-commercial carsharing the car is losing its role as status symbol and becomes understood more as an object of utility. This alteration of the role of the car stands in a close relationship with a more conscious use of the car and the retreat of the car in everyday mobility. The car ambivalently emerges as a leisure vehicle, which enhances leisure activities but isn’t perceived as absolute or necessary requirement. The car as object of utility allows for a more rational relationship to the car, whereas the car as status symbol was generally perceived as the irrational cause for the problems of automobility. The persistence of the car as status symbol highlights the need to understand

the role and meaning of the individual car in relation to the societal meanings of automobility. It is not only the individual significance a person gives to a car, but also the values that are collectively attached to the car, which relationally create the attached meanings: *“The individual psychological investment in the car can be said to arise out of the sensibility of an entire car culture”* ([52], p. 225). Any attempt at changing the hegemonic position of automobility and the individual meaning a person attaches to a car therefore has to pay attention to the co-presence of meanings of the car and automobility within society. This means that there can't be a replacement of one meaning by the other, but only a reconstitution with different emphases and hegemonic meanings. Therefore, it is impossible to reconstitute automobility without being part of its production and reproduction. For this reason and by acknowledging the hybrid of the car-driver according to Paterson *“the appropriate response to automobility is neither simple celebration nor condemnation, but ambivalence”* [33] (p. 163, emphasis in original). And in quite some of the cases it can't be clearly said which meaning is most dominant, but they are rather in a constant ambivalent and 'meandering' relationship with each other, mixing and creating hybrids such as the leisure vehicle. Thus, instead of the car being an indispensable status symbol for citizenship and free movement whenever to wherever, the car rather becomes a dispensable object of utility that enables more flexibility for leisure activities and sociality.

Second, the dialectics of freedom and coercion inherent to automobility become expressed differently through non-commercial carsharing. Paterson argues that automobility is predominantly understood as means of liberation and fulfiller of human freedom, while the coercing and dominating aspects of automobility are obscured and barely recognized [32,33,45,62]. While automobility predominantly presents itself as pure means of liberation, in this article I presented data showing that amongst non-commercial carsharers mobility is also strongly associated with necessity and understood as necessary evil to remedy deficiencies. This strongly influences the appreciation of automobility and its conception as realization of individual freedom working against the force of 'governmobility' [51]. Thence, the relationship between liberation and domination is more ambivalent in non-commercial carsharing. On one side the non-commercial carsharers are clearly aware of the positive aspects and associations of automobility such as personal status, flexibility, independence and freedom. On the other side they also recognize that these positive aspects are coerced onto individuals actually limiting the realization of freedom. Thence, both aspects of the dialectics of automobility—and coercion—are present and widely recognized by non-commercial carsharers starkly contrasting the hegemonic expression of automobility as sole means of liberation and freedom. Therefore, non-commercial carsharing is challenging the hegemony of the private car not only through shifting the meaning of the car from status symbol to object of utility, but also through a different expression of the dialectics of freedom and coercion.

As the changes in the meanings of automobility and the car I argue for are taking place on an individual level, the means for the reconstitution of automobility need to be sought in the production and reproduction of the automobile subject. In very general terms the automobile subject describes a generic type of person *“oriented towards the sort of movement which cars make possible”* ([33], p. 121). In the introduction I already discussed that the automobile subject is an essential aspect of legitimizing automobility on the level of everyday practice as its production and reproduction is intimately tied to the individual realization of freedom through enabling people to be the makers of their own travel plans. The automobile subject emerges from the hybrid of the car-driver and is strongly interrelated with the meanings individually and collectively attached to the car and automobility [50,52,53]. Thence, I come back to a quote by Paterson from the introduction: *“Greening automobility entails a personal odyssey to remake one's identity and re-engage others according to different social logics”* [33] (p. 223). What he means with this, is that in order to change the system of automobility, its social relations ingrained in the automobile subject, need to be reconfigured. In this article I showed how non-commercial carsharing bears the potential for this personal odyssey by shifting the meaning of the car towards object of utility and automobility to means of domination. I described how, many of the carsharers experience a remaking of their automobile identity and subjectivity through giving up car ownership partially or all

together, reducing car usage in everyday life, having to plan their mobility, changing their mobility behavior, feeling annoyed and pressured by the car and perceiving car ownership as burden. Thence, by changing the perspectives on and meanings of the car in specific and automobility in general, automobility ceases to be conceived purely as the realization of individual freedom, significantly reconfiguring automobile identity and subjectivity. The described ambivalence is a clear indicator and result of this ongoing reconfiguration of the automobile subject and the tension between hegemonic and alternative automobile identities and subjectivities. This becomes even clearer when taking into account that non-commercial carsharers are actively engaged in changing the meanings, identities and subjectivities around mobility and automobility and are also not shy of formulating this into a broader vision for the future of automobility: *“It has to have a certain necessity [to use the car]. I think the way it is used often or that there are so many cars ... well ... I don’t know if I am leaning too far out of the window, but I think, if you would have the attitude towards a car as we have, if that would be more common, I dare to claim, that there would be less cars”* (Mountain Hut).

My fieldwork shows how non-commercial carsharing simultaneously works *“with and against the infrastructures, cultures and socialities of private car dependence”* ([35], p. 12) in order to overcome them. Thereby, non-commercial is promising for a reconstitution of automobility and breaking with the hegemony of the private car. Non-commercial carsharing is ‘puncturing automobility’ [38] and alters its continuous reproduction by reconfiguring automobile identities and subjectivities, through subtle and quiet but nonetheless resistant practices [16,74]. Hence, the argument I made and defended is that the very basic characteristics of non-commercial carsharing, using and owning cars together, produce a shift in the meanings of the car and automobility, causing a reconstitution of automobility through reconfiguring the production and reproduction of the automobile subject and producing alternative automobile identities and subjectivities, ultimately challenging the hegemony of automobility in everyday life [35,38,52].

Yet, as implied above, this is only one part of moving beyond automobility, wherefore in these last paragraphs I put the alteration of everyday practices of automobility through non-commercial carsharing into perspective [75]. First of all, non-commercial carsharing locally establishes an alternative mobility culture [76,77]. Alternative practices, meanings, identities and subjectivities alter how automobility and its practices become normalized and habitualized amongst non-commercial carsharers and beyond in the relations and encounters of carsharers and non-carsharers. This means that for fostering a transition towards more sustainable forms of (auto)mobility, fostering non-commercial carsharing is highly beneficial, especially in rural contexts, where no alternative carsharing options exist. In urban contexts, commercial carsharing is already strongly established, yet the tendencies for shifting meanings of the car and (auto)mobility are certainly present within commercial carsharing, wherefore nurturing, supporting and exposing those can become a decisive goal for local urban politics, e.g., through general measures to reduce the ongoing primacy of the private car also in urban contexts.

Second, there certainly is a *“long road from particular [ ... ] processes to a broader radical transformation”* ([78], p. 102) and with this research I don’t imply that non-commercial carsharing solves it all: *“A transition toward sustainable mobility therefore requires more than changing how much energy we use in everyday life in our cities. [...] To reduce global greenhouse gases depends on shifting the entire material assemblage of modern life”* ([7], p. 152). Taking into account that many cars are bought for leisure purposes and holidays requires to rethink how we make vacations [42]. And clearly, a shift towards more mobility services has implications for a whole range of industries [40]. Nevertheless, with this study on non-commercial carsharing I make a contribution to understand how *“deep cuts in carbon use in transport are inextricably linked to such issues as the organisation of contemporary societies, the role of transport therein”* ([79], p. 1004) and their materialization in everyday practices and meanings. Non-commercial carsharing gets to the heart of this relationship and alters its basic premises through invigorating alternative meanings of the car as object of utility and mobility as necessity.

For further research it would be interesting to investigate if the processes and tendencies I identified in this study are exercised differently in different contexts, exercised at all or remain unrealized? For examining the practical role and potential of non-commercial carsharing in fostering a socio-ecological

mobility transition, these are extremely relevant questions that require more qualitative research on non-commercial forms of sharing mobilities. The only other in-depth study on non-commercial carsharing I found in the literature by Newman on *Talybont* in Wales and an old report on car clubs in the UK make similar claims, wherefore more research on non-commercial carsharing is promising for outlining pathways towards a socio-ecological mobility transition [26,27].

Thus, to finally conclude, changing and re-embedding high-carbon everyday practices of automobility in the Global North through non-commercial carsharing is a first and important step for a socio-ecological mobility transition, especially as it potentially paves the way for broader change through altering everyday practices and meanings of automobility [7,11].

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## Appendix A

**Table A1.** Overview of all interviews with pseudonym, form of sharing, position/relationship, duration and place of residence. M = Munich, y = years.

Interview	Pseudonym	Form	Position// Relationship	Member Since// Duration	Place of Residence	
	Karl	Association	Board & founder	26 y.	Vaterstetten	
	Clara	Association	Member	20 y.	Vaterstetten	
	Rosa	Association	Board	12 y.	Markt Schwaben	
	Antonio	Association	Board & founder	25 y.	Markt Schwaben	
	Frigga	Association	Member	6 y.	Markt Schwaben	
	Robert	Association	Member	Approx. 8 y.	Markt Schwaben	
	Helen	Association	Member	1.5 y.	Grafring	
	Henri	Association	Extended board	Approx. 8 y.	Grafring	
	Maxim	Association	Member	1 y.	Grafring	
	Ulrike	Association	Member	4.5 y.	Grafring	
	Hannah	Association	Member	9 y.	Grafring	
	Mariarosa	Association	Board & founder	20 y.	Grafring	
	Erich	Association	Member & warden	7 y.	Grafring Bahnhof	
	Bob	Association	Member	Approx. 5 y.	Grafring	
	Elmar	Association	Member & warden	At least 6 y.	Grafring Bahnhof	
	David	Association	Member	1 y.	Königsbrunn	
	Family Schuster	Friedrich	Association	Member	2 y.	Königsbrunn
	Family Schuster	Sophie	Association	Member	2 y.	Königsbrunn
	James	Association	Member	2 y.	Königsbrunn	
	Family Schmidt	Christa	Association	Founder	To be founded	Anzing
	Family Schmidt	Georg	Association	Founder	To be founded	Anzing
	Simone	Simone	Association	Board & warden	15 y.	Freising
	Murray	Murray	Association	Board & founder	4 y.	Erding
	Jean-Paul	Jean-Paul	Association	Member	1.5 y.	Grasbrunn
	Karl-Theodor	Stella	Private	Friends	3 y.	M: Laim
	Karl-Theodor	Cinzia	Private	Friends	3 y.	M: Hirschgarten
	Karl-Theodor	Béla	Private	Friends	3 y.	M: Laim
	Karl-Theodor	Tariq	Private	Friends	3 y.	M: Hirschgarten
	Raya	Raya	Private, StattAuto	Neighbors	14 y.	M: Westend
	Ivan	Ivan	Private	Extended family	8 y.	Wolfratshausen
	Beverly	Beverly	Private	Friends	12 y.	M: Schwabing
	Suzanne	Suzanne	Private	Friends	2 y.	M: Laim
	Judith	Judith	Private, StattAuto	Friends	16 y.	M: Haidhausen
	Karin	Karin	Cargobike-sharing	Neighbors	1.5 y.	M: Schwabing
	Mountain Hut	Nancy	Private	Friends	0.5 y.	M: Schwanthalerhöhe
	Mountain Hut	Louis	Private	Friends	0.5 y.	M: Nymphenburg
	Selma	Selma	Private	Neighbors	To be founded	Neubiberg
	Martha	Martha	Private	Extended family	3 y.	M: Bogenhausen
	Walter	Walter	Private, StattAuto	Friends	10 y.	M: Haidhausen
	Camper	Mimi	Private	Neighbors	5 y.	M: Riem
	Camper	August	Private	Neighbors	5 y.	M: Riem
	Camper	Ellen	Private	Neighbors	3.5 y.	M: Riem

**Table A2.** Socio-demographics of the interview partners. Most values are estimates as their exactness isn't relevant for my argument. F = Female, Male = M, ? = Unknown, Mu = Munich, N = No, Y = Yes.

Pseudonym	Age	Sex	Education	Job	Income	Car Ownership (Additional)
Karl	60s	M	University	Economist	Middle	N
Clara	50s	F	Abitur	Librarian	Rather high	N
Rosa	50s	F	?	?	Rather high	N
Antonio	50s	M	University	Environmental technician	Rather high	Y
Frigga	60s	F	University	Pensioner	Low	N
Robert	40s	M	University	IT technician	Rather high	Y
Helen	30s	F	Apprenticeship, Abitur	?	Middle	Y
Henri	61	M	University	Self-employed	High	N
Maxim	68	M	University	Pensioner	Rather high	Y
Ulrike	50s	F	?	Elderly care	Low	Company car
Hannah	40s	F	University	Psychotherapist	Rather high	N
Mariarosa	60s	F	?	?	Rather high	Y
Erich	62	M	University	Medical informatics	Middle	N
Bob	60s	M	University	Social worker & bike technician	Rather high	Y
Elmar	60s	M	University	Project manager	Rather high	Y
David	20	M	Abitur	Student	Low	N
Friedrich	50s	M	University	Energy technician	Rather high	Y
Sophie	50s	F	?	?	Rather high	Y (with Friedrich)
James	60s	M	University	Pensioner	Middle	N
Christa	40s	F	University	Social work	Rather high	Y (own)
Georg	40s	M	University	Social work	Rather high	Y (own)
Simone	50s	F	?	Civil servant	Middle	N
Murray	50s	M	University	Teacher	Middle	N
Jean-Paul	30s	M	PhD	?	Rather high	N
Stella	30s	F	University	Social worker	Middle	Y (camping van)
Cinzia	30s	F	University	?	Middle	N
Béla	30s	M	?	?	Middle	Y (camping van)
Tariq	30s	M	University	?	Middle	N
Raya	70s	F	University	Pensioner	Middle	N
Ivan	40s	M	?	CEO energy start-up	Middle	N
Beverly	30s	F	?	Media	Rather high	N
Suzanne	30s	F	University	Project manager	Rather high	N
Judith	70s	F	Apprenticeship	Flight attendant, elderly services	Low	N
Karin	30s	F	?	?	Rather high	Y
Nancy	30s	F	Apprenticeship, Abitur	Carpenter	Low	N
Louis	30s	M	Middle School	Waiter	Low	N
Selma	40s	F	University	Political scientist	Middle	N
Martha	39	F	University	Public relations	Rather high	N
Walter	50s	M	University	?	Rather high	N
Mimi	40s	F	?	Musician	Middle	N
August	40s	M	University	Engineer	Middle	N
Ellen	60s	F	?	Self-employed	Middle	N

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