Paths Unknown: The discovery of car culture and the intricacies of cyborgs.

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Words: 16324

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Preface

About the research

This research was conducted in early 2020. From January till late March, I spend time with many people in the off-road scene, in and around Brisbane, Queensland, Australia. My own personal interests in the topic of off-roading drove me to choose it as the research subject for this master's project. Additionally, the recent increase in popularity of off-roading, or other forms of long-distance vehicular travel, make it a relevant case study into the relationship between people, their surroundings, and the ever-increasing use of technology (Grant 2008, 1103). When drafting the fieldwork proposal, I imagined the field largely in terms of long distance, remote, vehicular travel. But during my research and interaction with research participants, I realized that more localized off-roading communities proved a more productive ethnographic insight into the practice of off-roading instead.

When I started establishing contact with potential interlocutors for my January-March research period. I was told from the beginning, by potential research interlocutors, that during this period it was bushfire season in Australia (which mostly affects the coasts), and that the outback was all but impenetrable due to severe summer heat. Although I did face some four-wheel drive access bans due to fire risk, relating to the severe 2020 wildfires in Australia, Brisbane was mostly spared during this bushfire season. Rather contradictory, it was mainly flooding and rain, originating from the very rains that ended the 2020's fires, that impacted my personal experience in Australia the most.

During my preparations I talked to many people who are engaged with the world of long-distance remote travel. Many of them were interested in my research, but none of them could offer me an opportunity to join them. Sometimes, because taking a researcher and camera gear simply wasn't viable in the limited space of the vehicle, they lived in. Sometimes because they valued traveling alone. But most often, because people in Australia do not plan long distance trips during the height of summer, exactly because of the risk of bushfires, floods, and excessive temperatures, which make many places impassable.

After I arrived in Brisbane, in early January 2020, I posted a single message on r/Brisbane[1], explaining my (research) intentions and interests, which led to me getting in contact with Greg Milligan. During my first days in Australia, Greg would be the one to introduce me to the people who ended up showing me the world of off-roading in Australia. It turned out that the more localized off-roading communities are far more prevalent than the individuals engaged in long-distance remote travel. The off-roading community in Brisbane was also far more capable, or willing, to allow me access into their practice of off-roading. It is thus because of Greg that I would spend the next three months in Brisbane, diving deep into the world of off-roading.

During my research I found that this world of off-roading is very diverse, and it almost goes without saying that the people I met are not necessarily representative for off-roaders everywhere. Therefor the argot or jargon I encountered during my research, might not be understood similarly by all off-roaders, especially by those outside the Australian context. Yet I feel that a reader of this material, who might not have, or gain a full understanding off all the (technical) intricacies of off-roading and its jargon, is not necessarily limited in gaining an understanding of off-roading through this piece. Understanding every piece of jargon, and every technical detail, in my opinion, should not be the goal of anyone engaging with this material, or any ethnographic material for that matter.

[1] r/Brisbane is a subpage of the message board reddit.com, an online platform for people all over the world.

As a (Dutch) researcher I was, and still am, an obvious outsider to the Australian off-roading context. Over the course of my research, I encountered many (technical) details and situation that I did not fully understand, and I believe this is not only inherent to ethnographic research, but also to (Australian) car culture in general. It was only after revisiting some of my (audio-visual) materials at a much later moment during my research, that I actually understood some of the things I did not understand, or notice, during earlier interactions. In fact, it was only after revisiting my audio-visual materials, with much greater understanding, which was gained over the course of the fieldwork, that I realised that I missed, and thus didn't understand, parts of my interaction in the field. It is logical to conclude that I am probably still unaware of more than one interaction that I 'missed'. As a reader/viewer of this material, and thus as an outsider, it is likely that you will not fully understand some nuances provided by this material, and in my opinion, that is okay. After all, in ethnographic research, it is impossible to gain a 'full' understanding as an outsider; and this is something everyone who engages with ethnographic material should not only realise, but also embrace, as part of the constructed reality of ethnographic knowledge.

The basics of Australia as a place for off-roading

When talking about Australia (in an ethnographic context), specific location matters. With 7.5 million square kilometres of land, it's 3/4th the size of the entire continental Europe. I found that the sub-tropical country around Brisbane, which this research engaged with, is vastly different from examples like the Victoria highlands, the tropics in the north, or the deserts around Perth; Australia is a diverse place when it comes to its landscapes. Even though Australia has a colossal 7.5 million square kilometres of this diverse land, it 'only' has a population of 25 million people, largely living on the coast. In comparison, this is about 1/30th of the population of Europe. This thus means that there are large uninhabited areas, often referred to as bush or 'outback' that cover Australia. It is these areas that gave rise to the popularity of off-roading, as a way to engage with the 'great outdoors' (Bishop 1995, 266), especially because they stand in such stark contrast with the inhabited suburban parts of Australia. That the outback has been a phenomenon in the 4-wheel-drive scene can be seen in the 1991 Toyota Landcruiser add below. The idea that the Landcruiser can navigate the Australian outback, sends such a strong message that Toyota is using it to market its 4wd to American customers.

Australia is also made up of different states. Each state has its own regulations for the modification of (off-road) vehicles, as well as the way they handle four-wheel drive access and permits. States also differ in their approaches to state parks, and other nature conservation projects. Some might allow dogs and vehicles under certain circumstances, while others might not. Some states might operate on the requirement of paid pre-booking for camping, while others might not have free public campgrounds. This research was largely conducted within the state of Queensland, and this thus is a key consideration when engaging with this research.

To engage with Australia as a place for off-roading, it is important to look into the factors that afford Australia to be a place for off-roading. Two important factors to this end are the availability of places to off-road, and the availability of vehicles to off-road with. Even though Australia knows vast amounts of bush and outback, these in themselves do not constitute as places to off-road. Off-roading still requires infrastructure, like fuel availability (not infrequently interlocutors and I had to leave 4-wheel-drive destinations to 'run back into town' to refuel the vehicle), or the presence of some form of road, path or track (Bishop 1996, 260). Some of this infrastructure can be attributed to the colonial heritage of farming and herding in the Australian interior. Many famous off-road tracks originated as herding stock routes, which provided ways to move cattle from the interior to colonial cities. In modern times, mining in Australia is what provides much of the infrastructure in the interior.

Mining exports accounted for 200 billion dollars in exports in 2016, and contributed to 6% of Australia's GDP [2]. Because of this scale, there is economic incentive to provide rudimentary services in areas that would not otherwise be accessible to off-roaders. It is also this mining business that drives the demand for off-road vehicles that are not sold in other markets, like the Landcruiser 70 series.

Trade skill workers, better known as 'tradies' make up for a relatively large proportion of the Australian work force, at around 30% [3]. These tradies also drive a large portion of the demand for off-road pick-up trucks, called 'utes'. This relatively high demand, both from the mining industry, as well as tradies, affords for many companies offering aftermarket accessories and parts. Giving the Australian off-roading communities more options for vehicles and vehicle modification, compared to most other places in the world. This is a key reason (recreational) off-roading is so popular in Australia.

[2] https://minerals.org.au/driving-prosperity#:~:text=Mining%20industry%20contribution%20to%20the%20Australian%20economy&text=According%20to%20the%20Australian%20Bureau,contributor%20to%20the%20Australian%20economy.

[3] https://www.safeworkaustralia.gov.au/doc/infographic-serious-claims-tradies

A short history of the Australian off-roading places

'Overlanding' is a term that is often used, around the world, to describe the practice of travel by land, usually in remote areas. This term is often (but not always) associated with vehicular travel, and is often indistinguishable from other off-roading terms like 'touring'. 'Overlanding' certainly implies long term travel (spanning over multiple days or months), while 'off-roading' does not necessarily imply engagement over prolonged periods. The first use of the term 'overlanding' in the Australian context I could find was in 1868; Browne (1868, 1) states it is used to describe the movement of driving large amounts of cattle to the Australian colonial markets. Browne (1868) uses the term to describe not only the concept, or practice, but also the way of life of the people, and the people (herders and drivers) themselves, who were engaged in driving these cattle to the colonial trading cities (Browne, 1868, 5).

This colonial heritage still has impact of the practice of off-roading in Australia today. Many roads and tracks that are still used, recreationally by off-roaders or otherwise, were originally created as routes to move livestock and cattle by. The Canning Stock route and the Birdsville Track are examples of routes that have their origin in this history, and are still being hailed as must-see destinations for Australian off-roaders today[4]. Many of these tracks exist today only for the challenge of driving them, as many parts of these tracks are not used for any other purpose. Later on, mining provided many tracks that are now all but abandoned, and similarly only still exist for recreational purposes.

Bishop (1996, 262) describes the idea of the 'high-tech' outback. The outback imagined by the colonial ideals of connecting and developing the outback (Bishop 1996, 262), into a 'civilised' place through the use of technology. The 'high-tech' outback stands in stark contrast with Bishop's (1996, 261) idea of the 'low-tech' outback, an imaging of a "vast, pristine land, populated by rugged, mainly male, individuals struggling to survive" (ibid). It is this imagining of the 'low-tech' outback, as a rugged, impassable place, that appeals to the 4x4 owner (Bischop 1996, 262).

It is then perhaps ironic, that the 'high-tech' outback, imagined by the colonial ideals of connecting and developing the outback (Bishop 1996, 262), paved the way for the 'low-tech' outback; which is symbolized by the rugged nature of the landscape, and the idea of 'struggling' to survive in the hostile wilderness (Bishop 1996, 262). Without the colonial ideals of 'transforming' the outback from the pre-colonial state, to a 'high-tech', connected, and mostly 'settled' outback, many of the roads and tracks that afford off-roading, wouldn't exist. The colonial history of the outback is rooted in aboriginal claims for land and self-determination (Bishop 1996, 268), and is still relevant today (Blair & James 2016, 76), especially considering that the 'outback' was used for large scale agriculture by indigenous people before colonisation (Pascoe, 2014). Pascoe (2014, 224), argues strongly that the pre-colonial outback, was definitively not the inhospitable wilderness it is today. It is then the colonial involvement, through soil degradation (Pascoe 2014, 21) that created the hostile 'low-tech' outback, glorified in off-roading communities and adds for 4x4 vehicles (Bishop 1996, 262). It was the destruction of land by colonial practices of herding cattle (Pascoe 2014, 28) that destroyed the fertile land and created the 'hostile' red wastelands that makes up the outback today.

[4] https://www.hemamaps.com/plan/location-guides/offroad-top-100-pt-4

The value of the outback as ‘rugged nature’ (for off-roading enjoyment), is often gaged in the (in)accessibility of the terrain (Bishop 1996, 264). Thus, by increased connectivity and access through means of paved roads, the outback loses its value as place for off-roading (Bishop 1996, 260). Places that take a long time to get to, or are far away from settlement, are valued as places for off-roading, explicitly because they are hard to reach (Bishop 1996, 264). This is somewhat paradoxical, as four-wheel-drive vehicles are means that reduce this very inaccessibility (Bishop, 1996, 263). Coupe (1994, 27) describes Alice springs, an historical outback town, now connected by bitumen highways with the words: *“while allowing access in all directions to the outback, [it] is no longer really of it—a plastic heart in an ancient body.*" Which of course insinuates that the increased access to the town, has excluded it as part of the outback entirely.

Introduction, about 4x4 and off-roading

What is off-roading?

The term 'off-roading' has a few different meanings depending on the context. When talking about environmental issues, off-roading is often regarded as literally driving off the road, path or track, into complete and 'untouched' wilderness. This often raises concern for environmental issues and symbolizes the 4WD as a token of environmental disregard (Bishop 1996, 259). Yet, this is not necessarily the definition of off-roading many enthusiasts use. Enthusiasts (mostly) refer to the use of some form of road or track, when talking about off-roading. The exact moment where 'normal' driving turns into off-roading is a debatable topic. Bitumen (paved) roads are definitively not off-roading. While 'low range high clearance only' tracks are definitively for off-roading. Any road in between these two denominations might fit into either category, mostly depending on the interpretation of the user based on the state of the road, which is impacted by the weather, and capabilities that are afforded by the vehicle and its driver. For example, Hema Maps, a company that make maps specifically for off-road use, distinguish between a track (which are rated easy, medium or hard) and unsealed roads. An unsealed road is simply defined by the fact that it is not a bitumen road, and can often easily be driven in two-wheel drive vehicles. As a rule of thumb, 4-wheel drive can be engaged on unsealed roads, to improve safety, while this is not advisable on bitumen roads, as the high grip creates added strain, which will certainly break parts of the vehicle. Tracks are often, but not always, distinguishable by the signs, which are placed by the local government, warning drivers that access is restricted to 'high-clearance, 4-wheel-drive vehicles only'. Where unsealed roads often require 4-wheel drive to be driven safely, tracks often require 4-wheel drive to be driven at all.

Off-roading in any case involves vehicles with four-wheel-drive capability, and driving in places where a two-wheel drive vehicle would generally not be able to go. Bishop (1996, 257) argues that off-roading is closely connected to notions of experiencing the outback (Bishop, 1996, 257), though Bishop (ibid) does make a distinction between '4WD devotees', who are mainly interested in vehicles, and 'nature lovers', who are mainly interested in nature or the outback. I've found that while indeed, the motivations of off-roaders on why they are interested in off-roading, can be roughly equated to either 'nature lovers' or '4WD devotees', I would not argue for an ontological divide within the off-roading community on this basis. I've found that while there are large differences in environmental sympathy, as well as mechanical sympathy, between off-roaders, I've not met an off-roader who is only interested in one of these aspects.

The vehicle, people and places

In preparing this research, I identified three main concepts to engage during my research; 'the vehicle', 'the people (off-road drivers)', and 'the places (people off-road in)'. Though when we talk about off-roading, none of these concepts can be understood separately from the others. A driver only exists in relation to a vehicle, and when talking about vehicles in an 'off-road' context, we invariably imply an 'on-road' context, and thus the concept of places and infrastructure. When engaging with these concepts through the lens of Haraway's (1958, 59) ideas on the (lack of) ontological divide between people and technology, the question becomes to which extent these three concepts can be separated from each other, or in fact, how they are connected. During my fieldwork I found that there definitively is a component of individualistic agency within off-roading. Off-roaders generally end up in some of the remote places in the world because they choose to travel to these places, rather than by chance, or an external agent. Davidson (1982, 234) argues that it is experiencing "*wilderness, the untamed pure quality, the magic and aloneness and freedom of this country*" that draws off-roaders to these remote places. Yet, Bishop (1996, 260) argues that even though the four-wheel-drive is an individualistic symbol, as the driver decides when and where to travel, it is still bound to the public infrastructure of roads and petrol stations. And thus, there is an implicit connection between people, vehicles and places. Based on the concepts of actor network theory, affordance, and infrastructure, during this research, I engaged with the connection of people, vehicles, and places, that constitute the practice of off-roading. The main question this work engages with then is: "What is the relationship between people, their vehicles, and their surroundings?"

Social and Academic relevance

Today we are more connected than ever. Globalisation brought promises of unification (Tsing 2000, 339) through connectivity, and technology under the banner of modernisation (Tsing 2000, 335). Though we now accept that diversity will not disappear under global influences (Tsing 2000, 352), technology remains a key part of all corners of our society. Technology is everywhere, and our lives would not be the same without them.

Through the concepts of Actor-Network-Theory, Affordance, and Infrastructure, I engage with off-roading. The case of off-roaders, their vehicles, and the places they drive in, might give interesting insight in the broader, but often opaque relationship between people, technology, and their surroundings.

Community and the 4x4 language

When I left for Australia, I had hypothesised that off-roaders would be largely individual entities, which were part of a more or less homogenous group, connected by a few online message boards. When I met Greg Milligan during the initial days of the research, it quickly became evident that that my hypothesis was wrong. Although I've found that off-road communities are indeed largely connected by online message boards, in this case the 'Mad Rutters'[5] (now 'Untamed 4x4 QLD') Facebook group, there is a large social aspect to traveling to remote places. Firstly, I learned that off-roaders rarely travel alone. As per example on the right, off-roading alone is not advised, and joked about in the 'Mad Rutters' Facebook group.

There were frequent messages on this Facebook page, that asked people, who were effectively strangers, if they were interested in joining them for a drive. I've found this largely occurs because of safety aspects, a single off-roader can often not get itself unstuck, where multiple vehicles can more easily help each other. But the level of social interaction, between these people, often quickly surpasses this initial safety aspect. Sitting around a campfire together, after a day's driving for example, cannot be attributed to safety on the tracks. Additionally, there are parking lot car-meets, designed to socialize and engage with each other and their vehicles; and people often engage each other to build, maintain or modify their vehicles, usually on vehicle specific pages. I've found that a large part of off-roading is done sitting in driveways, with greasy hands, muddying stubby coolers (containers that keep drinks cool), while having banter with friends.

This heightened interaction and interconnectivity does sometimes cause some issues within off-roading communities. Because people engage strangers to the end of safely driving together, or to discuss technical aspects of vehicles and maintenance, there is always the risk for off-roaders of engaging with people that have less than desirable levels of understanding. As Shan put it when referring to Facebook: *"any man and his dog can give their opinion"*, which is a crude way of saying that any information you get through engaging strangers online should be taken with a pinch of salt, because not everyone might be as knowledgeable as they make out to be. I argue that this, as well as effective communication, is the reason off-roading communities use jargon, or perhaps even argot (Coleman 2014, 31), to display a certain level of confidence when interacting with other off-roaders. Off-roading involves a lot of specific language, which, especially for outsiders, is difficult to engage with and understand. It is through the involvement with off-roading, that people learn this jargon. And thus, the jargon could be used, by off-roaders, as a way to gauge another's knowledge on off-roading; And in doing so determine a level of social cohesion (ibid).

[5] https://www.facebook.com/groups/untamed4x4qld

The reader, the research, and my involvement

Even though I was somewhat technically inclined, at least to the point where I felt confident that I could engage with the technical aspects of off-roading, before the start of the research, there were many instances of jargon I encountered during it, that I did not understand. It is only after revisiting my research materials after collecting them, in editing the audio-visual material, and writing this piece, that through the newfound knowledge and understanding, I realised how much engagement I missed, or not fully understood, during the initial phases of my participative research. I argue that this is not problematic, but rather a necessary result of the constructive nature of social research. Not unlike another off-roader, my social involvement through participatory observation is what allowed me to learn more about off-roading and its jargon. Allowing me to better understand material that was gathered during earlier encounters, after the fact.

Mosse (2006, 936) argues that the academic knowledge production, like this text, should not be a large disconnect with the social and collaborative aspects of ethnographic research. It would thus not be desirable to present these earlier materials, as if there was an advanced level of understanding of the jargon in it, while it was gathered. Because this understanding was not present, at the time of gathering these materials. Especially because the lack of understanding formed the social interactions of the research. It is because of this I adopt MacDougall's (1998, 79) notion that new knowledge is centred in the experience from which the knowledge was derived. This means engaging with a constructivist approach of knowledge production, that focusses more on the relational nature, in the form of the relationships and interaction, my interlocutors and I had in the field (MacDougall 1998, 79); rather than mediating an observational understanding of what off-roading is. This means that the audio-visual aspects of this thesis, as well as this written part, likely will contain jargon, of which the meaning will not be made explicitly clear to the viewer or reader. By making this choice, I at times, push the viewer/reader into an 'outsider' perspective, which is representative of the relational context of this research. During this research the meaning of all jargon was often not known to me, and not required for me to gain an understanding of the different aspects of off-roading. This piece thus aims to engage the reader/viewer with the practice of forming an understanding of off-roading, and thus with the relational aspect of off-roading, rather than a more observational understanding, to construct a form of knowledge reproduction that is more truthful to the social aspect of this ethnographic research, according to the principles of Mosse (2006) and MacDougall (1998).

Methods

The ontology and epistemology of visual research

The main research question this piece concerns itself with is: "What is the relationship between people, their vehicles, and their surroundings?" in off-roading. To answer this question through the means of visual ethnography, the question: "How can an idea of off-roading be constructed through film?" also needs to be answered.

Before, I argued that "through focusing on the relational aspect of off-roading, a form of knowledge production is constructed that is more truthful". This argument also builds on the ideas of Ruby (1991: 53) who states: *"As the acknowledged author of a film, the documentarian assumes responsibility for whatever meaning exists in the image, and therefor is obligated to discover ways to make people aware of point of view, ideology, author biography, and anything else deemed relevant to an understanding of the film"* (ibid). Which means that a researcher has an obligation to provide as much relevant context as possible, to those who engage with ethnographic materials. MacDougall (1998, 88) argues that this reflexivity should however not be misunderstood as some form of scientific objectivity. The idea that researcher bias can be isolated from the material, by being open about as much context as possible, *"maintains the ideology and mechanism of nineteenth-century positivity… and does not grasp the fundamental insights of recent thinking about textuality"* (MacDougall 1998, 88). I argue that contextualisation as described by Ruby (1991), is important to avoid the disconnect between social research and academic text (Mosse, 2006); contextualisation should be used to emphasise the constructed nature, by focussing on the involvement of the researcher, without claiming that the researcher can be isolated from the material through contextualisation. I argue that contextualisation does not imply that there is a "correct" interpretation (MacDougall 1998, 88) of ethnographic material, but rather that it should embed the idea that "*the 'author' is in fact in many ways an artifact of the work*" (ibid). Contextualisation is an argument for the manner in which interlocutor and researcher are engaged, to produce knowledge in a constructive manner, rather than a way to isolate the researcher from the ethnographic material (ibid).

"If anthropology is still to be regarded as producing expertise, it inevitably has to claim to produce a form of knowledge about a certain set of objects that is somehow "better" than what laypeople can produce" (Pels, 2014, 230).

Pels (2014) summarizes one of the issues of a constructivist approach. "If the knowledge we produce isn't objective truth, but constructed, how do we distinguish ourselves from political activists?" (Pels 2014, 230). Pels (2014, 288) argues that cultural classification is (still) an object of anthropology, and that the validation of this practice lies in the (constructed) history of the relation between subjects and this practice. Academic knowledge production through academic writing is historically and contemporarily, in multiple ways, a disconnect with the social and collaborative aspects of ethnographic research (Mosse 2006: 936). Mosse (2006: 937) notes that the ethnographic fieldwork however is becoming more socially involved and connected. This ever growing disconnect between the anti-social writing and the 'social research', needs to be addressed when producing research; and cannot, according to Mosse (2006: 937) simply be solved by informant self-representation. Mosse (2006: 944) states this is important because from an epistemological point of view, the "*limits of what can be known… are determined by the social relationships*". Mosse (ibid) goes on to explain that this limitation occurs because social research should be true to its social context, and if the researched disagrees with the portrayal of the social context (of the research), there is by definition something lacking in the way the social context is constructed in the research. According to

MacDougall (1998, 79) in contemporary anthropology, new knowledge is centred in the experience from which the knowledge was derived. This form of knowledge production does not distinguish between the knowledge and the way it was created through experience, the experience and the knowledge are thus the same (MacDougall 1998, 79). This then means that to portray off-roading 'correctly' is a factor of representing the experience through the way it's constructed by the relationship between my interlocutors and me.

To this end, montage of audio-visual materials is used to engage with a form of knowledge production that does not reduce experimental reality (Suhr & Willerslev 2013, 99) into the academic-social disconnect, that is common in written pieces (Mosse 2006). These audio-visual materials should be understood as a way to scope the broader context, and relational engagement of research. The audio-visual modality is a way of engaging, that gauges a form of coherent context, that remains open and incomplete (Suhr & Willerslev 2013, 99).

A main problem regarding representation in visual ethnography is that visual representations are often perceived as truth (Barbash & Taylor 1997, 49), especially because representation is the construction of knowledge through filmmaking (Barbash & Taylor 1997, 353). However, Barbash & Taylor (1997, 2) do state that any research participant is able to understand their representation in film much more easily than their representation through (academic) text, and thus a research participant can more easily engage with this form of knowledge production. MacDougall (1998, 80) argues that some ethnographic knowledge can only be mediated through research data, like audiovisual recording. It can therefore be argued that even though the viewer might not fully understand the constructed nature of the material, the material might be able to mediate an understanding that is shared by the participant; Even though a participant and a researcher might have a shared understanding, film might be understood differently by a viewer yet again (MacDougall 1998, 150).

The first part of the clip below is part of the film. When I got feedback from my peers on this clip they focused on the meaning of the gate, and presumed that it implied that we were driving somewhere where we weren't supposed to be. The intention I had with this clip, and the understanding I share with my participants, Shan and Kaeleen, were different altogether.

In Australia it is common courtesy to leave gates as you found them when driving through them. Leave open gates open, and close gates behind you if they were closed when you drove up to them. This is largely because farmers depend on these gates to keep cattle in specific areas. The clip intends to show an interaction between Shan, Kaeleen, and me, learning the etiquette that is attached to gates and convoy driving.

The morning before this clip was recorded, we passed the gate in the opposite direction. Shan had explained to me that the passenger in the first car opens the gate, and that the passenger in the last car closes the gate. That morning our convoy consisted of around 8 vehicles. When we passed this gate on return, when this clip was taken, our convoy only consisted of 2 vehicles. Shan and me, and Kaeleen and her kids. Because I was not well versed in the etiquette of convoy driving and gates, I assumed (wrongly) that a 2-vehicle convoy would operate similarly to an 8-car convoy. It is good to know that Kaeleen, a very avid off-road driver, had just moved up to Brisbane, and was also new at convoy driving. In the clip you can hear me say to Shan 'ask Kaeleen to close the gate' to which he replies 'ah nah, its only two cars'. Unlike me, Shan had obviously realized it makes no sense to have two people get out, walk to the gate, open and close it, and walk back to the vehicle, when there is only a 2-vehicle convoy. As I get out however, you can hear Kaeleen get on the radio, and say 'I'll close the gate'. I argue that in this case, my learning experience as an ethnographer, getting familiar with

convoy driving, is very similar to the learning experience of members of the community who are convoy driving for the first time. I included this clip in the film because of this reason. I argue that showing the progressive discovering of the relation (MacDougall 1998, 89) between my interlocutors and me is important, in order to construct the idea that I am not merely an observer, but a social actor within the context of this research (ibid).

In the second part of the second part of the clip we get some insight in how convoy driving and gate etiquette are normally handled. In the beginning we see Lily opening the gate, and you can hear David asking me to close the gate. I can see that Lily hasn't gone back to the vehicle, so I make a joke. In the end Lily is a kid, and forgets to close the gate, which Shan noticed. Because it is important to lock gates, so that farmers and off-roaders remain in good standing, he asks me to jump out and lock it.

The understanding a film mediates isn't fully determined by the researcher, but depends on the interpretation of the viewer as well. This isn't necessarily a bad thing, as this change in epistemology breaks with the problematic power relation that is associated with the authority of the researcher in ethnographic text (Clifford, 1983 145). It is important to acknowledge that the research interlocutor has a transformative impact on the research, and this impact results in a co-authorship between a researcher and their interlocutors (Snowdon 2017, 14). This means that in research, it isn't just preferable to include interlocutors in the making of the film, but it is essential to show the relational matter, in a way that is less likely to be interpreted in a deterministic manner.

To this end I draw inspiration of the work of Vannini & Taggart (2019) who, through the use of longshots and the relationality of 'living off grid', portray the practice of 'living off grid' in a way that (seems) to do justice to the interaction between the respondents and researcher, while still leaving room for interpretation by the viewer. The material does not pretend to be authored by anyone else than the researchers, and doesn't diminish participants to tools of legitimisation (Barbash & Taylor 1997, 89). Yet it doesn't force an authoritative standpoint, as the attitude of the Vannini & Taggart (2019) towards 'living off grid', other than their interest in it as research topic, remains largely hidden, while being largely open about the involvement of the researcher. Their involvement in constructing the ethnographic material is not hidden, but they do not limit the viewers interpretation by focussing on their own authoritative explanation, through for example narration.

In conclusion, audio-visual materials should not be explained through narration or text, as it is important for the viewer to interpret the materials themselves (Barbash & Taylor 1997), (MacDougall 1998), (Suhr & Willerslev 2013), (Mosse 2006), as the increased reflexivity that is afforded to visual methods, when compared to written ethnographic material, is dependent on it. MacDougall (1998, 89) argues that any explanation given by the researcher, should be viewed with suspicion, as it "is more likely to imply a protective misconstruing of the situation" (ibid). It is thus up to the reader/viewer to interpret the audio-visual material separately. However, as shown above, there is sometimes a demand for further contextualisation (Barbash & Taylor 1997: 75). Which is possible, as long as it is done in a separate process of reflection (MacDougall 1998, 89).

Audio-visual methods are thus an effective modality to produce knowledge that is truthful to the relational nature of ethnographic research (Barbash & Taylor 1997, 353). But I've found that audio-visual methods are not necessarily useful tools to establishing relationships with interlocutors.

In setting up this research, I talked with different people about the issues of 'entering the field'. How was I going to meet off-roaders, hallway across the world, if I didn't have any local

contacts? However, as discussed before, it took me almost no time at all to 'enter the field', almost immediately after arriving I has so much engagement with off-roaders through social media, that it was hard to keep track of all of the conversations I was having. The question that shaped my research much more was the question of how to engage with interlocutors, using a camera? If I were to join interlocutors several times on off-road trips, I had to establish some form of relationship with them, and in my opinion, 'hiding' behind a camera as soon as you meet someone isn't the best way to do this.

Every time I met up with an interlocutor, to go off-roading with for the first time, I had to look for a moment in which it felt right to introduce the camera to the research. And this introduction process didn't disappear over the course of the research, I encountered it the very first-time off-roading with someone, only two days after landing in Australia, in the middle of the night, with Harry, and the very last time I went off-roading, with Bryce from Hema Maps, only 4 days before I would fly back to the Netherlands.

One of the most interesting moments I filmed, of a guy almost losing his front right wheel when leaving a car-meet, while there were dozens of people watching it happen, was filmed because Harry Carmody, the interlocutor that I was with, suggested to me to start filming, only minutes before this happened. We had arrived at the car-meet, which was held in a parking lot, about half an hour earlier. I was not sure if people would enjoy a random Dutch guy pointing a camera at people, nor had I any idea how people would engage with Harry, if I was just following him around pointing a camera at him. Barbash & Taylor (1997) argue that interlocutors are forced to acknowledge data collection when you point a camera at them; and I did not really want to film people engaging with me as a documentary maker, as much as I wanted to engage with off-roading and car meets. It was only when Harry suggested taking the camera out to start filming, that I felt filming was appropriate.

Because he practically invited me to follow him around with a camera for a while, while he did whatever people do on car-meets, there was no conflict when he had to acknowledge the data collection, because it was him who initiated the start of recording.

Later that same evening a large part of the car-meet moved to what Harry called a 'skid-pad'. A secluded piece of concrete, or bitumen, it was impossible to tell in the dark, hidden between the trees, at the end of a short, but very muddy track. On this piece of land, illuminated by the headlights of the vehicles that were lined up alongside it, 4x4 enthusiasts would burn up some rubber doing skids; better known as burnouts, or donuts, outside Australia. Between the cars, on the skid pad, and next to me and my tripod, people would line up, with their phones out, to take videos of people doing skids. Moments like these, of people going down tracks, getting bogged, or doing skids, moments that people wanted to have on film, to show off to their friends in the off-roading community, would prove to be perfect to introduce the camera into the engagement, without breaking the social interaction between me and my interlocutor.

I noticed early on in my research, that whenever I'd have my headphones on, listening to my interlocutors through what the microphone picked up, while the camera was rolling, that the topic would almost always, and almost always exclusively, be off-roading. I made it a point to always try and meet potential interlocutors, without a camera, for a coffee or a beer, before actually going out to drive with them. I'd have conversations with whoever's car I was sitting in, on all kind of topics, like their interests, job and life, on the drives to and from the tracks, and whenever I'd meet them in Brisbane for coffee. But whenever the camera was on, to capture the landscape, or the vehicle driving in front of us on the highway, this conversation would quiet down. I think most of my interlocutors were interested in sharing their passion for off-roading with me, but were not so sure what to make of the camera, how to acknowledge it, when we weren't actually engaged with off-

roading. Because of this I decided that trying to set up interviews, during these drives or over coffee, would not be all that fruitful. The somewhat more formal setting of me asking questions in an interview setting, and I argue that almost any casual conversation turns into an interview setting by simply inserting a camera into the situation, wasn't really compatible with the engagement I had while we were working on cars, or out off-roading. I was interested in recording the relational context of off-roading, through my relationship with my interlocutors, and I felt that conducting interviews would not be part of this relational context.

The willingness of off-roaders to share their passion, is also what drives the popularity of off-roading. Groups of people going out, and filming each other going down tracks, getting bogged and un-bogged, and doing skids; share their photos and videos online with others, and this creates a large collage of materials that showcases the highlights of off-roading. On the way back from a day of recording, and driving tracks, Harry and I were talking about this phenomenon. He noted that indeed, there are a lot of videos of vehicles out on the tracks, that showcase the experience of off-roading. *"Four-wheel-drive-action, one of Australia's largest off-road television shows, almost always contains a segment of getting to an amazing looking place and one guy telling you (the viewer) 'this is as good as it gets'"*. But Harry noted, rarely do you see on Instagram that there is a lot that goes into building a vehicle, and that there is even more that goes into keeping a vehicle on the track. *"What many people don't realise, when looking at videos of off-roading, is that it costs a lot of time, money and effort, to get a vehicle on that track".*

My methodology thus focussed on both the esthetical grandeur of landscapes, vehicles and tracks that people are familiar with, as well as the social cohesion and 'elbow grease' (the work done on vehicles that is required to drive them) that support off-roading. To this end I was able to deploy a drone to help me engage the wide and sometimes burned landscapes that defined the places we would (or specifically would not) drive through, and used a tripod, microphone, and video camera to record the experience of learning about the off-road community, and the social interactions that go with that process.

The ethics of social research and output

According to Atalay et al (2019), visual ethnography as research process is something that is stigmatized and undervalued. Galman (2019) argues that the stigmas imposed by a journal-biased research field, will be overcome as long as researchers keep engaging with visual methods. Both Galman (2019) and Atalay et al (2019) have identified visual methods as being capable of reaching new publics. Most importantly though, visual ethnography allows for a much more collaborative and reflective manner of data collection (Tondeur, 2016). It is also a more open form of data collection, a camera in a way forces the acknowledgement of the constructive nature of the produced knowledge, whenever an interlocutor notices a camera, they have to make a choice, to either ignore, or acknowledge the data collection (Barbash & Taylor 1997, 16). On one hand, this solves some of the ethical obscurity a researcher might have in highly relational research. On the other however, it creates the illusion that data is not collected when a camera is not rolling. In the context of this work, that is a fallacy, as my output is not limited to just the materials, and ideas, that are audio-visually recorded, it is also based on experiences that I had while the camera was not rolling. This then requires the question whether constructive montage should base its message only on information provided while recording audio-visual material, or to honour the broader context of the research. What does the informed consent of my interlocutors allow?

Visual research might also quickly slip into the pitfall of the idea that having an interlocutor signing a media release waiver, constitutes informed consent. This is, in my opinion, not the case,

merely being aware of being filmed, and being aware that this material might be distributed, does not establish informed consent. In this way, the guidelines of the AAA require stricter ethical considerations than is expected of, for example, contemporary journalism, since ethnographers are strictly bound to the 'do no harm' principle. This being said, visual research, because it is much more easily engaged by interlocutors (Barbash & Taylor 1997, 2), offers ethnography much more affordance to gauge informed consent, by the very nature of the co-authorship between researcher and interlocutor (Snowdon 2017, 14). Interlocutors have more agency to review their own involvement in the research, when compared to text-based ethnographic output (Barbash & Taylor 1997, 2).

This co-authorship should not mean unlimited modification and reproduction of all materials by interlocutors, or third parties, outside the scope of the research. Marion & Crowder (2013, 6-7) argue for the contextualization of visual research as part of the 'do no harm' principle of ethnographic research. Meaning that visual research should be kept in an environment where its context is apparent. Because of this reason, to the end of protecting my interlocutors against unwanted spreading, and the decontextualization of materials, I opted for a structure where edited audiovisual materials, and text, are displayed closely together on the web. This is a logical consequence of Marion & Crowder's (2013, 6-7) requirements to protect audio-visual materials by containing them within the research context, as well as a logical consequence off the way informed consent was established.

As stated, a media-release waiver, does not constitute informed consent. I argue that informed consent in ethnographic research can never take a form where the unlimited spreading and reproduction by third parties is easily achieved, by given open access to the individual materials through the internet. No researcher, or interlocutor, can reasonably foresee how audio-visual research materials might be mutated by others through the internet, and thus, it is required that a researcher takes reasonable precautions to prevent unwanted decontextualization of these materials. I opted for a structure where individual clips are 'unlisted' and thus not easily found through the web, while they are available on the website within the full research context. I have however opted to make specific clips available when asked by a research interlocutor. Part of co-authorship of materials implies co-ownership of materials. Within the context of this research and the relationships between interlocutors and me, it is not desirable to imply that only I as researcher can determine whether alternate use of materials, like seen in regards to Environmentalism in the Critical reflection, fall within the 'do no harm' principle. It is important that part of co-authorship means that we must trust that interlocutors are capable of not harming themselves, when they modify and publish audiovisual materials that depict (only) them.

Theoretical framework

Off-roading was chosen as a case to study the relation between technology, people, and their surroundings, because a large aspect of the relationship becomes apparent in the way off-roaders actively build their vehicles. Through the concepts of Actor-Network-Theory, Affordance, and Infrastructure, I engaged with off-roaders, and the practice of building vehicles. The idea that vehicles are '*built not bought*' drives the idea that vehicles should be specifically designed and built by their owners, to suite their specific needs. This shapes the interconnected relationship between off-roaders, their vehicles, and their surroundings.

It is because of this interconnectedness that I reject an essentialist approach of 'technology' and 'humans' as entities that can be separated. By accepting that there is no ontological divide between us and technology (Haraway 1985, 59) we can look at the implications and effects our relation with technology has in the larger network of relations we engage in. Because our lives and other relationships are increasingly interwoven with technology, for example our relationships with our family and friends through mobile phones, or the way we engage with the world through social media and mass news, it is important to research the relationship we have with technology, and how it is shaped by other factors, entities and relationships, with which it is interwoven.

But researching the relationship we have with technology is not easy. Bryman (2012: 445) argues that *going native* is to lose your 'objective' position as a researcher by internalizing the social norms and customs of your research population, which results in a loss of academic integrity and accountability. And in our technological world, it is hard to argue that we haven't internalised technology. Vannini & Taggart (2019) show us that even those who choose to live 'off grid' and 'in tune to nature', heavily rely on technology like solar panels for survival.

If we cannot approach our ontological connection with technology (Haraway 1985, 60) as an 'outsider' we have to adopt an (epistemological) approach that visualizes the relationship we have with technology. If we ever want to understand our most interwoven technological relationships, perhaps to address issues like information bubbles that cause adversity, or build better dating platforms to achieve intimacy, we have to gain a more fundamental and rudimentary understanding first.

Off-roading is an excellent case to engage these relationships. Under the umbrella of Actor Network Theory, and in relation to technology, and infrastructure, Kaptelinin's & Nardi's (1997) ideas of effecter- and handling-affordance will be explored. The way actors construct both types of affordance, and interact with technology and its affordance, should give us insight in how effecter and handling affordance relate to and interact with each other. Furthermore, I will try to employ the concept of infrastructure in combination with actor network theory (Law, 1992). The relationship of an off-roader with their vehicle (which is both an actor and technology) is heavily impacted by the infrastructure in which they place themselves (the places they travel to, and the idea's they have about that place), and in that way infrastructure (which could possibly be seen as a network by itself Argounova-Low, 2012) also acts as an actor in the actor network theory. The question that then needs to be answered is to which extend infrastructure has agency over the larger relationship, and if this agency role should be limited to a number of heterogeneous materials that shape knowledge, or if infrastructure should be viewed as a construction of a number of heterogeneous materials itself (Law 1992, 391).

Actor Network Theory

Off-roading is engaged through the understanding of John Law (1992, 381) who states that *"the social is nothing other than patterned networks of heterogeneous materials*". In which 'the social' in this research, is the practice of off-roading. 'The social' usually refers to something that acts as a unified entity (latour 2005, 43). And it is exactly this unification of materials in a unified entity that argues against the ontological divide of these entities. Like Law (1992, 381), Latour (2005, 43) also adopts the idea that 'the social' might be composed of different entities. I argued that the entities of off-roading largely consist of the people, vehicles, and places. Latour (2005, 71) states that "*anything that makes difference in the course of another agent possesses agency in itself*". I argue that, looking at the relation between people, vehicles and places; these three components all carry a certain agency, as each component is changed in the presence of the others. The question then becomes is how agency is enacted by these entities. Ter Keurs (2014, 46) argues that these physical entities are not static in their enactment of agency, but are constantly shifting and adapting to changes in their relational environment.

Akrich (1997, 2016) agrees with this fluidity of entities, but also states that the choices made by the 'creator' of technical objects largely inform what the role/influence of this technical object becomes; As long as the use of the technical object isn't radically different from the intention of the 'creator'. Based this, and on Law's (1992) understanding of networks, and technology in the form of objects (Law 2002, 91), I argue that the creator of the vehicle thus has a very specific influence in shaping the larger network of off-roading that they experience. Law (2002, 91) states that objects are an effect of a network of relations, the way an interlocutor views their vehicle, and interacts with it (which is engaged in terms of affordance), is influenced not only by the way the vehicle is built, but also by the affordance it gives, and infrastructure they aim to travers with it. It is perhaps because of this, that the 'built not bought' slogan is so popular in off-roading. Based on Akrich (1997) and Law (2002) I could argue that if you do not build your vehicle yourselves, you are not the owner and chief architect of the engagement you have while off-roading. Which is in turn important because engaging with the infrastructure of off-roading (Bishop uses 'the outback' to this end), is about self-determination through the use of technological objects (Bishop 1996, 268).

One problem with this more limited approach is that it relies on the epistemology of identification (Haraway 1985, 20) of the different heterogeneous materials of off-roading. This means that the approach assumes that we need to understand and identify the split between the 'creator' and the technical object, and the off-roader and the infrastructure they traverse. Haraway (1985, 60) argues that a technologically involved society challenges this duality and argues for an ontological approach that signifies the unity of society and technology. In this ontological 'cyborg' (Haraway, 54) signifies a unified capability (which will later be approached through affordance) in which it is not necessarily clear which part of the cyborg enforces agency to what effect. We should be aware of the agency of technology, people, and infrastructure, but not pretend that these can be examined separately of each-other.

The technical, affordance and human technical hybridity

I thus argue that the heterogeneous materials, that make up the 'cyborg' of off-roading, consist roughly of notions of infrastructure, building and interacting with technology, and shared agency, and that these should be understood as inseparable parts of off-roading. I argue that the relationship between the off-roader, infrastructure and technology cannot truly be separated, but that the interaction that forms the relationship between these concepts, can be described. For the concept of technology, I've chosen to express the relationship in terms of affordance, which is defined as '*the opportunities that are created by the capabilities of the technical object, and the agent's capability to use this object*' (Kaptelinin & Nardi 2012). Akrich (1997, 206) argues that "*technical objects participate in building heterogeneous networks that bring together actants of all types and sizes*". One of the roles these technical objects inhabit in these networks is affordance.

Different actors might perceive different affordances from the same object, and the same actor might perceive different affordances from the same object on different occasions (Gibson 1979). Gibson (1979) argues that the perception of what the object offers in terms of affordance, is largely informed by what the actor needs from this object. A flight of stairs might afford an adult to reach another level of a building, but that same flight of stairs might not afford much to the crawling infant, or the same adult with a broken leg. Kaptelinin & Nardi (1997) expand on this term and state that affordance can be split in *effecter affordance*, which is what is provided by the object, and *handling affordance*, which is the affordance given by a tool when used by a person. The combination of these two types of affordances constitutes into *instrumental affordance*, or the affordance a certain object gives in a network. From this it can be derived that technical objects do enact agency in forming affordance, but that whoever uses the object shapes the object, and therefor also shapes its role in the network.

By looking how the mutation of a material (or a scope of materials), like road surface and weather, influences the way off-roading is done; we can gain an understanding of the way the different materials interact. Off-roading vehicles are 'built not bought', meaning that the effecter affordance is shaped into creating a desirable instrumental affordance. Usually though, off-roading vehicles aren't 'static' but rather can be adapted to the needs required for certain trips/expeditions.

These needs are usually influenced by the infrastructures available on these trips. Infrastructure is a large agent of affordance when viewed from the idea of off-roading, meaning that infrastructure has a great influence on what is required of the off-roader and how affordance is perceived and created. For example, the length of a track or expedition, and the access to resources like fuel and water, determines the preparation required, but the lack of infrastructure is also what drives off-roading. Once infrastructure gets at a certain 'level' (ie paved roads) we are no longer talking of off-roading. Yet, the absence of infrastructure also limits off-roading (Bishop 1996). The increasing availability of technology, and thus the increased 'level' of infrastructure drives back the availability of places where off-roading can be done, as off-roading isn't about a certain location, but about a certain experience that the off-roading wants to derive from the location (Bishop 1996).

Star (1999, 387) states that one of the issues when studying infrastructures is *'distinguishing different levels of reference in one's subject matter'*. This means that it is difficult to figure out how exactly infrastructure influences the network of off-roading through means of affordance, because I cannot know exactly, how an interlocutor thinks about certain infrastructure. There are many ways to approach infrastructure, and presume its relationship with my interlocutors. It is therefore imperative to figure out what the key proponents of infrastructure are when discussing trails and tracks. This research is further complicated by the fact that the infrastructure (tracks) is largely chosen by the off-roader, rather than imposed on them by force. Meaning that the network of person, vehicle and tracks is further influenced by personal agency, which are in turn again influenced by the affordance of both the vehicle and the environment they chose to be in.

The infrastructures of off-roading and their agency

Infrastructure is somewhat of an 'unruly beast' (Bennett 2010). Star (1999, 380) states that infrastructure is inherently a relational concept. Infrastructure only becomes infrastructure when it is engaged with in a certain process. Its effect on actors is shaped by the understanding those actors have of the infrastructure they want to navigate through this process. This means that infrastructure is defined by the signifiers (Star 1999, 387) which actors use to relate to infrastructure. Understanding what those signifiers are, is a methodologically challenging aspect of understanding infrastructure ethnographically (Star 1999, 387). Larkin (2013, 329) argues that infrastructure behaves to the effect of *"objects that create the grounds on which other objects operate"*. Jensen & Morita (2015, 85) argue then that infrastructure is interesting in the ontological approach, because in the network (of off-roading), it is the place where different entities/agents come together to define the network. It is thus important to look at infrastructure as the ontological basis of what off-roading is, which is difficult because infrastructure is understood differently depending on who engages with it. Kohl (2007) for example, argues that the tourists trying to navigate the Sahara, change the relation between infrastructure and the locals from something benign, to an opportunity for any local that has the means to provide transport across it.

Infrastructure is often understood in terms of (potential) connectivity and globalisation (Dalakoglou & Harvey 2012, 459-460). Infrastructure is also understood as a 'common' good (ibid), which implies that connectivity, and the participation, in globalism, is also owned by the public. This signifies that infrastructure can be valued by its connectivity, as this connectivity is an essential part of the human condition (Dalakoglou & Harvey 2012, 460). Infrastructure gains significance in off-roading, as 'true' off-road vehicular travel (travel outside any tracks or road) causes environmental damage (Lesslie & Taylor 1985, 314). This environmental damage is incompatible with the minimum impact practice of the 'leave-no-trace' principle (Vagias & Powell 2010, 22) that many off-roaders adopt, and thus incompatible with off-roading. Off-roading, which encompasses 'leave-no-trace', thus requires infrastructure like tracks, to minimize environmental damage. Although off-roading infrastructure still engages in connectivity it seems that in off-roading, infrastructure is valued more by its connection with the environment as 'rugged terrain' (Bishop 1996), rather than its qualities of connecting two places. This is understandable, because the level of connectivity (the amount affordance it provides) of infrastructure is inverse in the human/vehicle relationship. The more connectivity is afforded by infrastructure, the lesser the modification required of the vehicle to achieve a desirable level of connectivity. This decrease in required modification, changes the human/vehicle relationship, till the point where the advancement of the infrastructure's affordance of connectivity, diminishes the interaction between off-roader and vehicle, to the extend where the activity of engaging with the provided infrastructure, denies off-roading altogether.

Argounova-Low (2012, 74) argues that the technical characteristics of infrastructure, such as the technical signifiers that help determine a level of connectivity, are important. But she (ibid) also argues that social significance and (relative) importance is much more descriptive and accommodating to the social relationship between infrastructure and people. Through this understanding, it can be argued that the state of the road and its physical connectivity (for example paved vs non-paved) does not solely constitute its definitive relationship to off-roading, but that other signifiers might also influence the relationship off-roaders have with infrastructure. Bishop (1996, 263) argues that a certain level of 'roadlessness', is exactly what inspires the off-roader. Alice springs, a former outback town that has now been thoroughly connected by bitumen (asphalt) has, through that connection, somehow lost its connection with the outback, and the infrastructural affordance sought by off-roaders (Bishop 1996, 264).

Perhaps the relationship between off-roading, infrastructure, and the appeal of roadlessness, can be understood through Lesslie's & Taylor's (1985, 318) wilderness quality indicators. They (ibid) define four indicators, namely remoteness from settlement, remoteness from access, aesthetic primitiveness, and biophysical primitiveness. This connection with wilderness and remoteness is supported through videos of off-roaders, which show off-roaders engaging with infrastructure with a certain self-imposed objective (Andrew st-Pierre white, 6 days out of perth. Loneliness fix.[6]). If we entertain Lesslie's & Taylor's (1985, 318) wilderness quality indicators we could theorize that the social significance of infrastructure in off-roading is largely related to the following ideas. Firstly, the infrastructure travelled must, to a certain extend be (physically) removed from human occupation. Secondly the infrastructure travelled must be difficult to access. Thirdly the infrastructure travelled should not have excessive evidence of being disturbed by human activity. And fourth, the wilderness should not be disturbed by invasive presence that is the result of human interaction (for example cattle or mining). It is however interesting to mention that even though these indicators might be similar for many individuals seeking Bishop's (1996) wilderness, it should be understood that the level of wilderness isn't necessarily measured by 'objective' measures. What might be remote for a hiker traveling on foot, might not at all be remote for the off-roader in their vehicle (Biship 1996, 264). I argue that the level of technical ability shapes the level of wilderness that can be accessed, but also shapes the level of wilderness that is ascribed to certain infrastructure in the first place. The understanding of infrastructure is then also influenced by the affordance of the off-roader.

In this approach the social relevance of infrastructure in the form of wilderness quality indicators, and the technical characteristics of connectivity seem juxtaposed or disconnected. I would argue that, through the relational understanding of social entities (Akrich 1997, Haraway 1985, Latour 2012, and Law 1992), these signifiers of infrastructure (Star, 1999) are interconnected. Infrastructure should be understood through the technical characteristics and social relevance given to these through off-roading. It is thus on this social relevance, through the relational nature given to it in off-roading, this research focusses.

[6] https://www.youtube.com/watch?v=yr2b0Ps6J3k

Analysis

Atlay et al (2019) and Galman (2019) argue that audio-visual research materials have great potential as independent ways of knowledge production. The benefits of audio-visual methods, that limit the power gap between researchers and interlocutors (Barbash & Taylor (1997), Clifford (1983), need to be carefully preserved when audio-visual research is contextualized within the text-based modalities of academic production. During this research into off-roading, there have been observations outside the realms of my collected audio-visual materials. These observations can thus not be mediated within this thesis using audio-visual materials. I argue that this is not necessarily because audio-visual materials do not lend themselves to creating arguments for these observations, but rather because there is a limited amount of audio-visual data that can be collected in three months. I'm confident that with more time, audio-visual materials could be collected, that would possibly make a strong case for the connection between my theoretical framework, research methods, and audio-visual material. However, because fieldwork is not endless, and because my methodology specifically excluded the use of interviews, which has left me with little audio-visual material, that suits the format of the ethnographic film, that can be used to connect this academic writing, which is historically and contemporarily, a disconnect with the social and collaborative aspects of the ethnographic research (Mosse 2006: 936), I will argue the connections between my theoretical framework, and observations, in this written Analaysis.

The cyborg

Haraway (1985, 59) states that high-tech culture challenges the dualisms between people and technology; "It is not clear who makes and who is made in the relation between human and machine." It is exactly this interpretation of the ontological cyborg, that I found makes up part of off-roading.

Vehicle maintenance is an integral part of off-roading, like stated before, harry noted that: "Rarely do you see on Instagram that there is a lot that goes into building a vehicle, and that there is even more that goes into keeping a vehicle on the track." At first sight, we might assume that vehicle maintenance is a typical example of people enacting agency upon their vehicles, in which they actively shape the *effecter affordance* (Kaptelinin & Nardi, 1997) of their vehicle. However, I've found that vehicle maintenance affords an interaction wherein the vehicle also enacts agency, as shown in the clip below.

When talking about how to go about changing the wheel hub on his Navara, harry notes that certain actions must be done in a certain way. The wheel must be on the ground to take the wheel nut off, because it does not afford for doing this when the wheel is suspended. Harry goes on to note that the way in which certain things must be done, is 'not very nice' and that he does not like that. When taking of a somewhat loose nut he states that "You sir, came of very easy, and I don't like that. I feel like you are going to cause problems lately, you dirty slut." In this case I argue that the nut enacts agency on Harry. By potentially becoming a problematic item, it makes Harry engage with it in a specific manner. I argue that this is an example of the fluid enactment of agency objects have, when changes occur in the relational environment of the object (Ter Keurs 2014, 46). The loose nut wasn't seen by Harry as potentially problematic, when he assumed it was tight. It is the combination of the interaction between Harry and the vehicle during maintenance, and the fact that the nut is loose, that shapes the way Harry interacts during the hub change.

In the film (03:10) Harry also refers to the Navara as a "hot bitch". It is the capability of the vehicle to enact agency on Harry, that might be the cause of this personification. Harry's mental state "This is the happiest I've ever been", is directly linked to the (cooling) performance, of the

vehicle. But the cause of his happiness is not the direct result of measurable performance, he states himself that his vehicle usually runs hotter than what he considers 'normal operating temperatures'. It is the performance achieved, within the context of the radiator that is old and clogged with mud, that makes him happy.

That performance is not linear, and that building vehicles is not only about increasing/achieving some measurable performance mark, also becomes clear when Shan and Harry discuss vehicles (5:09) in the film. Shan tells about his mate 'SASsing' his car, which means swapping the independent suspension (IFS) for a solid axle suspension, which arguably improves off-road capability, and thus *effecter affordance*. He refers to his own IFS vehicle with "I just find them fun" indicating that he has no desire to build a more capable vehicle. He goes on to state about solid axle vehicles that "you might as well be in a McDonalds carpark", indicating that having a more capable vehicle, will not always lead to a more enjoyable off-roading experience. Harry continues with stating that he got over competent since "he put both lockers in" (lockers are a technical aid that greatly improves off-road capability). "I don't pick a (driving) line, I just point at a hill and drive up." I suspect he views not having to 'pick a line', not having to think about his driving, as something negative, as being a capable driver is seen as important within the community. Having a more capable vehicle negates (some of) the need of being a competent driver, and is thus not always desirable within the context of off-roading communities.

Within the relation/interaction between people and vehicles, vehicles thus enact agency in different ways. One way can be seen directly, when a vehicle breaks or performs in certain ways, the result can be seen immediately. But vehicles can also enact agency in more subtle ways, in which it is not necessarily clear who contributes to what effect in the interaction. Off-roaders to a certain extent craft the capability of their vehicles, and in doing so, can craft a certain affordance for off-roading. But desired capability is not linear, a vehicle that has been crafted to contribute more effecter affordance, does not always lead to the desired affordance for off-roading. Furthermore, is the agency the vehicle has, not always a direct result of an earlier action by a person. The way vehicles act within off-roading, is often not predictable. Because it is often impossible to see which agent (the person or vehicle) contributes to which extent, and in which manner, to the interaction, I argue that off-roaders and their vehicles do behave as a cyborg, whose relation is further complicated by external factors like its surroundings and the infrastructure they travers.

Infrastructure.

That the environment off-roaders travel in has great baring on the practice of off-roading, and the way off-roading is experienced, is evident from the clip below.

The first clip, which reflect an earlier encounter with the hill when it was wet, muddy and therefor slippery, shows how much an environmental factor, like rain, can influence off-roading. Especially compared to the second clip, which shows another attempt on the hill, later in the day, when it was much dryer. In the first clip Shan says "muddies make a big difference", he refers to the type of tyres he has on his vehicle. During the preparation for the trip, for which I was also present, there were a few set-backs. Shan's new Nissan Patrol had some issues that needed fixing. Unfortunately for Shan, his bigger 33-inch tyres, of the 'mud terrain' type, sprung a leak and were unfixable. This resulted in Shan, me, and Dave spending the entire night before departure, fitting 5 (one spare) new wheels and tyres to the vehicle. The replacement tyres however, were of the 31-inch 'all-terrain' variety. The replacements are less suited for mud, and the smaller size limits the amount of air that can be let out of the tyre, which limits the 'footprint' or the amount of tyre that is in contact with the ground, which in turn limits the amount of grip that can be achieved.

Shan thus refers directly to the *effecter affordance* of his vehicle, in relation to, and as a direct result of the condition off the track. He does not refer to his tyres during his second run on a less muddy attempt, as their impact, and thus agency, in a dry environment are much smaller than in the wet. Wet/muddy vs dry, is thus one of the many infrastructural signifiers (Star, 1999) my interlocutors use to gauge their surroundings. However, as stated by Jensen & Morita (2015, 85) and Larkin (2013, 329), whether the track is muddy or dry only becomes relevant during the interaction with the off-roader. Even more, like Argounova-Low (2012, 74) states, whether the track is muddy or dry is only relevant because the tyres do not afford enough grip for the conditions. I suspect that Shan specifically mentioned the tyres, because we had to change them the day before. Knowing that he had, or could have had, tyres that were more suited to the environment, probably affected his comments about the track conditions.

The way off-roaders interact with, and perceive the environment, is thus rooted in multiple interactions. The interaction between driver capability (*handling affordance*) and vehicle characteristics (*effecter affordance)* create affordance, but the environment they interact with shapes the experience that is off-roading. Whether a track is like "driving in a McDonald's carpark, a 'five out of ten', or 'not even going to try it', is neither fully dependent on diver/vehicle affordance, nor is it fully dependent on the infrastructural signifiers.

I would argue that there are very few infrastructural considerations that have an absolute effect on 4-wheel driving, and even the 'absolute' impact of these considerations might be debatable. We can hear Shan asking whether the shops/petrol station in the town nearby are open 24/7, and this immediately puts us on the topic of 'essential' infrastructural considerations. Off-roaders are usually bound to tracks and roads as dictated by the 'leave no trace' (Vagias & Powell 2010, 22) principle. Violating this principle usually results in entire areas being fenced off from off-roaders, which creates incentive to adhere to some form of existing infrastructure. More notable however is the vehicle's need for fuel. In order to do off-roading, some sort of refuelling infrastructure needs to be available. Vehicles can (and often do) carry extra fuel, but only to a certain limit. Fuel availability is a key aspect of off-road planning, and is as much a safety consideration as flooding and forest fires. Latour (2005, 43) argues that *"the social is nothing other than patterned networks of heterogeneous materials*". I argue that infrastructure both acts as an actor within off-roading, but also as a network in itself. By their vary nature, no aspects of infrastructure exist in a vacuum. Certain infrastructural signifiers, like whether a track is wet, are much more variable than others, as is evidenced by Bryce's testimony (17:48) on the impact of forest fires in the film. A forest fire not only produces an immediate access ban, but also introduces additional hazards that might be considerations for off-roaders for years to come.

Infrastructure thus has a profound impact on the practice of off-roading, and knows both quick, and slow changing materials within its network. But Infrastructure, much like technology, does not have a unilateral impact on off-roading. Its agency is shaped during off-roading, and by the different aspects that shape off-roading.

The social environment.

The most important 'environmental' factor I found however, is possibly the social one. As can be seen throughout the audio-visual material, off-roading rarely is a solitary engagement. Part of the reason why off-roaders don't usually go out alone, is because of safety. Australia is a large country, and it is easy to get far away form help and phone reception. If anything does go wrong, or if you get stuck, it is a good thing to have someone with you who can help you out. Getting stuck on a loose sand patch, like in (21:41) the film, might mean hours of digging the vehicle out if you are alone, but can be solved in minutes when traveling together.

I argue however, that the social aspect of off-roading goes far beyond just safety and convenience. The social norms of the environment and people one off-roads with, have a large impact on off-roading in general. In the previous clip, and in the film (8:50) you can see me asking Dany (Mud Lady), what her approach is to climbing a particularly slippery hill. She replies with "Just send it" and then "don't tell Shan I just said that". "Sending it" refers to the practice approaching an obstacle full throttle, with little consideration for the track, vehicle, or safety. "Sending it" is a rather popular term within off-roading, and the larger car community. "Just send it" is a commonly heard phrase, and commonly seen practice, within off-roading. Less experienced off-roaders might often get themselves into serious trouble when they are 'egged on' to just 'send it'. As vehicles are expensive, and dangerous, not everyone engaged in off-roading is a proponent of 'sending it'. The opposite of the motto 'send it' would be 'low, slow, and go', which refers to engaging the low gear, to tackle tracks meticulously and in a very controlled manner. Shan (and by extend more people who come on untamed 4x4 campouts) do not condone 'sending it' and there is strong social control against 'egging people on', and 'drink driving' (drinking while driving).

Whether the people you start off-roading with are members of the "just send it" or the "low, slow, go" club, thus has a large impact on the way you off-road, and thus engage with the different materials that compose it. I would argue that the social impact on off-roading is not merely limited to something superfluous like being part of the "send it" club or not. Rather I argue that every interaction between people, vehicle and environment, is deeply impacted by the social interactions surrounding them. The constant banter, swearing, and discussion seen when Hary, Cody, Noah, and me work on vehicles in the driveway (10:49) is a good example of the entanglement between social interaction and off-roading I found everywhere during my research. It is also a good example of my 'outsider' status as researcher. Noah and Cody state that "swearing is a part of working on cars" but none of them worry about hurting themselves (11:54) or getting dirty/laying on the floor. Yet when I get under the car to help Noah remove the differential, he immediately says "You sure? You'll get dirty", and when the diff is removed, Harry tells Noah to "Watch the breather" (a little tube that connect the inside of the (oil filled) differential with the outside air, so that mud and water don't get in) because "it will piss oil out on him", referring to me. If I had known about cars and was an actual member of the community, I would've known not to lie down under the breather, or at least I should have, and I doubt Harry and Noah would've been so mindful.

The most apparent example of the agency the social environment enacts on off-roading is found in a comparison between two separate incidents where wheels were about to fall off vehicles. In the clip below, of which the first part is also in the film, there are two vastly different (social) reactions to a situation that is very similar. I've stated before that off-roaders often employ a practice that is closely related to argot (Coleman 2014, 31), to establish the basis of social relations in interactions. In the first clip it is evident that the unfortunate guy, who is about to lose a wheel leaving the car meet, has limited knowledge of vehicle maintenance. When he is handed a jack so he can remove the wheel he states "I don't know how to use that, someone else has got to do it" which is met with laughter. Later, when he is long gone, this is referred back to by the group that is still at the car meet, and somebody states "they should make a law to make these cunts learn to change a tyre." I argue that getting stuck, and vehicles breaking, is simply part of off-roading. I've found that this really is not a big deal, as long as one makes an effort to (safely) resolve the situation and learn from it. In the case of the car meet however, this effort is not made, and thus reacted to with hostility. Losing a wheel might have not been a big deal at all, was it not that it happened during the car meet. One bystander can be heard saying "I would kill myself if I came to a meet and … (lost a wheel)".

This example stands in stark contrast to the incident that occurred when Shan and I were driving back from getting fuel, and we almost lost a wheel. When we got hold of the group at camp, via the radio, two cars immediately drove over to help Shan resolve the situation, and rather than make Shan tighten the wheel nuts on the vehicle, something that did occur during the incident at the car meet, the convoy made multiple stops to make sure the wheel was okay, but also to make sure Shan was doing okay. In Shan's case, almost losing a wheel is attributed to what can essentially be summarized as 'bad luck', a 'bad stud' or the nuts simply 'shaking lose', while at the car meet, even though the situation is relatively similar, the blame is almost wholly attributed to the person losing almost losing the wheel being 'incompetent' in the eyes of his surroundings.

Social environments thus not only change the interactions between people, vehicles and surroundings within off-roading, but directly shape how people view the affordances related to off-roading. The social interaction and environment that is always present within off-roading, actively shapes the way in which interactions between people, environments, and infrastructure occurs. In doing so, social environments have significant agency over off-roading.

Conclusion

The process of learning about off-roading is inherently a social one. The more socially involved one is within the off-road community, the greater their learning opportunities, and the sooner they can adapt their affordances to suit their needs in relation to both the physical and social environment.

I would argue that it is wholly impossible for an off-roader building a vehicle to not be subject to the agency of their social environment. Even if they omit any form of classical social relationships, like talking to people, or browsing the web, an off-roader will still be subject to specifications outlined by vehicle manufacturers, choices made by third party accessories providers, and rules and regulations set out that relate to road and land usage. All of which introduce environmental, and arguably social agents to off-roading.

These social agents however are not a detriment to off-roading, but rather an asset, the more engagement between the off-roader and their social environment, the more opportunity for learning, and thus the more agency one has over the affordance and off-roading experience they are trying to create. But with this increased agency, the agency of the vehicle and environment also increases. Knowing that you need to let down your tyres, knowing which lines to pick, and knowing that lockers or solid axles increase off-road performance, is an essential first step into noticing how technology, and the environment react to and interact with the agency that is imposed upon them during off-roading. Which in turn increases the agency both the technology and environment can enact upon the off-roader in turn.

The main question this work engaged with is: “What is the relationship between people, their vehicles, and their surroundings?”

These three components are indeed very important, but their agency on each other, and their significance is greatly enhanced by the social aspect and the relationship off-roaders have with each other in the community. An off-roader building their vehicle, and driving it in complete isolation, would experience the same interactions between themselves, their vehicle, and the environment. But it is largely the community, how off-roaders view each other and themselves in relation to each other that gives rise to the significant entanglement of agency, and increases the intensity of the interactions between people, their vehicles, and their surroundings.

Critical reflection

Environmentalism

The practice of off-roading is often related to notions of environmentalism. In these cases, off-roading is usually understood as being especially damaging to the environment (Deidun 2016). However, more recently, overlanding is often coined as a more environmentally friendly alternative to flying[7].

In my research there were some considerations for environment, like not driving off the tracks or cleaning up rubbish after yourselves so parks would not be closed; But because my interlocutors weren't all too concerned with the idea that their vehicles might not be the best thing for the environment, environmentalism did not become a research focus, and the engagement in this regard was minimal. However, while I was a passenger of Kaeleen, on Bribie Island, I did get an insight in why environmental factors might be important. While parked, two park rangers pulled up to the rather muddy Hummer H3, asking to see the 4wd access permit that is required on the island. The mud on the Hummer spiked their interest, since the 4wd tracks on the island are completely made up off sand. After Kaeleen assured them that she definitely hadn't been off the track at Bribie Island, the rangers told us that the vehicle should be washed after leaving an off-roading area, to prevent the spread of invasive species, whose seeds can be embedded in the mud on 4-wheel drives.

Off-roading has also been critiqued by environmentalists because the practice can cause erosion and disturb flora and fauna. Bourdeau (2004, 13) even notes off-roading for leisure as a secondary human need, that should be placed after the obligation not to harm the environment.

Even though the off-roading community largely sticks to the 'leave no trace' (Vagias & Powell 2010, 22) principle, especially condemning littering, I've encountered quite some people that do not believe in man-made global warming. Many off-roaders are not concerned with the effects of their diesels exhaust gasses, and making fun of Greta Thunberg was a running gag as evidenced by the clip below. Although I do not share in the believe that climate change is not man made, and understand that there is plenty of credible evidence that shows that dumping smoke out of your exhaust is damaging for the environment. I chose not to engage my research interlocutors on this topic. As I did not believe this would be particularly constructive to building a relationship with interlocutors, especially the few interlocutors who did not believe climate change was not man made.

[7] https://www.good-travel.org/blog/how-to-be-a-responsible-overlander

Gender

One critique I got on my audio-visual material is that it depicted a very 'masculine' form of off-road driving, which somewhat marginalized the few women I did engage with. Hamilton & Barbato (2005, 5) state that Australian 4WD culture indeed is very dominated by males, and Bishop (1996, 262) argues that the rugged masculine fantasies of the outback often overshadow, and marginalize, the less masculine forms of engaging with off-roading. In my research I was aware that off-roading culture was very male dominated; so, I made it a point to try and engage with women only 4-wheel-drive groups. Unfortunately, due to time constraints and other setbacks, I did not manage to engage with this group to the extent where I could gather significant ethnographic material with them. This left me in a position where much of my ethnographic material is indeed embedded in rather masculine off-roading engagement.

This piece thus does little to help the perception of off-roading move into a less masculine position, and thus does nothing to prevent any possible marginalisation based on this masculine tradition. I'd argue though that trying to obscure the masculine nature of the interaction, would not be ethical. Showing that this research, done by a young (white) male researcher, was constructed within masculine interaction, opens the door for research that makes a point of constructing a similar approach within less masculine interaction. In the future I'd certainly advice researchers to focus on female off-roaders more, to perhaps bring a more balanced (from a gender point of view) account of off-roading. But unfortunately, this research did not accomplish that.

I would be wary of arguing that off-roading is inherently masculin. Kaeleen and Kristy show clearly that engaging with off-roading is not only for men, and without a better understanding of gender relations within Australia, it is hard for me to gauge the gender characteristics of off-roading. During the research I have not focussed on gender beyond attempting to do research with a women-only 4-wheel driving club with the goal of constructing some form of equal representation, as three months is too short to attempt to cover all aspects of off-roading. Additionally, when I arrived in Australia, I was not specifically equipped to engage with research in the off-roading, car-scene, or Australian context. However, I have specifically made a point of including an interaction I had with Kaeleen on Bribie Island in regards to gender, in order not to leave this important societal topic undiscussed completely. People should be aware of gender issues within any context, including off-roading, even if this research is ill equipped to analyse gender concepts within its material.

Indigenous people

Australia has a large indigenous population, which rights and needs are largely ignored (Porter 2017, 562). It would thus be remiss of me not to mention issues of land use and aboriginal ownership in ethnographic research into Australian off-roading.

As many trails and tracks date back to colonial times, many of them are historical sites of conflict between colonialists and the native people. The canning stock route is an example of the violent conflicts that occurred in relation to the activity on these routes, and that history is still relevant today (Blair & James 2016, 76). Access to the Canning stock route is now regulated, through permits, by the local aboriginal people, something that is desired by aboriginal people in many more instances (Blair & James 2016, 75).

Even though in some places official legislation exists that protects aboriginal lands from unauthorised access, and recognises traditional interests and aboriginal ownership, this legislation is often ineffective (Porter 2017, 560). The aboriginal case has been argued for years (Porter 2017, 557), but even if legislation is drafted, often there is no change in spatial, industry and educational planning, rendering the aboriginal rights silenced (Porter 2017, 562).

Shan Jackson, one of my participants, is an aboriginal man. He made me (more) aware of the issues related to ingenious populations, land use, and off-roading. As with the topic of gender, I was not specifically equipped to engage with the topic of indigenous people and land use, during this research. I have not engaged with people, or places, that are particularly involved with the discussion of land use and indigenous rights, but I made a point off providing the traditional names whenever I provided English (often colonial) names within the film. With the specific goal of making people aware that land use is often contested within the Australian context. It is important to note that indigenous/traditional lands do not have fixed, clearly definable borders. I used the map[8] provided by the Australian government, to estimate where certain shots have been filmed, but process is in no way flawless.

[8] https://aiatsis.gov.au/explore/map-indigenous-australia

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[9] https://mobilitybehaviour.eu/portfolio/roads-in-anthropology-some-thoughts/

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