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Driving: pre-cognition and driving

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Introduction

The most significant recent developments in the study of car travel have come from mobility studies rather than the long dominant field of transport psychology (Cresswell, 2006; Hannam, Sheller, & Urry, 2006; Sheller & Urry, 2006). In sociology John Urry (2000; 2004) has argued that we need to rethink how we conceptualise society in tandem with how we understand travel. Just as society is characterised by its increasing mobility as it begins the 21st century; so mobility on the form of transport is manifest in building and maintaining extended networks of colleagues, friends and family (Urry, 2003). In geography Tim Cresswell, over a number of works, has charted how the notion of movement might require a much more fundamental shift in how we investigate spaces and places (Cresswell, 2006). In a variety of ways, the study of car transport has found itself re-emergent in this new field. At the same time car travel is, of course, a pressing problem for a world with rapidly rising levels of car ownership and use, unprecedented levels of energy consumption, pollution and road congestion. A pressing problem that cannot easily be solved for the very reason that car itself is the solution to so many of our daily logistical problems: getting to and from work, shifting groceries, collecting children from school, visiting friends and family and going on holiday (Larsen, Urry, & Axhausen, 2006; Pooley, Turnbull, & Adams, 2006).

In a recent ESRC project called *Habitable Cars[1]* myself, Barry Brown and Hayden Lorimer have examined how we move as groups in our cars in the UK (for other car cultures see (Miller, 2001)). Rather than building automobility up as the system that system-theorists would choose, one so global and entrenched that we are quite unable to stop its steady march, our approach is to disperse theory into fields of practical action, while also accepting the frustratingly dispersed and dispersing nature of mobility. Thrift's

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[1] For more details on the project: www.ges.gla.ac.uk/users/~elaurier/habitable_cars/

approach to car travel in 'Driving in the City', has been a tremendous inspiration in investigating driving-in-traffic for at least five reasons:

1. He takes automobility seriously as a *central form* through which an actor-networked version of everyday life has been *re-organised* over the past 100 years. Cities the world over and not just LA and Las Vegas, are rebuilt around the car, in terms of the architectures of motorways, the garage's relation to the house, the arrival of the non-place petrol stations and more.

2. He is interested in the various ways we have of *living* in the car, understood to be 'profoundly embodied and sensuous experiences'. The inter-twining of car and person, as a novel and irreducible form of what Mike Michael (1998) investigated as 'co-agency', which organises not only how we move but emotional responses (road rage being the obvious example used by Michael and others (Katz, 1999; Lupton, 2002).

3. He has dealt with the car itself as a highly designed space which can be investigated in its steadily evolving *fit to* and subtle *transformations* of its driver. Software and ergonomics steadily build new forms of "humanization" (Nigel Thrift, 2004a: 10), where Husserlian phenomenology finds itself becoming a building program for car makers, used to refashion how we sense the weight, speed, sound and touch of the car. GIS, GPS and other forms of computing developments also leading to the possibility that driving may converge with practices of walking in terms of displaying to other vehicles an account of our movements on the road.

4. He touches upon the practices *other* than driving that happen there, which we, in common with Thrift, have called 'passengering' (Brown et al., 2006). A

rich vein of ways of talking, gesturing and looking at one another and the landscape of the road.

5.   Unusually for a human geographer he continues to draw on literature from cognitive theory and neuroscience. Re-drawing consciousness, thought, decision-making and action via theories of the non-cognitive realm that exists in the time before we ruminate upon it post-hoc.

On that last point on the list, the car is a perspicuous setting for the consideration of the boundary between cognition and pre-cognition for two further reasons, the first being that things happen very fast on the road and drivers respond in split seconds. This is not the thoughtful scene of writing where the author has hours to try and form their next paragraph, can delete it without harm and revisit their passage several weeks later and change it all over again. Car crashes brook the most limited revisions. Should a car pull out in front of you, as you would say afterwards, "I had no time to think about it, I simply had to swerve". The second reason is that when, for instance, driving our children home from school we are occupied with so many other tasks, such as stopping the children arguing and planning what to cook for dinner, that we 'let the car drive itself' as one of our project participants put it. Under such circumstances we will find ourselves, on autopilot, taking the left turn to the school when we should be turning to the right that day to go to the swimming pool. Somehow our actions appear to have continued before our mind catches up and notices the error.

Driving and the automobile system has also served as a touchstone in other works (N. Thrift, 1996; Nigel Thrift & French, 2002). His wide ranging body of work on spatial practice (2000; 2004a; 2005b) has a more longstanding concern with the relationship between a series of entangled pairs: action with knowledge, pre-cognition with cognition, and, the subconscious & anteconscious with consciousness. In each of

these pairs, the refiguration of what would be either philosophical, psychological or psychoanalytic binaries are re-arranged through a history of technological change and innovation. For Thrift, how a spatial practice becomes possible at a certain period, and not others, really matters and what new possibilities dawn as new machineries emerge, such as software that intervenes in driving, matters still more.

In seeking to redress the desire of social theorists to treat those they study as sometimes optimistically proto-social theorists or worse cultural dopes to over-intellectualise ordinary practices, Thrift cites research by cognitive scientists of various stripes on the "pre-cognitive" or "non-cognitive". The importance of the pre-cognitive is laid down in several places in Thrift's work (Nigel Thrift, 2000, 2005a, 2005b) and in each of these its use is bound up with embodiment, the senses, affect, nervous systems, a non-Freudian sense of unconscious action, and technological backgrounds, a central one being the transportational background of mobile societies.

When we interact on the road and in our cars there can be two sorts of effects, one being cognitive: knowing, thinking, recollecting and perhaps imagining as joint actions. The second effect being action that pre-figures and in some way anticipates thinking, reflecting, willing and believing. The cognitive domain is one that we might read across to the intellectual and intellectualised practices and concepts that implicate us as investigators of mobility and that we map on to more mundane mobile worlds. A domain that equips us and that we are well equipped to act in. What we seem to be missing is what mobile bodies of various kinds can do before they get to knowing what they are doing, thinking about what they are doing, recollecting what they or others were doing and imagining what they or others might do, are doing, have done.

If the pre-cognitive is movement that is somehow *before* thought, if it is action that precedes any sort of thinking about or deciding to initiate that action, then we find

possibilities for new forms of control of movement and new resources for fashioning alternative possibilities. Once we accept that there is such a thing as the pre-cognitive then it can become both a domain of the 'technological unconsciousness' and un-noticed yet active background that soft capitalism is pursuing in terms of channelling it into the functioning of mobile societies (Nigel Thrift, 2004b) and also a human capacity that is being transformed and extended by, amongst other Latourian things (1997), car software and ergonomics:

> To summarize, new kinds of sensing have therefore become possible. Reach and memory are being extended; perceptions which were difficult or impossible to register are becoming routinely available; new kinds of understated intelligence are becoming possible. These developments are probably having most effect in the pre-cognitive domain, leading to the possibility of arguing that what we are seeing is the laying down of a system (or systems) of distributed pre-cognition (Nigel Thrift, 2005b) p471

A scintillating account, one that certainly has us wondering whether we are being moved by automobility in its most sophisticated technological forms before we have a chance to consider deciding whether we want to be moved by these reconfigured gatherings of engines, ergonomics, navigational aids and viewsheds. Having alerted us to these, by parts, exciting and terrifying expansions of sentience into zones of human movement that appear to be pre-cognitive, Thrift urges us to reconsider our joint-agency with other humans, animals and, of course, machines.

We will return to this critique later in the chapter after examining, in some detail, a transcript of a video clip of 'passengering' and driving gathered and analysed as part of the Habitable Cars project. One purpose being that we then have some worldly material

in hand not only to learn about 'passengering' but also to re-specify what 'intentions', 'thinking' and 'action' in driving (away from driving examples, see Edwards, 1997). Secondly we will re-engage practices of reasoning as they relate to the practicalities of driving a car (Livingston, 2006). In the section that follows we will be examining two commuters who car share and have been doing so for a couple of years. As we join them, it is morning and they are about five minutes into their journey to work.

"I thought"

P= passenger, D= driver[2]

((*Approaching slip road*))

((*P raises his hand to point at car pulling out*))

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[2] Denoting these person as these particular categories of actor already begins to make assumptions about the relevant categories, where they may or may not be relevant. I can only signal such concerns here, for a fuller examination of omni-presence or not of categories see Schegloff 1992 (Ochs, 1979)

((*His finger then touches nose*))

P: I thought he was gonna::, ((*looks into car as they pass it*)) aye, she was gonnae pull
out and go for it

P: Somebody pulled out in front of me

              +

((*turns toward driver*))

        (1.0)

D: ((*turns toward passenger*))

P: Comin' in

((*both return to looking forwards*))

        (1.0)

A first thing I would like us to take from this fragment is that the passenger is
monitoring the road ahead in tandem with the driver. The second thing is that the
passenger has pointed out something. There are all manner of things that passengers
point out, such as cloud formations ahead, new houses being built, unusual vehicles on
the road and more. What is special here is that the car being pointed out here is relevant
to the driving of the vehicle: a car on a potential collision course. That passengers are
involved in monitoring the road, at all, is a feature of the socially organised nature of

driving road vehicles that cognitive psychology, with its focus on the lonely brain locked inside its skull with only nerves, muscles and lenses to look out upon the outside world, generally excludes for the purposes of its studies (Potter, 2005; Potter & te Molder, 2005). Rather than concentrate on demonstrating the frequency or pertinence of passenger involvement in driving cars I would like us to examine this fragment in the light of the moral restraints on how much, and exactly when, a person, encumbered with the rights and responsibilities of a passenger can intervene in the driver's work.

If you are a passenger, no matter how talented a driver you are, if you intervene too often or inappropriately, you can justifiably be accused of being a 'back seat driver'. As Watson (1999) puts it any remarks made about driving be the passenger are 'inferentially rich'. The fact that cars are driven by one person rather than two (or four (or a team)) is more a matter of histories of car design and social convention than an issue of individualised cognition. Nevertheless because it is so, driving the car has become the exemplary scene of psychology's demonstrations of various models of thinking, action, automaticity and so on (e.g. (Groeger, 2000)) How then might a passenger offer a warning or make an observation about the road that is pertinent to the driving's course and not be overstepping the mark? There are several possibilities: one that echoes Watson's (1999) ethnographic study of truck drivers on un-metalled roads is noticing an object that is projectably collidable with given our course. This sort of pointing-at other vehicles or objects, even on collision courses, is nevertheless relatively rare since to point them out is to at the same time to raise the matter that the driver might not have noticed them. The driver can respond to such remarks as criticism of their competence in driving the car.

At the outset the other car has *not yet* pulled out but, in the finely judged projections of its course, its location and motion in relation to the visible markers of the road is cause for concern. Even afterward quite what it was up to, is unclear. However its

anticipated course is into the road rather than stopping at the give-way junction. Even though the driver may well be monitoring what the other car is doing, the absence of him, for instance, slowing down or even turning his head slightly toward the other car deprives the passenger of any visible response, and thereby appreciation of the threat posed by the car's rapid approach and over-stepping of the road markings.

Before we therefore assume that the driver has either failed to notice the other car or failed to produce an appreciable response that would have headed off the passenger's intervention, we can consider the further possibility that we may be party to is a classic game of "chicken" on the road. A game where the driver is banking on the car seeing him keeping-on-coming, where if he slowed down the other car might exploit that as an opportunity to jump into the road and accelerate away leaving behind the smell of burning rubber and an outraged car. I am not saying this will happen or am sure that it *is* what's happening but merely saying that one of the ways drivers handle one another is to get the other one to stand down. Moreover drivers exploit the visibility of the absence or presence of noticing one another. Where both cars have rights to go ahead, particularly in seriously congested roads such as those of Mexico City (Sormani, 2004), they will try and avoid letting the other driver see that they have seen them. If one has not seen the other, then for the one who has seen the other, they ought to let them through because they cannot rule out that the other driver genuinely has *not* seen them.

What is happening here is taken up by the passenger as that genuine circumstance of the driver not having seen the other car. The car which approaches the junction could quite imaginably not have looked properly to the left or have had this car in their blind spot and missed its approach. Under such circumstances the approaching car should then save the day by stopping in time and thus preventing a potentially fatal crash. It is worth remembering that one of the main reasons for there being actually very few crashes on the road is that where one driver makes an error their error is noticed by

approaching drivers and repaired by them. In the majority of situations it takes two drivers' inattentiveness to have a crash.

Let us return to Thrift and pre-cognition via the passenger's gesture: a point that is transformed into a touch of the chin, and then the hand is taken out of sight, what Lerner and Raymond (forthcoming) call a midcourse pivot. It is tempting to equate gesture with what is before or outside of language, an embodied intelligence. The brain is reacting, communication is underway before the brain has a chance to reason about what the body is doing. In a neuro-scientific pre-cognitive account, the passenger's brain is firing up first as it works out what is going on and then sending the electrical charges down his nervous system to get that arm moving, the finger extending to link it with the optical information being processed by the brain from the eyes, and so on, and so psychologically forth.

All of this sound highly plausible because we are so deeply immersed in cognitive psychology and popular neuroscience that such an account sounds not merely plausible but a matter of scientific fact. To argue that it is not so requires careful retracing of the many ways in which Cartesian rhizomes have run through language to link up with our concepts of thinking, acting, free will and perception. As Wittgensteinian scholars of the mind will remind us, treating "seeing", "noticing", "pointing out" (as a passenger moreover) as brains processing retinal information and activating muscles is a conceptual confusion, a problem with incorrect use of our language (Coulter, 1983; Edwards, 1997; Hacker, 1996; Watson, 2003). The "brain" does not work out the danger the car at the junction poses through processing retinal information and sending messages to its limbs, it is a "person" that works out the danger the car at the junction poses. If we ask who saw the car, the correct response is the passenger, not the passenger's brain. This is not in any way to deny that their whole body is indeed involved and they could not do what they do in the way that they do it without arms, fingers and a brain. It is to say that if we

ask who is pointing out to who, it is the passenger pointing out to the driver, not brain 1 pointing out to brain 2.

Rather than continue to critique Cartesian neuro-scientific accounts here what I will do is make brief remarks about the gesture in its course. To do so begin to give us a sense of how we might inquire into gestures as part of the production and reception of reasonable and reasoned courses of action. The pointing happens quickly, where pointing can linger on an object to make sure that there is something to be seen, is seen, and what is being pointed at, is seen. It should be in three sequentially related parts: one being its emergence, the second its pause and the third its dissolution, or perhaps transformation. In three parts it allows for displaying that something is about to pointed at, then with lingering and thereby picking an object out and then an evaluation of that thing. As it actually happens the pointing never pauses, the hand is made into the shape, the finger rises up but doesn't stop, like a bus rushing past a bus-stop, it runs on and thereby re-appraising what has been picked out. We make sense of the almost-pointing not as a semiotic gesture (as-it-were) where the hand is making a sign for the car, we make sense of it by locating what it could be locating in the visual field ahead of the car (Goodwin, 2003).

As Goodwin and others (Heath, 1986; Kendon, 2004; Mondada, forthcoming; Schegloff, 1998) argue the gesture comes with the speaking, it is not a separate track of communication. Sign language running *alongside* spoken language. Alongside their relation to speaking, as we have noted above, the gestures have emergent sequential properties to them akin to both the ordering of words and the turns taken in conversation. The pointing here is only half-made and becomes a touch of the nose instead of a firm or definite point. The run-up nevertheless makes what is coming appreciable, in that we see the pointing coming before we could discern what it could point at. Indeed run-ups or pre-pointings can, and do, happen this way to allow us to tune-in on the visual field.

Often, we see what is being pointed at before the pointing comes to its pause because we are ongoing involved in monitoring scenes and so may well be able to correctly anticipate what the pointing is supposed to land on. Not by careful inspection of the direction of the finger, like the sight of a sniper's rifle, but by picking out the misbehaving vehicle ahead. In fact just how wrong the idea that we follow the finger is when we try to point out a star in the night sky to a friend. The pointing finger almost always fails us when what is being pointed at cannot be picked out without the point.

Pointing as an embodied visual practice has been written about extensively elsewhere (Goodwin, 2003; Hindmarsh & Heath, 2000) and for that reason, along with its pertinence to pre-cognition, what I would like to is shift what immediately follows the pointing:

((*His finger then touches nose*))

P: I thought he was gonna::, ((*looks into car as they pass it*)) she was gonnae pull out and go for it

The pivot of the [pointing *at*] into the finger touching the nose instead, the latter gesture, in relation to the former, becomes a re-appraisal of what was seen as underway already. Noticeably cut-off in terms of how long we expect a point to last, the pointing's dissolution negates the thing that was now only seemingly seen. If it were a finger touching an object to make it relevant, it's a touch that is visibly withdrawn. The words that follow, 'I thought' could be taken as a report on what was occurring inside the brain of the passenger and that's the literal way 'thinking' is all too often dealt with by psychologists and neuroscientists. When having their brain scanned by PET or fMRI subjects are asked to 'think' of a number for instance. From a number of ordinary language philosophers the rejoinder to such experimental suppositions is that the uses of 'I think' and 'I thought' are *polymorphous* (Coulter, 1989; Wittgenstein, 1953).

In this driving event to say 'I thought' is to make available what the passenger was *supposing* or *assuming* in making their gesture. It is the kind of use of 'I thought' that we say *after the fact* when indeed things may have gone wrong or have been revealed to not have been what the person has assumed or supposed. From the way the car ahead was moving, the passenger assumed they would pull out in front of them. An extreme example would be a police officer having accidentally shot a suspect saying "I thought he was reaching for a gun" (from Bennett & Hacker, 2003). Brains do not make such suppositions, police officers do. It is the police officer as a police officer that is held accountable not their brain. In neither case is there the need to suppose that an additional privileged process (e.g. thought) was going on. Moreover the phrase 'I thought' begins to build that what will follow is an account for the mistaken gesture that immediately preceded. There's nothing essential about the gesture in directing the driver's attention, the passenger could have called out 'watch out!' or made one of those, often heard from passengers, sharp intakes of breath.

Concluding remarks

The introduction of neuro-psychological theories of non-cognition and pre-cognition by Nigel Thrift was one solution to a problem which continues to be rife in not only psychological studies of driving fifty years after Ryle's devastating critique, but in mobility studies more generally, which is the over-emphasis on intellectual forms of life and the attribution of its characteristics to travellers, drivers, passengers, tourists and more. The problem, overly simply put, is that what mobile actors are taken to be doing when they are reasoning in and about their movement is isomorphic with what theorists are doing when they theorise about mobility. Or as Thrift pithily puts it: "Probably 95 percent of embodied thought is non-cognitive, yet probably 95 percent of academic thought has concentrated on the cognitive dimension of the conscious 'I' ." (Nigel Thrift, 2000, 36). However the solution is not to import pre-cognition and cognition, thereby inadvertently smuggling a Cartesian division back into the analysis of mobile practices involving humans and new and old technologies.

What I have tried to do here instead is follow the example of a number of other philosophers and post-cognitive psychologists (Edwards, 1997; Potter, 2000) by returning to a mobile setting where we find "thought" as an ordinary word being spoken by a passenger to a driver, where something is being seen to be so for a moment, then realised not to be so and initially gesturally repaired. I have pursued how this seemingly precognitive moment in driving or 'passengering' can be analysed without recourse to involuntary mental processes. Hopefully it gives a flavour of how we might begin to study actual instances of quite ordinary driving without falling into the cognitive theory's billiard ball game of mental causation. As private cognitive processes "wanting",

"intending" or "deciding" are taken to be indirectly accessible *causes* of actions or movements. To refuse to accept volition, intention or decision-making as specific mental processes is not to say that we do not slam on the brakes as a driver or find ourselves pushing the floor with out foot as a passenger *because* we intend to, want to or decide to do so, it is simply that the "because" is not *causal*. If it were causal once the passenger from the transcript had formed an intention to point out the car that was on a collision course he could simply relax and let the "intention" *cause* his finger to rise and point toward the car. As a consequence it is unwise to chart the redistribution of intentionality between driver and software or passenger and their unconscious because there is no 'thing' to be redistributed.

That what the passenger did was intended and that it was not involuntary (e.g. pre-cognitive) is covered by the fact that, even though the passenger was acting quickly, he was aware of what he was (intentionally) doing. If he was unaware of the fact that he had raised his arm and made a gesture that looked a lot like pointing at that car, *then* it would have been un-intended. It has nothing to do with a mental entity causing, or *not* causing, the action. This point applies to many of the other actions involved in driving that are gathered together as "automatic", the prime example being changing gear (Groeger, 2000). That a driver grasps the gear lever in a certain way "automatically" as they change gear may not be intentional and Thrift's remarks on ergonomics have some purchase there, but the driver's gear-changing is intentional. When some form of cruise control does the gear changing the attribution of intention changes. The driver, for instance, intentionally activating the cruise control and then a Latourian (1997) moment of displacement because the company that designed, engineered and programmed the cruise control intended the cruise control to behave in certain ways. What defines intended action is that the actor can provide reasons for what they are doing, or have done, which if you recall, is what the passenger provides, having suppressed his point

toward the car. To say 'I thought' is to provide justification or excuse for our actions, not to name an internal state. An 'involuntary' gesture would be a nervous tic and one that others would not assume was intentional or that they person meant anything by it .

Here what have seen is someone taking responsibility for their mistaken actions, rather than doing them either freely or under constraint. What the passenger's 'I thought' does is to take responsibility. 'He must mean what he gestures' to adapt a phrase from Cavell (2002). In examining what is excusable as the involuntary, Austin (1956-7) brings out that simple oppositions do not hold, quite the opposite, an action can be impulsive and intentional, or, an action can be intentional though not deliberate. Austin uses the amusing and potentially fatal example: while walking along the cliffs, on impulse pushing you over the edge. I both intended to do it while acting on impulse, yet what I did not do was pause to reflect on whether I should or not. In the passenger's case they intentionally point out the other car, there is no time to pause in advance and reflect on whether they should or not.

Reactions to impending dangers during driving are fascinating because they are at the edge of the involuntary. The mistake is to extend them across all driving and thus license grand statements about human psychology or the pre-cognitive nature of automobile systems when these rapid responses are relatively rare. Ultimately then I would argue there is no need for the pre-cognitive in understanding or analysing driving nor mobility in its more varied manifestations.

Acknowledgements

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