Autonomous cars – utopia or nightmare?

A Pre-reading discussion: trusting technology

1. Discuss when and where you have to trust your health or your life to technology in everyday situations.

B Read the three articles and decide where you might find each one.

blog		serious newspaper	
encyclopaedia		tabloid press	
scientific journal			

1. "Smart" car kills driver
Williston, Florida, 8 May 2016

Yesterday a self-driving car killed its driver in a horrifying accident in Williston, Florida. It is believed that the car mistook a white lorry for the sky. The car rocketed under the back of the lorry, cutting off the top of the car, and then crashed at the side of the road. Joshua Brown, who was apparently watching a film at the time in the car, was killed at the scene of the accident.

Tesla, the world's largest electric car company, said that they "regretted the accident", but pointed out that this was the first accident in one of their cars using autopilot and that many more people die in crashes caused by human error. But is this the first death in one of their robotic cars? Yesterday our newspaper was informed of another death involving a Tesla in China. Gao Yaning was in his car as the autopilot accelerated into a road-cleaning lorry just outside Beijing. The man's family said, "We have filed a lawsuit against Tesla. They are responsible for killing our son." A representative of Tesla said that they are looking into the incident but have no proof that the autopilot was being used at the time.

2. Autonomous cars on German roads
Berlin, 12 May 2017

Autonomous cars will be allowed on German roads in the near future. The legal framework was created yesterday when the German Federal Council ratified changes to their Road Traffic Act. In contrast to some American states, German law had previously forbidden autonomous driving in agreement with the 1968 Vienna Convention on Road Traffic. In the future a driver will have to be in the car and ready to take control of it if necessary, but will be able to read or correspond electronically, for example, while leaving the control of the car to its navigation system.
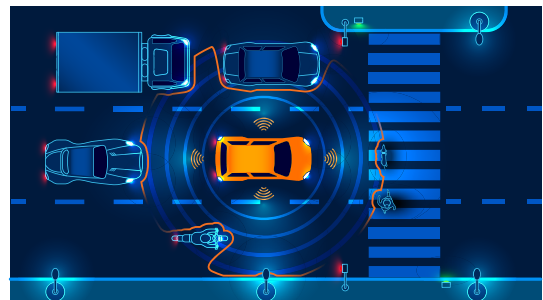
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Amendments to the Traffic Act will be necessary to clarify who would be responsible in case of an accident. The present law states that the makers of the car will be liable when the car is being driven in autonomous mode, but if the driver is in control of the car or has not responded to warnings from the car, he or she will be legally responsible.

Reaction to the new legislation is mixed. Car manufacturers welcome the changes. A spokesperson for a large German car company said, "Self-driving vehicles, trucks in particular, are going to be a very important part of the future market. It is important for Germany to stay ahead in the auto-mobile industry. This legislation is a step in the right direction." A survey has shown that reaction from the public is basically gender specific. The majority of men welcome the possibility of autonomous driving, whereas the majority of women, particularly younger women, is sceptical about giving control of the vehicle to a computer.

3. Defining "safe"

As more countries make it possible for autonomous cars to be tested on their roads, vehicle manu-facturers and government regulators still have to agree on a definition of "safe" and how this safety can be tested. Should "safe" mean that the driverless cars should be 100 per cent faultless or will it be enough if they can cause fewer accidents than now occur on our roads?

Automobile companies and research institutes have already developed vehicles with varying levels of automation. On a basic level cars can already be bought which can park themselves in a tight slot on the street. Valeo and Cisco, two multinational automotive suppliers, have just launched a higher-level autonomous system in which a car can be driven to the entrance of a car park and

be told to park itself. When required, the car can be brought to the entrance of the car park with the owner's mobile phone. Some cars can already be put into auto-drive in a traffic jam. At speeds lower than 20 mph the driver can relax and read a newspaper while the car keeps moving behind the car in front. Fully autonomous cars which can take passengers independently from A to B are still a few years away from being ready for safe use on roads.
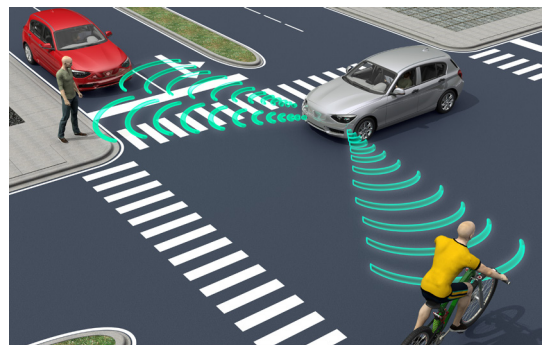
But what is safe use? In 2016 more than 40,000 people died in road accidents in the USA. It is esti-mated that over 90 % of these were due to human error. Reasons for human error include causes such as alcohol consumption, fatigue and distraction by mobile phones. Autonomous cars are immune to these problems. Much of the technology used by them, for example GPS, radar and computer vision, have been tried and tested in other applications for years. Aeroplanes have been able to fly and land themselves for the last twenty years, but roads are highly complicated places. Years of testing and improvement will be needed before driverless vehicles are safe to run independently on our roads, and first of all law and technology experts will have to agree on the definition of safe.

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C   Comprehension

1. Find three synonyms for autonomous car in the articles.

_____   _____   _____

2. Find words which mean:
a) getting faster and faster
b) were sorry for
c) agreed or accepted
d) in the past or before
e) not allowed
f) legally responsible
g) happen

3. Answer the questions with information from the three articles.
a) Explain why it is generally accepted that the accident in Florida in 2016 was the first death involving an autonomous car.
b) Explain why the amendments to the German Road Traffic Act are important for the future of driverless cars on German roads.
c) Explain why it is important to agree on a definition of "safe" when writing legislation about autonomous cars.

D   Class discussion

Discuss the following questions in class.
1. Would you trust your life to a car? Could you imagine getting into a car and letting it drive you home while you are sleeping?
2. Do you think that in the future highly evolved autonomous cars could ensure a world with no road accidents at all?

E   Writing

Write a short fictional essay on a world with autonomous vehicles.
It could be:
- a thriller: e.g. terrorists hijack your car using their mobile phones.
- a comedy: road trip with parents' car

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The interest in autonomous cars raises questions for the future not only about technology but also about moral responsibility. You can read more about these issues in this article from *The Guardian*.

https://www.theguardian.com/science/political-science/2017/jun/24/what-will-happen-when-a-self-driving-car-kills-a-bystander

A Pre-reading discussion: trusting technology

A list could include:
transport situations;
- all air travel especially involving auto-pilot; air traffic control which is to an extent aided by computers
- road travel: brakes on cars; traffic lights controlling the flow of traffic
- rail travel: computer controlled points

medical situations;
- x-ray machines; heart pace-makers

B Read the three articles and decide where you could find each one.

1. tabloid press
2. serious newspaper
3. scientific journal

C Comprehension

1. Find three synonyms for autonomous car in the articles.
driverless car, self-driving car, robotic car

2. Find words which mean:
a) getting faster and faster – accelerating
b) were sorry for – regretted
c) agreed or accepted – ratified
d) in the past or before – previously
e) not allowed – forbidden
f) legally responsible – liable
g) happen – occur

Autorin: Pauline Ashworth, Stuttgart
Bildquellen: ShutterStock (Andrey Suslov, posteriori)

3. Answer the questions with information from the three articles.

Suggested answers:

a) There is no proof that the car involved in the accident in China was in autonomous mode.

b) Until the amendments were passed, driverless cars were not permitted on German roads at all. The changes also specified who would be liable for accidents involving the cars. Without this decision German manufacturers would not have been allowed to test drive autonomous cars on public roads.

c) Laws cannot allow unsafe cars on roads and therefore lawyers must decide what constitutes "safe" when considering autonomous cars. The dangers are different when judging an automated car rather than a car with a driver. In addition, a car with a lower level of autonomy can be judged differently from a fully autonomous car.