

The Pathway to Driverless Cars and the Sacred Cow Problem

Last Thursday (April 27, 2017) I was one of two speakers invited to lead the discussion at a National Infrastructure Commission roundtable on **Connected and Autonomous Vehicles**. The first speaker discussed the “**Readiness of the road network for connected and autonomous vehicles**”. My presentation was subtitled “**Some behavioural challenges to think about.**” The PowerPoint notes version of my presentation can be found [here](#). What follows is a brief synopsis of the presentation.

In the [Pathway to driverless cars](#) the Government sets out its vision of what lies at the end of the pathway in rather deterministic terms:

*“Automated vehicle technology **will** profoundly change the way we travel ... fully automated vehicles **will** transport people and goods to their destination without any need for a driver.”*

The Government evinces no doubt that we will get there. Further, the Government wants to get us there as soon as possible: “The Government wants to secure the UK’s position at the forefront of this change for the development, construction, and use of automated vehicle technologies.”

*Two (possibly insurmountable) obstacles lie in the path of this vision: **driver distraction** and **sacred cows**. The Pathway to the driverless future envisioned by the Government depends on the development of **Advance Driver Assistance Systems**. These systems will take over more and more of the driving task until, finally, it takes over all of it and we can all be transported to our destinations without any need for a driver. The closer we get to this end state the greater the problem of distracted driving becomes. Why pay attention when the car is doing everything for you? The difficulty (impossibility?) of overcoming this is why Google removed the steering wheel.*

A piece in the Guardian (27 April, 2017) illustrates the point: “In a little more than two years, a fleet of driverless cars will make its way from Oxford to London, with the entire journey, on urban streets and motorways, conducted automatically.” It then adds “The Government backed project, announced yesterday, expects to have a human in the driving seat, ready to take over if necessary.” Why should one stay alert for the whole of a journey from Oxford to London to respond to an incident that you have been persuaded is highly unlikely to happen?

*The best answer that the Pathway can provide is Rule 150 of the Highway Code, which both acknowledges the problem of distracted driving and provides the solution. The acknowledgement: “**There is a danger of driver distraction** being caused by in-vehicle systems such as satellite navigation systems, congestion warning systems, PCs, multi-media, etc. And the solution: **You MUST (sic) exercise proper***

control of your vehicle at all times. **Do not rely on driver assistance systems** such as cruise control or lane departure warnings.”

Most of the 307 rules in the Highway Code are merely advisory, but when a rule uses capitalized **MUST** it has the force of law. If you disobey the rule “you are committing a criminal offence.” The best solution to the distracted driving problem offered thus far is to declare that distracted driving is against the law.

Assuming we get past the distracted driving problem and arrive at the Pathway’s destination we encounter the sacred cow problem.

One can find innumerable demonstrations by the promoters of driverless cars of their ability to programme their cars to respond with extreme deference to any pedestrians or cyclists who might wander into their path – and numerous acknowledgements of the necessity of this programming if driverless cars are to be permitted on public highways. Their cars, they boast, will respond with extreme deference to all vulnerable road users. One can find numerous illustrations of the ability of real sacred cows to cause traffic paralysis in Indian cities. Why would sacred humans, aware that the algorithms of the driverless cars that they encounter have been programmed to defer to them, not take advantage of their sacred status in ways that would lead to deferential paralysis in cities with lots of pedestrians and cyclists, and perhaps newly liberated free-range children?

One looks in vain for an answer to this question. One can find a few acknowledgments that it is a real problem.

“Driving in cities would be unacceptably slow if autonomously-operating cars were required to assume that every pedestrian might jump into traffic as fast as humanly possible. But if pedestrians came to learn that cars would always avoid them then they would likely act in much less controlled ways on streets and pavements.”

But solutions have yet to be found:

“Studies are underway using driving simulators to determine the optimal ways to design the human-machine interactions, but there are no clear answers today regarding design principles or standards.”

More commonly one finds a complete lack of awareness of the existence of such a problem. Here from Autoexpress:

“the Highway Code will need to change to get the most out of them. The tech will allow more accurate driving so, for example, cars could overtake cyclists more closely... “

I ended my presentation with a question. I noted that the Department of Transport, in addition to its driverless car initiative also had a well-funded project promoting walking and cycling. I asked the roundtable “Are these two initiatives talking to each other?” The answer was an implicit “NO”. Although I had been invited as one of two

Round Table discussion leaders to talk about behavioural challenges confronting the driverless car project, neither of my two behavioral challenges to the feasibility of a driverless future was discussed. Not surprisingly perhaps for a National Infrastructure Commission Round Table, the discussion focused entirely on the infrastructure problems that needed to be overcome to make the driverless future a reality. There was no serious challenge to the assumption that the nation was on the Pathway to a driverless future. The guiding assumption of the discussion was that the nation was on The Pathway, and the job of those concerned with its infrastructure was to help “secure the UK’s position at the forefront of this change”.

The impending competition for road space between driverless cars and pedestrians and cyclists looks like being an unequal contest. In terms of money, political influence and friendly media coverage the driverless car project starts with an enormous advantage.

John Adams

PS For a highly readable account of how the earlier battle for road space was won by the car in America see *Fighting Traffic: the dawn of the motor age in the American city*, by Peter Norton.

And for a view from the financial sector of the problem of sacred cows click here – [Sacred cows in the road](#)