The reasonable robot

Journal Item

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Stephanie Pywell ponders some of the liability dilemmas facing UK law-makers at the dawn of the age of driverless cars

The issue of driverless cars – more properly, autonomous vehicles (AVs) – is all around us. On 2 October 2015, Lucy McCormick's article in *NLJ* outlined some of the provisions of the UK government's code for testing AVs in public places (see "Drive me (in the) wild", 165 *NLJ* 7670, p 7). On 14 February 2016, a Google-controlled Lexus AV carrying a test-driver was involved in a collision with a bus in Santa Clara, California. On 16 March, the full text of the Budget (though not the Chancellor of the Exchequer's speech) stated that, "by 2017" (a maximum of 19 months' time) trials of driverless cars and "truck platooning" – which means convoys of up to 10 autonomous 44-tonne lorries, with a driver in only the leading vehicle – will take place on the UK's "strategic road network".

Last Wednesday, the Queen's speech at the State Opening of Parliament confirmed the Government's intention for the UK to be "at the forefront of technology for new forms of transport, including autonomous and electric vehicles"

This article uses the circumstances of the Santa Clara collision to provide an initial focus for consideration of how Parliament and the courts might respond to two of the points identified by McCormick: the allocation of civil liability between driver and manufacturer, and the standard of driving required of an AV. It seems likely that the Consumer Protection Act 1987 (CPA 1987) and the law of negligence will form the basis of the legal provisions that will protect the UK's road users when AVs are involved in collisions. The article concludes by identifying some potential AV-related legal problems, and concludes that all these issues should be considered by law-makers without delay.

The Santa Clara collision

The accident report of the collision in Santa Clara is publicly available. Some information relevant to liability is missing, but there is sufficient detail to visualise the event. The AV was on the right-hand side of the right-hand lane because it intended to turn right at a junction. Some

sandbags were blocking its path, so it stopped. It then moved, at about 2mph, into the lane of traffic on its left, which was moving at about 15mph. The AV's test-driver saw a bus approaching the AV, and assumed that the bus driver would stop or slow down to permit the AV to enter the stream of traffic. The driver did not decelerate, and the AV bumped into the side of the bus. No one was injured, but the AV and the bus suffered minor damage. Google accepted some liability for the collision, and the California Department of Motor Vehicles has stated that it is not responsible for apportioning blame.

The Consumer Protection Act 1987

Sections 2 and 3 of CPA 1987 provide that the producer and/or supplier of a product that is not as safe as "persons generally are entitled to expect" is liable if such a "defective" product causes injury, death or property damage to the value of at least £275. Section 4 of CPA 1987 includes the "development risks defence", which negates liability if the state of scientific and technical knowledge at the time was not such that the producer or supplier could reasonably have discovered the defect before the product was released.

The question of whether the Google AV was defective depends on people's general expectations of the standard of driving of an AV. Given that all road users implicitly accept that other road users will, on occasion, make mistakes, it may be that an occasional mistake by an AV is acceptable. It is noteworthy that this is the first collision to which an error by a Google AV has contributed in 1.4 million miles of driving since 2009; the other 16 collisions involving Google AVs have all been caused by human error. A person who drives 20,000 miles every year would cover that distance only if his or her driving career lasted 70 years, and only one own-fault minor collision in such a motoring lifetime would be regarded as creditable. On the evidence to date, therefore, it does not seem that a Google AV could reasonably be deemed "defective".

The law of negligence

The common law imposes liability in negligence on a person or organisation that causes foreseeable loss, injury or damage because of a failure to take as much care as "the reasonable person" would have taken in the circumstances. The standard is certainly not perfection: in

Nettleship v Weston [1971] 2 QB 691, [1971] 3 All ER 581, the Court of Appeal held that – for pragmatic, rather than moral, reasons – all drivers, including learner-drivers, must "drive with the same degree of care and skill as that of the reasonably competent and experienced driver" (Lord Justice Salmon, at p. 703). The director of Google's AV programme, Chris Urmson, is reported as stating that the company's goal is to make a car that drives much better than a human being, but that "you don't want the perfect to be the enemy of the good. Given the AV's fault-to-mileage statistics, it seems that the AV exceeds the standard that would be required of a reasonable driver, perhaps setting a literally super-human standard for "the reasonable robot".

The test-driver in the Google AV could have overruled the robot to prevent the accident, but did not do so because he thought that the bus driver would slow down to let him into the stream of traffic. This is, on the face of it, a reasonable assumption: had this been in the UK, the bus driver should have followed the *Highway Code's* statement that a driver must "always give way if it can help to avoid an incident" ("General rules, techniques and advice for all drivers and riders (Rules 103–158)"). If the bus driver realised that the AV was entering his lane at a speed that meant that the bus would collide with the AV if he did not decelerate, he should have decelerated; any drivers following the bus who could not stop in time would be strictly liable for any resulting shunts. If the bus driver did not realise that the AV was posing the risk of an imminent collision, it is arguable that he was driving without proper care and attention.

A consideration that applies to an AV test-driver, but may not apply to future consumer-drivers, is that – almost by definition – some mistakes may ultimately be beneficial. Since the Santa Clara collision, Google has "refined" its software to take account of the fact that "buses (and other large vehicles) are less likely to yield to us than other types of vehicles". When human drivers pull out into lanes of traffic, they often rely on cues such as eye contact, smiles and small hand gestures, to all of which a robot is presumably oblivious, and for which rapid calculations of speed, time and distance must compensate. At first glance, it appears that – like any responsible human being – Google seems eager to learn from its mistakes, and the test-driver's intervention could have prevented this particular "lesson" from being learned. These considerations suggest that the Google AV's test-driver attained the standard that one would

expect of a reasonable experienced test-driver, and Google's response indicates that it holds its machine, rather than its man, liable.

Potential problems

Google's reactive software refinement leaves at least one important question unanswered. It is unclear why the organisation considers, after an unprecedented incident, that large vehicles are likely to be driven less courteously than are smaller ones: given the significantly greater damage that larger vehicles are likely to cause, and the fact that heavy goods vehicle and public service vehicle drivers must pass stringent driving tests, it would seem reasonable to expect buses and lorries to give way more readily than cars. If Google's generalised assumption is incorrect, and this particular bus driver's momentary misjudgement or lack of attention was a factor in the collision, the changes to the software may be inappropriate. It seems inevitable that, in 1.4 million miles, AVs have pulled out into lanes of traffic that were initially moving faster than they were, and larger vehicles must normally have slowed down for them. This suggests that the Santa Clara bus driver's lack of response to the AV's manoeuvre was atypical. If so, the consequent software refinement could mean that AVs will wait for disproportionately long periods when they encounter unexpected obstacles, risking unnecessary queuing, driver impatience and resultant poor driving that could lead to an increased risk of a more serious collision (even though the stationary AV would remain unscathed). The fact that the AV's "conduct" triggered the human reaction of impatience could potentially cause the AV to be deemed defective, or to have performed below the standard of the reasonable robot – and cause Google to incur civil liability. Future consumer-drivers of AVs may feel the need to intervene to overrule their robots' excessive caution and, if their intervention were misjudged, they would almost certainly be liable.

If AV technology were to develop such that the robots became able to amend their own algorithms on the basis of their experience, the potential liability of Google and consumer-drivers would become even greater. Google would lose direct control over software refinements that might prove to be dangerous, yet no other person or corporation could reasonably be held liable for their consequences. Another risk would be malicious interference ("hacking"). If someone deliberately, without Google's knowledge, amended the software such that the AV started to

drive dangerously, the question would arise as to whether Google were liable for not making its systems sufficiently secure. In this circumstance, the development risks defence might protect Google: recent experiences in the UK banking, broadcasting and telephone sectors, and the FBI's unlocking of a gunman's iPhone, suggest that it is impossible to guarantee the inviolability of any computer program. At common law, however, other road-users' insurers would demand someone to sue, and any competent hacker would be unidentifiable. For the pragmatic reasons evident in the CA's reasoning in *Nettleship*, it is likely that Google would be deemed liable for the actions of individuals of whom it had no knowledge and over whom it had no control. Future consumer-drivers, too, will need to be on their guard against either of these alarming possibilities, which could render their intervention necessary more often than is foreseeable: the price of maintaining the integrity of their bodies, their AVs and their bank balances may be constant vigilance.

Comment

It is reassuring that the Government is aware of the need to legislate for AVs, and this article has identified some of the fundamental issues that it needs to take into consideration . These will not be easy to resolve, but that is no reason for ignoring them: the silver jubilee of the Dangerous Dogs Act 1991 serves as a timely reminder of the risks of passing laws in response to media-fuelled public concern.

As Her Majesty has reminded us, the robots are undoubtedly coming, and the UK's law needs to be ready for them.

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