The Lexicon of Self-Driving Vehicles and the Fuliginous Obscurity of 'Autonomous' Vehicles

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Abstract

Self-driving cars, also referred to as connected and autonomous vehicles, are not only in vogue amongst technology and car enthusiasts (among others) but they have been broadly considered to form a new and disruptive means of transport. The benefits of self-driving cars are replete with stories of inclusivity, safety, environmental benefits and social connectivity. However, the reality of the words 'self-driving' and 'autonomous' in the designation of this form of transport are not only inadequately defined, they appear to be actively misleading individuals as to the capabilities of the vehicle and the responsibility that they as driver or person behind the wheel have when in use. Tesla is at the forefront of this debate given that it not only sells an option for its vehicles of full self-driving capability, but it also uses terms such as autopilot which, we argue, lead to misunderstandings by the public and may have resulted, directly or indirectly, to fatal car crashes. We conclude this paper with a recommendation that legislative change is enacted through use of an existing international Standard which will provide the definition and guidance that is necessary for the benefit of all stakeholders.

Introduction

On 7 May 2021 a report of a car crash occurring in Los Angeles, United States of America (hereafter US), was issued by the San Bernardino County Sheriff's Office. It involved an account of a 35-year-old man, Stephen Hendrickson, who had been killed, along with two people being seriously injured, as part of a road traffic accident involving a Tesla car and a large truck. The death of a driver whilst using a vehicle with autonomous driving functionality is not, of itself, something that is either unique or new, despite, obviously, being a tragic loss to the families of all involved. The issue of concern in this particular case was of the driver's previous actions in respect of driving his Tesla vehicle. Notably, he possessed a Tik-Tok social media account where, it has been widely reported,[1] he had used his Tesla vehicle's driving automation system in traffic whilst describing it as self-driving, being in Full-Self Driving (FSD) mode, and at the time describing his state of mind as being 'bored' and he commented that he was 'tired.' These are particularly important issues given that, at least from the information publicly available, the vehicle did not have the beta version of Tesla's FSD mode (a system which had been made available to only a select number of Tesla drivers) and given that he was both bored, and tired, raise concerns as all versions of autonomous vehicles, when being used, warn the driver or person behind the wheel that they must remain alert and ready to take over control of the vehicle when requested. Hendrickson was not the only person on social media to praise Tesla's FSD mode, whether this was the 'standard' feature or the (more advanced) beta version (given its very limited access). The beliefs of such social media presenters as to whether the vehicle is autonomous, safe, or can fully drive itself unaided cannot be tested. It is certainly not beyond possibility that such enthusiasm and use of the vehicle in this manner is used to generate attention and to encourage viewers to watch their content. However, what it does demonstrate, is an appetite from the public to see the

[1] See, as an example, a report by Reuters 'Tesla Crash Victim Lauded "Full Self-Driving" in Videos on Tiktok' https://www.reuters.com/business/autos-transportation/tesla-crash-victim-lauded-full-self-driving-videos-tiktok-2021-05-16/. All weblinks accessed 20 May 2021 unless otherwise stated.

self-driving capabilities of such vehicles in real-life settings, and there have been several instances of motor vehicle accidents, and resultant deaths, when these vehicles have been used on public roads with the automated features present being initiated (albeit not infrequently as a result of human error).[2] The matter of an overreliance, over trust, and misuse of what is as yet a vulnerable and developing driver assistance system, has not been helped by the use of words which, when scrutinised, might provide the uninitiated user with the perception of a feature which is not yet present. Other jurisdictions have begun the process of reviewing the use of these words, and are currently discussing how to limit their movement into the parlance of original equipment manufacturers (OEMs) and customers alike through legislation. What is certain is that without legislation to inform and thereby protect stakeholders against such broad and misleading terms, it is likely that interested parties will continue to adopt their use and give a false sense of security to drivers and pedestrians, which may invalidate insurance cover under the Automated and Electric Vehicles Act 2018 (AEVA 2018) and may even ultimately lead to deaths.

(Problematic) Definitions of Autonomous Vehicles

To begin, it is worth clarifying key points relating to autonomous / automated vehicles (itself a misnomer, as it is the driving which is automated, not the vehicle, but one which will be employed due to its common usage). The term which is collectively used to identify this mode of transport is connected and autonomous vehicles (CAV). Whilst they are often inextricably linked, they do refer to different systems within the vehicle. An autonomous vehicle is one through which the operation of the vehicle occurs without direct input of the driver or person behind the wheel through which the vehicle's steering, braking and acceleration are controlled absent of the individual in the vehicle. Thus, for true autonomy, the driver or person behind the wheel is not expected to either monitor the vehicle and its instruments,[3] they are not required to take over control at a given instruction, and such vehicles are being designed to actually prevent the individual from interfering with the driving while the vehicle is operating in self-driving mode. Indeed, for the Society of Automotive Engineering (SAE), 'the person seated in the driver's seat of a vehicle equipped with a Level 4 Automated Driving System feature… *is a passenger* while this Level 4 feature is engaged' (authors' emphasis). Connected vehicles, on the other hand, are those where communication technologies are present which can communicate instructions and information from the vehicle to the driver or person behind the wheel, to other vehicles in the relative proximity (referred to as vehicle-to-vehicle communications), to roadside infrastructure (referred to as vehicle-to-infrastructure communications), to systems in the 'cloud', and indeed, from vehicle-to-everything (V2X) platforms which are envisioned to use information regarding weather patterns, traffic and accident information, data regarding impacts of construction events, road works and so on to facilitate its operations. It is of course most often the case that for the

[2] See Hawkins, A. J. 'The World's First Robot Car Death was the Result of Human Error — and it Can Happen Again' (2019) *The Verge*, https://www.theverge.com/2019/11/20/20973971/uber-self-driving-car-crash-investigation-human-error-results; and Leggett, T. 'Who is to Blame for "Self-Driving Car" Deaths?' (2018) *BBC News*, https://www.bbc.co.uk/news/business-44159581.

[3] The Society of Automotive Engineering provides detail of the distinction between monitoring and receptivity at para. 3.18 note 3 of J3016. It explains, as way of an example, a person who becomes aware of a fire alarm or a telephone ringing may not necessarily have been monitoring the fire alarm or the telephone. By contrast, a driver in a vehicle with an active Level 1 adaptive cruise control (ACC) system is expected to monitor both the driving environment and the ACC performance and otherwise not to wait for an alert to draw their attention to a situation requiring a response.

autonomy of an autonomous vehicle to operate, it must be connected to these internal and external sources of communication in order to operate safely. This is the reason why CAVs are referred to together and they will be considered as such a singular device and definition for the purposes of this paper.

The UK is not alone in identifying the potential problems of a working definition of CAV given the increasing prevalence of this form of transport, the aggressive marketing that is taking place by some OEMs, and the feature rich functionality that is inherent in an autonomous vehicle. In the US, the National Highway Traffic Safety Administration (NHTSA) has designated CAVs as vehicles for which at least some aspects of a safety critical control function (for example steering, acceleration, or braking) occur without direct driver input. Evidently, in some states, the level of autonomy of CAVs is significantly higher than presently allowed in the UK. However, in May 2021, the California Department of Motor Vehicles identified that it was reviewing Tesla to determine whether it had misled customers by advertising its vehicles as having full self-driving capability.[4] This is despite Tesla's website identifying, albeit in small print, that its self-driving 'does not make the car autonomous' and that 'active supervision' (read monitoring) is required by the driver. Yet this has not stopped members of the public from using the vehicle as per an autonomous vehicle, often on public roads and demonstrating how they have overridden Tesla's driver monitoring systems to operate in, essentially, reckless ways.[5] Significantly though with this investigation, the NHTSA has no authority to regulate the advertising although the Department of Motor Vehicles does have authority in the US to sanction OEMs which advertise a vehicle as autonomous when it does not meet that designation. But this again raises the issue of what autonomous means when referring to vehicles. This has led to the NHTSA opening more than 20 investigations on Tesla following several incidents of the use and misuse of its autopilot system which has been implicated in several deaths.

In Canada, Transport Canada, part of the federal ministry, has defined autonomous vehicles as those that 'use a combination of sensors, controllers and onboard computers, along with sophisticated software, allowing the vehicle to control at least some driving functions, instead of a human driver (for example, steering, braking and acceleration, and checking and monitoring the driving environment).'[6] On close reading it is patently clear where the immediate concern is regarding such a definition. When an arm of the government identifies autonomous vehicles in respect of a feature which allows the vehicle to 'control at least some driving functions,' this can cause confusion even when the statement continues that this feature operates '… instead of a human driver…' as it maintains the inference that such operation includes '…the steering, braking and acceleration, and *checking and monitoring the driving environment*' (authors' emphasis). Here it appears that Transport Canada considers autonomy to be a situation where the driver or person behind the wheel relinquishes some of their authority with respect of some driving functions to the vehicle itself. Naturally the word 'some' is concerning when looking for a definition of autonomous either in the advertisement of a feature, or the potential culpability of an individual who rests power to such a feature.

[4] https://sanfrancisco.cbslocal.com/2021/05/18/california-dmv-places-teslas-full-self-driving-under-review/.
[5] There are numerous such videos available on YouTube. One which demonstrates a method of overriding the monitoring requirement of a Tesla car (but is used as an instructional video) is available at, https://www.youtube.com/watch?v=ITo56bhYzJo.
[6] Transport Canada, Automated Connected Vehicles 101, July 18, 2019.

It is the SAE which has in its internationally accepted J3016 Standard[7] (a matter to which we return later) a working definition incorporating gradations of autonomy for vehicles which may then be defined as self-driving. However, this organisation has also accepted that the term self-driving can '…lead to confusion, misunderstanding, and diminished credibility' when attempting to define and describe the levels of autonomy. Returning briefly to the US definition, the Department for Motor Vehicles has identified Tesla's Autopilot and its FSD mode as qualifying for designation at Level 2 SAE[8] - a driver assistance technology - and one which thereby requires full driver attention when in use. A further element to this designation, and perhaps one which is worrying in its implications, is that given it is merely a driver assistance technological feature, it is permitted to be used on roads in States including California, without the requirement for data reporting, as is necessary for autonomous vehicle testing. Further, other OEMs who are testing autonomous vehicles - Argo AI, Cruise, Waymo (Google) and Zoom operate on public roads with trained safety drivers present in the vehicles and they also provide data to the State. Tesla does neither.

Tesla has also been subject to claims of misleading consumers in Germany[9] with regards to the capabilities of its autonomous driving system, specifically where it denotes its vehicles as having 'full potential for autonomous driving' and using phraseology as 'Autopilot inclusive.' A court in Munich held that Tesla was required to stop further use of such phrases on its website and in its advertising materials in Germany.

In the UK, The UK Centre for Connected & Autonomous Vehicles, a joint Department for Business, Energy & Industrial Strategy and Department for Transport unit established in 2015, has the remit of working with industry and academia to develop regulations and lead the government's Future of Transport strategy.[10] In its document BSI Connected and Automated Vehicles – Vocabulary BSI Flex 1890 v3.0:2020-10,[11] it defines automated vehicle as one being 'Equipped with communications technology that enables data transfer with other vehicles, infrastructure or other networks.' Further, at para. 2.1.60, vehicle is defined as 'Motorised, wheeled conveyance that is mechanically propelled and intended or adapted for use on roads.' The definition provided is not particularly instructive, and perhaps is not surprising when the legislative roadmap to the introduction of CAVs was first being considered. The discussion by the House of Lords Science and Technology Select Committee[12] in 2017 concerned the legislative future of CAVs and the terminology to be used. Not only did this include the designation of these vehicles

[7] See Choksey, J. S., and Wardlaw, C. 'Levels of Autonomous Driving, Explained' (2021) *J. D. Power*, https://www.jdpower.com/cars/shopping-guides/levels-of-autonomous-driving-explained, for commentary. The full document is 'Taxonomy and Definitions for Terms Related to Driving Automation Systems for On-Road Motor Vehicles J3016_202104' which describes motor vehicle driving automation systems that perform part or all of the dynamic driving task on a sustained basis. It provides a taxonomy with detailed definitions for six levels of driving automation, ranging from no driving automation (Level 0) to full driving automation (Level 5).

[8] The SAE Level 2 refers to partial automation, being an automated system on the vehicle which can perform some driving tasks but a human continues to monitor the driving environment and perform the remaining driving tasks.

[9] Kolodny, L., and Shead, S. 'German Court Rules that Tesla Misled Consumers on Autopilot and Full Self Driving' (2020) *CNBC*, https://www.cnbc.com/2020/07/14/tesla-autopilot-self-driving-false-advertising-germany.html.

[10] https://www.gov.uk/government/publications/future-of-mobility-urban-strategy.

[11] https://www.bsigroup.com/globalassets/localfiles/en-gb/cav/bsi-flex-1890-v3-2020-10.pdf.

[12] House of Lords Science and Technology Select Committee, 2nd Report of Session 2016–17. 'Connected and Autonomous Vehicles: The Future?' (2017) HL Paper 115, https://publications.parliament.uk/pa/ld201617/ldselect/ldsctech/115/115.pdf.

('self-driving vehicles (or cars), autonomous vehicles, automated vehicles, highly automated vehicles and connected vehicles')[13] before the Lords settled on CAV to echo that used by the UK's Centre for Connected and Autonomous Vehicles, but more importantly for the purposes of this paper, when autonomous vehicles could be said to be acting autonomously. At para. 21 they commented:

> 21. Autonomous vehicles are those in which operation of the vehicle occurs without direct driver input to control the steering, acceleration, and braking and are designed so that the driver is not expected to monitor constantly the roadway while operating in self-driving mode.

This contribution can be seen influencing the definitions included in the AEVA 2018. It will be remembered that the UK, a country which wishes to be a leading player in the development and rolling out of CAVs, was the first to establish a regulatory system for the compulsory insurance of autonomous vehicles.[14] It was in the AEVA 2018 where, at s. 1(b), the Secretary of State was instructed to '…prepare, and keep up to date, a list of all motor vehicles that—may lawfully be used when driving themselves, in at least some circumstances or situations, on roads or other public places in Great Britain.' The Act issues a direction as to 'automated vehicle' at s. 1(4) that this 'means a vehicle listed under this section' and it continues further, at s. 8(1)(a), that '…a vehicle is "driving itself" if it is operating in a mode in which it is not being controlled, and does not need to be monitored, by an individual.' These sections of the Act immediately raise issues which require consideration. The term self-driving and/or driving itself varies depending upon the context and, according to the SAE, unstated assumptions about the driving and the driver.[15]

It will be noted at first instance that nowhere within the Act is it comprehensively defined what an automated vehicle is to come under the remit of this piece of legislation. The instruction to the Secretary of State, of maintaining a list of motor vehicles that may be used when driving themselves, does not identify what 'driving themselves' actually means. For instance, Tesla operates vehicles with a feature known as 'Autopilot.' This feature has different degrees of autonomy depending upon the jurisdiction in which it is operating. In the UK at present, this refers to driving on motorways where the vehicle takes control of the speed and braking, and through the driver's instruction via the indicator stalk, can change lanes without the driver operating the steering wheel. Significantly, as a safety feature Tesla requires the driver to continually interact with the steering wheel to show they are maintaining a monitoring function of the vehicle. Hence, the driver, even when the vehicle is operating in autonomous mode, is available and prepared to regain control of the vehicle as instructed. Yet at s. 8 of the same Act, the vehicle is driving itself only when it is not being controlled *and does not need to be monitored* (authors' emphasis) by the individual. Given that no vehicle presently for sale in the UK operates without the driver having to be ready to take control of the vehicle and thus required to monitor the vehicle as they would any other car using an automated driver assistance feature, even the legislation currently permitting the use through compulsory insurance does not accurately identify autonomous vehicles. The legislation does not offer gradations of autonomy, does not refer to international standards of what autonomous is and when it will apply, and therefore, until vehicles on UK roads operate at Levels

[13] Para. 18.
[14] See Marson, J., Ferris, K., and Dickinson, J. 'The Automated and Electric Vehicles Act 2018 Part 1 and Beyond: A Critical Review' (2020) *Statute Law Review* 41 (3) 395 for commentary on the Act.
[15] Para. 7.1.3, J 3016.

4 and 5 SAE, vehicles on UK roads and for sale in the UK are not autonomous vehicles. This point allows us to return to the problematic meaning of *driving itself*. This can refer to a situation where no driver is present, to where no driver / person behind the wheel is performing any of the driving tasks, and to those where the driving automation system is performing some / any part of the driving tasks. The AEVA 2018 presently is too broad and devoid of clear guidance as to when a person may use a vehicle 'driving itself' for the person to be reassured that the compulsory insurance scheme in place is applicable to their circumstances. This definitional discrepancy continues, allowing marketing terms to be used which will operate to confuse the uninitiated user and place them at risk as to the limits and (possibly) lawful use of this feature.

Examples of Undefined and (Potentially) Misleading Descriptions

Given the lack of agreed standards and descriptions of what 'autonomous' driving means in a practical sense, it is unsurprising that this has led to variations in its application. As recently as May 2021, on the website of Tesla UK, an option to purchase a FSD Capability package for Tesla vehicles was available at a cost of £6,800. For this price, software is unlocked in the vehicle which provides all the functionality of Basic Autopilot and Enhanced Autopilot, along with Traffic Light and Stop Sign Control. An 'upcoming' feature of the package includes 'autosteer on city streets.' Collectively, the qualities available on fully (software) upgraded Tesla vehicles provide: Auto Lane Change, a measure that, whilst driving on a highway (read motorway in national parlance), will position the car in the optimal lane to prepare for merges and exits while overtaking slower moving vehicles. Navigate on Autopilot, where automatic driving from highway on-ramp to off-ramp includes automatic lane changes, traffic-aware cruise control with complete stopping and re-engagement of the power, Autosteer, and overtaking slow moving vehicles occupying the lane your car is currently in. Enhanced Summon, in which, and accessed through the Tesla App on a compatible mobile phone, the parked car will drive itself to find the driver / person in charge (for example in a car park) and have the ability to park or unpark itself, useful where the physical parking space allows for limited access of the driver and/or passengers. Tesla continues that enhanced summon 'navigates complex parking situations while abiding by lane markings and stop signs, avoiding pedestrians and obstacles like traffic cones, trash bins and rogue shopping carts.' A final feature highlighted under this heading is the FSD Computer which '…enables detailed, onscreen environment visualization and eventual Full Self-Driving Capability...'

Having outlined each of these options and their effects on the operation of the cars that have them engaged, Tesla provides the following disclaimer

> The currently enabled features require active driver supervision and do not make the vehicle autonomous. Some features require turn signals and are limited in range. The activation and use of these features are dependent on achieving reliability far in excess of human drivers as demonstrated by billions of miles of experience, as well as regulatory approval, which may take longer in some jurisdictions.

Most notably in the confusion that has been evident in the developing use of the word autonomous has been following the work of Dixon[16] and the term 'autonowashing.' Dixon's work considers

[16] Dixon, L. 'Autonowashing: The Greenwashing of Vehicle Automation' (2020) *Transportation Research Interdisciplinary Perspectives* 5 100113 http://dx.doi.org/10.1016/j.trip.2020.100113.

vehicle automation and factors which impact human-machine interaction and, in particular, road safety. This is important in respect of partial and semi-autonomous systems in safety-critical contexts and people's appreciation of their limitations and the reliance placed upon these. This is not unsurprising. As recently as 2019,[17] Elon Musk was advertising the self-driving capabilities of Tesla cars and even the Financial Times was publishing misleading articles such as 'Volvo puts 100 British families in driverless cars'[18] when in fact, yet ignored by the author, these were not 'driverless' as all the vehicles referred to had professional safety drivers present who were ready to intervene in the driving task as needed. The concern with autonowashing is how these marketing descriptions of vehicle automation affect user perceptions of the vehicle's capabilities. It leads to such capabilities being often overstated, with the result that, especially in the advent of social media platforms, misplaced trust is placed in these vehicles[19] and users' misuse (or overriding of safety) features.[20]

It is not that parliamentarians are ignorant of the need for clear definitions and instructions to regulate the consequences of the incoming use of CAVs. Taking the discussion slightly more broadly to demonstrate this point, proposals presented at the House of Commons Public Bill Committee to insert cyber security standards in the Automated and Electric Vehicles Bill (ahead of it becoming the AEVA 2018) led to the following suggestion

> … an automated vehicle may be listed, under section 1, as being capable of driving itself 'safely' if the vehicle is designed and manufactured to be… protected from hacking risks that the manufacturer knew, or ought reasonably to have known, are likely to cause damage to the automated vehicle or another vehicle, or injury to a person, on the road or surrounding area.[21]

Yet the section was rejected by the Committee given the need for additional clarity concerning the extent of protection required, particularly around knowledge and 'risk'. Had the section regarded the issue of risk generally, it would be to introduce a bar difficult to meet, because while a vehicle could be protected against specific risks, it would involve a considerably more significant challenge to protect vehicles from all cyber risk.

More broadly still, government regulation regarding the use of certain words is well established. In company law, sensitive words and expressions require prior approval before use in a company

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[17] @elonmusk, Elon Musk on Twitter: 'Tesla drives itself (no human input at all) thru urban streets to highway to streets, then finds a parking spot.' (2016) Retrieved 20 May, 2021, https://twitter.com/elonmusk/status/789019145853513729?lang=en.

[18] Campbell, P. 'Volvo to Put 100 British Families in Driverless Cars.' (2017) *Financial Times*, https://www.ft.com/content/5b76aba2-0bc4-11e6-9456- 444ab5211a2f#axzz470yNP3TA.

[19] Bindley, K., and Elliott, R. 'Tesla Drivers Test Autopilot's Limits, Attracting Audiences—and Safety Concerns' (2021) *Wall Street Journal*, https://www.wsj.com/articles/tesla-drivers-test-autopilots-limits-attracting-audiencesand-safety-concerns-11621503008.

[20] Gordon, J. 'A Real Backseat Driver! Tesla Owner is Repeatedly Snapped Riding in the Rear Passenger Seat of His Car While it's on Autopilot' (7 My 2021) *Mail Online*, https://www.dailymail.co.uk/news/article-9553885/Tesla-driver-keeps-snapped-riding-backseat-car-autopilot.html.

[21] House of Commons Public Bill Committee, Automated and Electric Vehicles Bill <https://publications.parliament.uk/pa/cm201719/cmpublic/Automated/PBC112_Combined_1-7_16.11.2017_REV.pdf> 133.

or business name,[22] and Annex A makes a list of words which require approval to use in a company or business name. The Office of the Parliamentary Counsel Drafting Guidance (June 2020)[23] also provides detailed assistance on the nature of words and phrases to be used in legislation (Part 11). Of course, this document is instructive as to the use of specific words which may, later and through interpretation, cause problems (an example provided for this purpose is the word 'any'). However, it does not provide detail on the extent of what words can mean, especially to the lay person. As has been established above, the need for specific and detailed guidance over the use of the words 'self-driving' and 'autonomous' in respect of CAVs is of paramount importance for legislators, OEMs, regulators and lay persons alike.

Statutory Definitions and Interpretations

The nature of CAV development has resulted in two findings as regards the law and its definition. First, the law is sufficiently new that the common law has not had time to establish a coherent body of evidence and commentary on key terminology used in this new and disruptive form of transport. Secondly, the significance and import of the autonomous features of these vehicles requires formal, definitive guidance and restrictions being applied on the use of the word 'autonomous' and the extent of its obligations and imposition of responsibilities to stakeholders. The title of this paper is, in part, borrowed from the judgment of McKinnon LJ in *Bismag Ltd. v Amblins (Chemists) Ltd*[24] who remarked at p. 687 'I doubt if the entire statue book could be successfully searched for a sentence of equal length which is of more fuliginous obscurity.' Having examined the various attempts at producing a clear definition of the term 'autonomous' as it applies to motor vehicles, and through key legislative instruments as they relate to the regulation of compulsory motor insurance and of Automated Lane Keeping System(s) (ALKS), the definition of autonomous and self-driving, and when a vehicle may be said not only to possess automated driving features but also when these would be in use to essentially relegate the driver / person behind the wheel of the vehicle to one akin to a passenger, clarity is not to be found.

It could, of course, be said that the use of a single word would follow the Parliamentary Counsel principle of using shorter words and shorter sentences as far as is possible. But, as Berry[25] notes, within this principle lies dangers because legislation, when it deals with complex and technical issues, must itself be complicated. He continues by noting that particular legislative provisions require precision, the avoidance of uncertainty, and exceptions and qualifications need to be clearly designated. Parliamentary Counsel should have the 'aim of ensuring that in the event of a legislative instrument coming before a judicial tribunal for interpretation, it would be interpreted in a way that is fully consistent with the proponent's policy objectives.'[26] This requires that sufficient detail has been included to further allow those persons affected by the legislation to ascertain the law and its consequences, without the requirement of resort to litigation in an effort

[22] https://www.gov.uk/government/publications/incorporation-and-names/annex-a-sensitive-words-and-expressions-or-words-that-could-imply-a-connection-with-government.

[23] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/892409/OPC_drafting_guidance_June_2020-1.pdf.

[24] *Bismag Ltd. v Amblins (Chemists) Ltd* [1940] Ch. 667; (1940) 57 R.P.C. 209.

[25] Berry, D. 'Legislative Drafting: Could our Statutes be Simpler?' (1987) *Statute Law Review* 8 (2) 92.

[26] Berry, n 23, at 93-94.

to remove doubt creating factors. This led Berry to cite Stephen J.[27] who, when discussing the degree of precision required of legislative draftsmen considered it

> … essential to everyone who has ever had… to draft Acts of Parliament which, although they may be easy to understand, people continually try to misunderstand, and in which therefore it is not enough to attain to a degree of precision which a person reading in good faith can understand; but it is necessary to attain if possible a degree of precision which a person reading in bad faith cannot misunderstand. It is all the better if he cannot pretend to misunderstand it.

The inference to be taken from this passage is clear in respect of the current advertising surrounding self-driving cars and autonomous vehicles. It is possible that not only could a person, read here consumer, understand the current legislative provisions to be effective for autonomous vehicles even though, technically, the vehicles currently sold in the UK would not meet technical thresholds of automated driving vehicles, but it would also allow OEMs to advertise vehicles as autonomous or self-driving, possibly in bad faith knowing how ambiguous the word is, until of course it is tested in law.

Consequently, the use of broad terms will usually manifest in what Barry refers to as a 'penumbra of uncertainty'[28] which leaves the role and obligation of interpretation to others. He continues that more words should be used if these are to limit those terms which have a dangerously wide meaning, or to amplify those whose meaning may be restricted – thus the drafting of words in legislation should include those whose penumbra of doubt is minimal. This merely requires, certainly in respect of the current legislative regime, proper foresight by the drafter to remove terms which might instil doubt and it is only where a high degree of precision is unattainable, where additional effort should be exerted to provide guidance on how such terms should be interpreted. When done correctly, legal effectiveness, certainty and intelligibility are the results of a legislative instrument conveying meaning to the users, and this includes all persons who are affected or who have an interest in the instrument.

George[29] continued this discussion of the art of legislative drafting, referring to guidance provided in Thring's Practical Legislation, and those produced by drafting offices for their own purposes including the Office of the Parliamentary Counsel in London and the drafting offices of the Welsh and Scottish Governments. His contribution is broadly on the functionality of guidance and policy documents as aids to construction of legislation, but also the benefit of Schedules to make a substantial contribution to effective communication and to 'present the main provisions of the statute prominently and in a less cluttered package.'[30] This could be of use for sections of the AEVA 2018, yet in this paper our focus is primarily on the specific use of the words 'autonomous and 'self-driving'. Therefore, perhaps interpretation should be the mechanism to assist in accurate definition and instruction as to the limits of the words.

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[27] *Re Castioni* (1891) 1 Q.B. 149, 167-168.
[28] Berry, n 23, at 96.
[29] George, J. 'The Use of Schedules in Legislation: Drafting Conventions, Constitutional Principle and Statutory Interpretation' (2021) *Statute Law Review* hmab014, https://doi.org/10.1093/slr/hmab014.
[30] Quoting Xanthaki, H. *Drafting Legislation: Art and Technology of Rules for Regulation* (Hart 2014), at 191.

It may be considered whether the interpretation of the existing statutes might provide the instruction necessary to determine when a vehicle is an autonomous vehicle. Questions of interpretation have been the subject of examination in this journal. It was Wilson[31] who identified the two broad categories of statutory interpretation. First, proposition questions, which comprise questions which arise during the formulating of that proposition; arising from the terms of the statute alone before any set of facts has been presented for the application of the statute. Secondly, semantic questions which consist of those which arise in the application of the proposition to a set of facts. It is in this second category that words and phrases, where the natural meaning of the words is unclear, sums up the current state of the national legislation. As Wilson notes at p. 158, cases of ambiguity are less common than one might expect, yet he uses the existence of factual determinations to present this position. 'A distinction can be made between cases in which the natural meaning of the words is clear and cases in which it is unclear.' However, the word 'autonomous' as it relates to the complexity of CAVs is not something that should be fact specific as this may prove problematic given a host of issues regarding the designation of autonomous vehicles, the type of autonomous feature available and in use, and when the autonomous feature was engaged by the driver / person behind the wheel. If we continue with Wilson's typology, it might be asserted that the issue of the current phraseology of CAVs suffers from generality, having a meaning so wide that, '…while some classes of things are obviously in it, there is doubt as to whether other classes are, or are not, within its scope when it occurs in a particular statute.'[32]

The SAE Definition: An Internationally Ready Model

As noted above, there are several working definitions of CAV which, whilst generally following an accepted understanding of the technology involved and what it does, often neglects to give clear instruction to all stakeholders as to the precise meaning of the terms, when they may and may not be used, and regulation as to how these may affect the legal position of those using and interacting with CAVs. One of the first States to actively legislate in this area is the US where the Senate and the House Committee on Transportation, in Final Bill Report SSB 5460 C 193 L 21, considered the implementation of recommendations of the Autonomous Vehicle Working Group (AVWG). The AVWG, established in 2018 and convened by the Washington State Transportation Commission, was tasked with developing policy recommendations for the technological development, deployment and operation of autonomous vehicles on public roads in the State. Further, it was responsible for exploring changes to State law, rules and policy, leading to the Washington State Transportation Commission to develop and update recommendations on an annual basis based on the contributions of the AVWG. Their review of CAVs, and problems which had been observed quite widely in the use and misuse of these vehicles, leading to situations including California's Department of Motor Vehicles reviewing of Tesla's advertising policy of its vehicles being fully autonomous, being in violation of a state regulation without meeting a legal definition of self-driving, established the following instruction. For the purposes of the Department of Licensing's (DOL) AV self-certification testing pilot program, 'autonomous' is defined as 'a level four or five driving automation system as provided in the Society of Automotive Engineering International Standard J3016, as it existed on the effective date of this section, or such subsequent date as may be provided by DOL by rule,' effective 25 July 2021.[33]

[31] Wilson, W. A. 'Questions of Interpretation' (1987) *Statute Law Review* 8(3) 142.
[32] At p. 158.
[33] Section 1(8) Substitute Senate Bill 5460.

The SAE developed an internationally accepted grading system denoting the stages from driver assistance features to a fully autonomous vehicle. Level 0, a human driver performs all driving tasks. At Level 1, an automated system on the vehicle can assist a human driver conduct some parts of the driving task (for example through an anti-lock braking system). At Level 2 (partial automation), an automated system on the vehicle can perform some driving tasks but a human continues to monitor the driving environment and perform the remaining driving tasks. At Level 3 (conditional automation), an automated system can both conduct parts of the driving task and monitor the driving environment. However, a human driver must be prepared to retain control when the automated system requests. At Level 4 (high automation), an automated system performs the driving task while monitoring the driving environment. A human must be present behind the wheel, as the automated system is only able to operate in specific environments and under given conditions. Finally, at Level 5 (full autonomation), the automated system performs all driving tasks across all driving modes and adheres to International Standard J3016.

The significance of using these definitions results in the production of an internationally accepted description covering the entire range of driving automation features in what the SAE notes as a functionally consistent and coherent manner. Thus, were national legislation to take this agreed Standard and incorporate it as an amendment to existing legislation or as part of a broader interpretative scheme, the existing ambiguity and generality of when a vehicle is in autonomous mode could be removed. Further, the SAE's Standard levels only apply to driving automation features that are actively engaged at a given instance of operation in a suitably equipped vehicle. Consequently, whilst as these vehicles will increasingly feature automation systems at different levels within the same vehicle, the actual level of driving automation engaged at a particular time will be determined according to the feature(s) that are being used - and therefore at what level of engagement the driver is required to exercise.

The Standard is also valuable due to the detailed description of how the driving automation taxonomy may be implemented. For instance, at para. 8.13 of the Standard, active safety systems including automatic emergency braking and lane keeping assistance (a feature to be permitted on designated UK roads in 2021) are considered driver assistance systems and are therefore excluded from the classification / nomenclature of 'automated' as they do not perform part or all of the driving task on a sustained basis. The driver / person behind the wheel must continue to monitor and operate the vehicle even though these active safety systems intervene in the exercise of driving and do, of course, perform automated functions. Similarly in the same paragraph of the Standard, warning systems that alert the driver / person behind the wheel of hazards in the driving environment are also beyond the scope of 'automated' given that they do not automate any part of the driving task or change the driver's role in the performance of the task.

The role played by the actors involved in the automated status of the vehicle is also defined. There are three primary actors included in driving automation,[34] and their role is contextual based on what is expected of the primary actor, rather than what was the actual performance at the particular time. Thus, an active cruise control system (a Level 1 driving aid) still requires the driver to actively monitor the road and surrounding conditions, and therefore they remain the driver for the purposes of liability, despite their negligence in actively monitoring the system and the road.

[34] The human driver/user; the automated driving system and the other vehicle systems and components.

The Standard also adds a definitional feature which may be of use following the UK's withdrawal from the European Union. It will be remembered that a few months before the UK's exit, the Court of Appeal in June 2019 handed down its judgment on the requirement for vehicles to be subject to compulsory motor vehicle insurance. In *MIB v Lewis* [2019][35] the Court delivered a landmark judgment and upheld the Court of Justice of the European Union decision in *Vnuk v Zavarovalnica Triglav dd* [2014][36] that compulsory motor vehicle insurance extends and applies to vehicles on private land. It is therefore not restricted to 'a road or other public place' per s. 143 Road Traffic Act 1988[37] with Flaux L.J. accepting that the UK had failed in its obligations under art. 3 of the sixth Motor Vehicle Insurance Directive[38] (at [63]). The result being an acceptance of the jurisprudence of *Vnuk, Juliana* [2018][39] and *Andrade* [2018][40] and the need for compulsory motor insurance to extend to the use of motor vehicles on private land. This change to national law never led to legislative amendment, although, of course, *MIB v Lewis* remains the current law (and adopting the retained EU case authority).[41] Were the Standard to be adopted in, perhaps, a revised Road Traffic Act (a piece of legislation greatly in need of revision) its reference to driving automation features being restricted to motor vehicles being used 'on-road',[42] referring to publicly accessible roadways (including parking areas and private campuses that permit public access) that collectively serve all road users, including cyclists, pedestrians, and users of vehicles with and without driving automation features, would not only achieve the government's aim of clarifying the law on what is 'road or other public place' but also reinforce the law's application to vehicles with and without autonomous features (particularly important during transition phases with the introduction of CAVs at Levels 4 and 5 on public roads alongside conventional vehicles).

Conclusions

In this paper we have attempted to outline the current lacuna in the accurate definition of what constitutes a self-driving or autonomous vehicle in the UK. This is not an academic exercise or indeed a moot point with no practical consequences. The lack of regulation of this word means it has been used in contexts which might mislead the public as to the capability of the vehicle when its automated function is engaged, and currently is being used by OEMs to sell, for example, a potential for full self-driving mode, which in reality is merely a Level 2 SAE driver assistance feature. It has been demonstrated that members of the public, internationally, have been involved

[35] *MIB v Lewis* [2019] EWCA Civ 909; [2019] 6 WLUK 26.
[36] Case C-162/13 *Vnuk v Zavarovalnica Triglav dd* EU:C:2014:2146; [2014] 9 WLUK 139.
[37] See Marson, J., and Ferris, K. 'Too Little, Too Late? Brexit Day, Transitional Periods and the Implications of MIB v Lewis' (2020) *European Law Review*, 3, 415; Marson, J., and Ferris, K. 'The Compatibility of English Law with the Motor Vehicle Insurance Directives: The Courts Giveth… at Least Until Brexit Day' (2020) *Law Quarterly Review*, 136, 35; and Marson, J., and Ferris, K. 'For the Want of Certainty: Vnuk, Juliana and Andrade and the Obligation to Insure' (2019) *Modern Law Review*, 82(6), 1132 for commentary on the evolution and implications of the law in this area.
[38] Directive 2009/103/EC [2009] OJ L263/11.
[39] Case C-80/17 *Fundo de Garantia Automovel v Juliana* EU:C:2018:661; [2018] 1 W.L.R. 5798.
[40] Case C-514/16 *Andrade v Salvador & ors*, EU:C:2017:908; [2018] 4 W.L.R. 75.
[41] Despite comments by the Secretary of State for Transport that the decision should be disregarded. See Gangcuangco, T. 'British Government to Scrap EU Vnuk Motor Insurance Rule' (2021) *Insurance Business UK*, https://www.insurancebusinessmag.com/uk/news/auto-motor/british-government-to-scrap-eu-vnuk-motor-insurance-rule-247109.aspx.
[42] SAE para. 3.32 J3016.

in accidents involving CAVs with the autonomous feature being used (perhaps inappropriately) but most likely because of the (mis)advertising of the competency of the autonomy of the vehicle. Therefore, similarly to the initiative being undertaken in the US through Final Bill Report SSB 5460, regulation of the use of the words 'self-driving' and 'autonomous' as they apply to vehicles should adopt a standard, used internationally, developed by the SAE where only at Levels 4 and 5 SAE can vehicles with this designation be sold to the public. It would also be helpful to the interpretation of the AEVA 2018 to use this definition to clarify to what extent insurers may be called upon to satisfy claims for vehicles in self-driving mode.

The UK led the world with the enactment of the AEVA 2018 and it can again be a leader of change by enacting for the development of autonomous driving, rather than of autonomous vehicles. As has been demonstrated at the start of this paper, confusion exists when automation is attributed to vehicles as such features are shared between the vehicle and the human driver operating features – or granting these operations to the vehicle. Vehicles operate under algorithms and the control of a driver in enabling the automated feature(s), neither of which are strictly autonomous due to the lack of remote decision-making. By adopting the SAE Standard, the UK would remove the present fuliginous obscurity in the legislation governing CAVs as to the definitions of 'self-driving', 'driving itself, and 'autonomous,' and through this, provide instruction as to the advertising of self-driving and autonomous cars, while adding certainty for all stakeholders without the recourse to the courts either following a claim under the AEVA 2018 or as a matter of strategic litigation.