

# Fake News

What it isn't, why it matters & what to do about it

Chris Reed

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University of Dundee

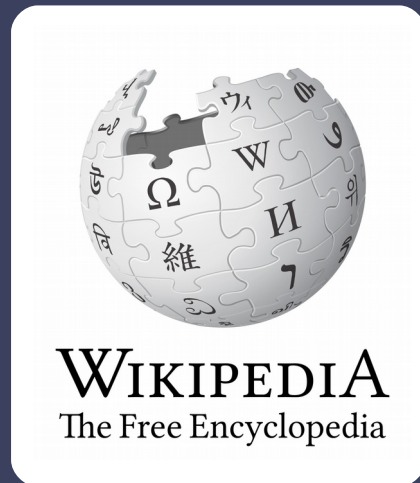
[www.arg.tech](http://www.arg.tech)

# Facts, Fact Checking & Fact Checkers

Iceland became  
independent on  
June 17, 1944.

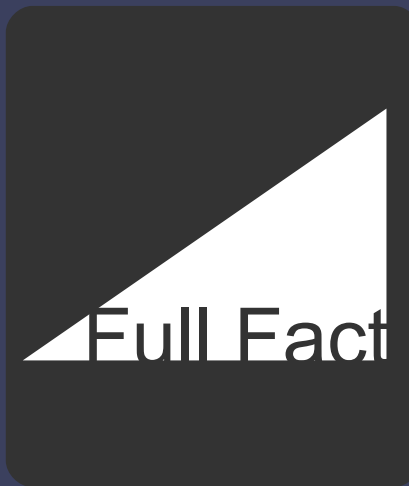
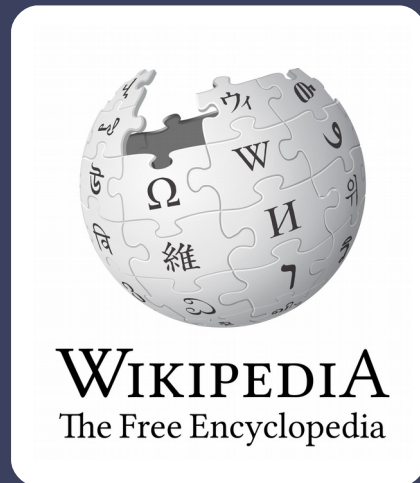
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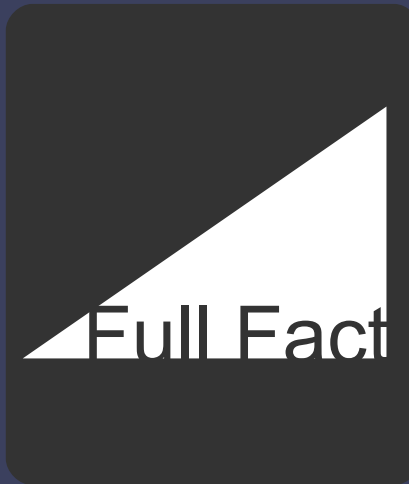
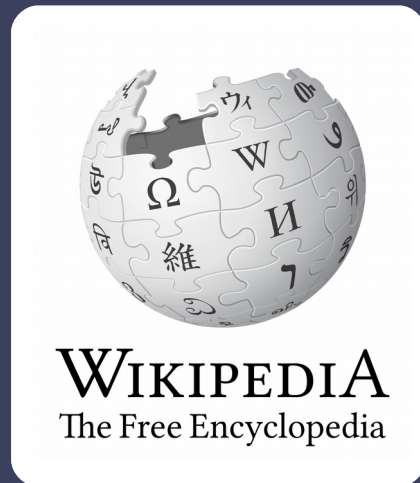
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# True or False?

“Three fifths of our trade is with Europe.”

**Sir Martin Donnelly,**  
former Permanent secretary for the Department for International Trade



# True or False?

“Three fifths of our trade is with Europe.”

Sir Martin Donnelly,  
former Permanent secretary for the Department for International Trade



“Our trade with the EU has been declining rapidly over the last 10 years as a share of our total trade. It's gone from about 55% to... about 44%.”



Foreign Secretary Boris Johnson

# The challenge

Slanting, biasing, cherrypicking, exaggerating, telling half the story, taking out of context, focusing too narrowly, looking too broadly, blowing out of proportion, emphasising, de-emphasising, overestimating, underestimating, overextending, magnifying, overgeneralising, ...

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Slanting, biasing, cherrypicking, exaggerating, telling half the story, taking out of context, focusing too narrowly, looking too broadly, blowing out of proportion, emphasising, de-emphasising, overestimating, underestimating, overextending, magnifying, overgeneralising, ...

**Semantic tensioning**

# (A part of) a solution

What's really being claimed?

What evidence is being adduced?

Is the evidence sufficient to support the claim?

What kind of reasoning is being used?

How can that reasoning be critiqued?

Are alternative perspectives considered?

Are objections anticipated?

Are background assumptions reasonable?

....

(A part of) a solution

**Be critical**

# Working with the BBC

to see if critical thinking has an audience

The screenshot shows a web browser window with the URL <https://www.bbc.co.uk/taster/pilots/moral-maze>. The BBC logo and navigation menu are visible at the top. The main content area features a large image of Professor Chris Reed in a recording studio. Overlaid on this image is a card for the 'Moral Maze: Test Your Argument' interactive. The card includes a 'Try it' button with a hand cursor icon, a 'Rate' button with a star icon, and a 'Share' button with a share icon. Below the image, there is a section titled 'The Inside Story' with a brief description of the project.

**BBC** Sign in News Sport Weather iPlayer TV Radio More Search

**TASTER** Try 15 days left Rate 265 ratings Share 34 shares

**Moral Maze: Test Your Argument**  
Try it | 15 days left

How do you win an argument? We analyse a debate from the Moral Maze team to get the science behind constructing an effective argument. Try it. Rate it.

★ 265 ratings | ↗ 34 shares

**The Inside Story**  
To explain about the project, here's one of the world's leading argument experts, Professor Chris Reed of the Centre for Argument Technology at the University of Dundee.

# Working with the BBC

to see if critical thinking has an audience

The screenshot shows the BBC Taster website interface. At the top, the BBC logo is on the left, and navigation links for News, Sport, Weather, iPlayer, TV, Radio, and More are in the center. A search bar is on the right. Below the navigation bar, the 'TASTER' logo is prominent. To the right of the logo are three buttons: 'Try' (15 days left), 'Rate' (265 ratings), and 'Share' (34 shares). The main content area features a large image of a man speaking into a microphone. Overlaid on this image are three large text blocks: 'Highest ever number of respondents', '9 in 10 said the BBC should do more like this', and '54% said it made them think differently about the issue'. Below these text blocks is a section titled 'Moral Maze: Test Your Argument' with a 'Try it | 15 days left' button. Further down, there is a section titled 'The Inside Story' with a brief description of the project and its expert, Professor Chris Reed.

Highest ever number of respondents

9 in 10 said the BBC should do more like this

54% said it made them think differently about the issue

**Moral Maze: Test Your Argument**  
Try it | 15 days left

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# Working with the BBC

## to teach 16-18 year olds how to recognise fake news

The screenshot shows a web browser window with the BBC Taster website. The URL bar displays <https://www.bbc.co.uk/taster/pilots/evidence-toolkit-moral-maze>. The page features the BBC logo, a sign-in button, and navigation links for News, Sport, Weather, iPlayer, TV, Radio, and More. A search bar is also present. The main content area is titled 'TASTER' and includes a 'Try' button (10 months left), a 'Rate' button (32 ratings), and a 'Share' button (26 shares). Below this, there is a large graphic with the word 'PROPAGANDA' repeated in various sizes and orientations. The title 'Moral Maze Evidence Toolkit' is prominently displayed, accompanied by a 'Try it' button (10 months left). A description follows: 'Team up with BBC School Report and take fake news to task with the Evidence Toolkit. Equip yourself with all you need to dissect the news and figure out what's really going on.' Below the description, it shows '32 ratings' and '26 shares'. At the bottom, there is a section titled 'The Inside Story' with a brief description: 'To explain the project, here's Professor Chris Reed of the Centre for Argument Technology, Dundee University'. A link 'Can You Sum It In the Project' is visible at the bottom.

**BBC** Sign in News Sport Weather iPlayer TV Radio More Search

**TASTER**

Try 10 months left Rate 32 ratings Share 26 shares

**PROPAGANDA**

**Moral Maze Evidence Toolkit**

Try it 10 months left

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[Can You Sum It In the Project](#)

# Working with the BBC

to teach 16-18 year olds how to recognise fake news

The Evidence Toolkit  
Tools for getting from news to truth

ABOUT ?

ARG-tech  
Centre for Argument Technology

University  
of Dundee

BBC  
RADIO 4

SCHOOL  
REPORT

Welcome to the Evidence Toolkit. Select the first news article to get started.



Air pollution: Are diesel cars always the biggest health hazard?

Theo Leggett, BBC News



All dietary advice was fruit company conspiracy

The Daily Mash



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BBC  
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### ? HELP

The first task is to find the main claim in the article: what's the article really saying? You can select a fragment of text in the article that you think is expressing the main claim. If you click "Help me!" over on the right, the Reason Checker will suggest what it thinks is the main claim by underlining it with a wavy red line. You can then select the text if you agree. Finally, click "I'm done" to see how you've done.

### TRUST TOOLBAR



Diesel Toxicological overview  
[www.gov.uk]



History of the diesel car  
[en.wikipedia.org]

BBC

Theo Leggett – Business  
correspondent, BBC News

## Air pollution: Are diesel cars always the biggest health hazard?

Sales of diesel-powered cars fell dramatically last year, declining more than 17% compared with 2016.

People within the industry blame anti-diesel rhetoric from the government, local authorities and clean air campaigners for eroding consumer confidence.

They insist that modern diesel engines are actually very clean and the health risks have been overstated.

They also say that they can play a vital role in helping to cut carbon dioxide emissions, in order to meet climate change targets.

So have modern diesels just been getting a bad press, or do they represent a serious health hazard?

The reality is not as black and white as you might think. It's true that some diesel engines produce fewer toxic emissions than some petrol engines, but by and large petrol remains the cleaner option.

Although both petrol and diesel engines convert chemical energy into mechanical power by burning fuel, they do so in different ways.

A diesel engine should, in principle, use less fuel and produce less carbon dioxide than a petrol engine with the same power output.

However, this superior efficiency comes at a price. Diesel engines produce higher levels of particulates, microscopic bits of soot left over from the combustion process.

These can penetrate deep into the lungs, causing irritation and potentially triggering asthma attacks.

### REASON CHECKER

Select the text that you think corresponds to the main claim of the article

I'm done

Help me!

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#### ? HELP

Now we need to look at each reason in more detail. How well does the reasoning work in each case? First you need to identify the general class of reasoning involved from the Reasoning Palette. Is the evidence supplied factual or is it an opinion?

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Diesel Toxicological overview  
[www.gov.uk]



History of the diesel car  
[en.wikipedia.org]

power output.

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#### Particulate filters

The greatest danger lies with the smallest, so-called "ultrafine" particles, according to Dr Matthew Loxham, a research fellow in air pollution toxicology at the University of Southampton.

"They get so deep into the lungs, they get to the surfaces where oxygen enters our blood, and the particles themselves almost certainly can enter the blood," he says.

"They can cause increased stroke rates and increase heart attacks in people who are most susceptible, who have underlying health conditions".

However, modern diesels actually emit very few particulates - because they are equipped with special filters.

According to Emissions Analytics chief executive Nick Molden these systems work very well.

His company carries out its own real-world emissions testing - as opposed to the tests used by manufacturers to certify their new vehicles, which until recently were exclusively laboratory-based.

"Modern diesels essentially do not have a particulates problem," he says. "The filters clean up 99% of the particles. So long as they are not tampered with, they are very effective".

HIDE

But diesels also produce nitrogen oxides, or NOx - and how they deal with those is also very important.

Long term exposure to nitrogen dioxide in particular can decrease lung function, increase the risk of respiratory conditions and exacerbate allergic reactions.

Effective technologies do exist that are capable of drastically reducing NOx output. In addition, the current European emissions standard, Euro 6, sets strict limits on how much can be produced.

Euro 6 has applied to all new cars sold since September 2015. The legal limit on NOx from diesel engines was halved compared with the previous standard, Euro 5.

The Society of Motor Manufacturers and Traders says the latest diesels are "broadly on a par" with their petrol

#### REASONING PALETTE

This is a piece of evidence. Is it presented as a fact or an opinion?



Fact



Opinion

Help me!

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#### ? HELP

There are several different types of factual reasoning. Sometimes evidence is grounded in statistics; sometimes just a single example. But there are other types of factual reasoning too. Do you think this reason looks statistical? Or perhaps relies upon an example? Or neither?

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Diesel Toxicological overview  
[[www.gov.uk](http://www.gov.uk)]



History of the diesel car  
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#### REASONING PALETTE

You've identified this as factual evidence. Of what sort?



Statistical



e.g.

Example



Other



Help me!

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#### ? HELP

Having identified the type of reasoning from the Reasoning Palette, the next step is to cast a critical eye at the reasoning with the help of the Critique Template. Each type of reasoning is associated with a specific template comprising several questions. Have a think about the questions and offer your answer to each one.

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Diesel Toxicological overview  
[[www.gov.uk](http://www.gov.uk)]



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The Society of Motor Manufacturers and Traders says the latest diesels are "broadly on a par" with their petrol equivalents in terms of their impact on air quality.

According to Emissions Analytics, however, the reality is not quite so simple.

### Road testing

HIDE

For a start, cars often produce more NOx when driven on the road than they do when tested in the laboratory, and some models turn out to be much dirtier than others.

#### CRITIQUE TEMPLATE

You've identified this as expert evidence. Do you think that:

the source actually made the attributed statement?



the source is a credible expert on this subject?



the source is duly impartial and not profiting from lending their support?



other experts agree with the source?



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Tools for getting from news to truth

#### ? HELP

Finally, we need to check how impartial and balanced the article is. Does it manage to consider alternative perspectives to the one expressed in the main claim? Select the bits of the text that you think show the author expressing such counters, alternatives or objections.

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Diesel Toxicological overview  
[www.gov.uk]



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The reality is not as black and white as you might think. It's true that some diesel engines produce fewer toxic emissions than some petrol engines, but **by and large petrol remains the cleaner option.**

Although both petrol and diesel engines convert chemical energy into mechanical power by burning fuel, they do so in different ways.

A diesel engine should, in principle, use less fuel and produce less carbon dioxide than a petrol engine with the same power output.

However, this superior efficiency comes at a price. **Diesel engines produce higher levels of particulates, microscopic bits of soot left over from the combustion process. Statistical 🤖.**

These can penetrate deep into the lungs, causing irritation and potentially triggering asthma attacks.

#### Particulate filters

The greatest danger lies with the smallest, so-called "ultrafine" particles, according to Dr Matthew Loxham, a research fellow in air pollution toxicology at the University of Southampton.

**"They get so deep into the lungs, they get to the surfaces where oxygen enters our blood, and the particles themselves almost certainly can enter the blood, Expert 😊"** he says.

"They can cause increased stroke rates and increase heart attacks in people who are most susceptible, who have underlying health conditions".

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#### OBJECTIONS

Select each bit of text you think shows the author thinking about the claim from other perspectives

I'm done

Help me!

HIDE

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ABOUT ?

ARG-tech  
Centre for Argument Technology

University of Dundee

BBC RADIO 4

SCHOOL REPORT

? HELP

Finally, we need to balanced the article consider alternative expressed in the the text that you t expressing such o objections.

### Feedback

In the martial art of critical thinking, you are... **An apprentice analyst!** **3/10**

**Identifying the main claim - 0/2**

The main claim is surprisingly hidden in the body of the article. Overall the article is coming down on the side of petrol being cleaner.

**Identifying the reasons - 0/3**

After a bit of background explanation, the first key reason concerns the higher levels of particulates produced by diesel engines. Then the next bit of evidence comes from an expert who explains why particulates are a health hazard.

**Identifying evidence types - 3/4**

That engines produce higher levels of particulates is a fact, but not one that is being treated as either a statistical fact or an example. But there's no reason to think the claim is untrue, and it does indeed work to support the claim. So this is a good bit of reasoning.

For the second reason, we have expert opinion. We have no reason to think the source didn't make the claim, the article gives us information that he is a credible authority in the

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Under 13s are not encouraged to share on social media

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TRUST TOOLBAR

Diesel Toxicological overview [www.gov.uk]

History of the diesel car [en.wikipedia.org]

Select each bit of text you think shows the author thinking about the claim from other perspectives

[I'm done](#) [Help me!](#)

This article has a very great deal of material on the other side of the claim - it is an example of balanced, impartial reporting. There are two areas where alternative positions are expressly introduced (though there are others that are less clear-cut). The first introduces particulate

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The screenshot shows the BBC School Report website. The browser address bar displays 'www.bbc.co.uk/schoolreport'. The page features a red header with the 'SCHOOL REPORT' title. Below this, there are three article teasers. The first, 'Play the role of a journalist with our BBC iReporter game', includes an image of a hand holding a smartphone displaying the 'BBC iREPORTER' app interface. The second, 'Take fake news to task with this online tool', features a group of students and a large 'E' logo. The third, 'We want young people's story ideas!', shows a computer monitor with a globe and the text 'IT COULD END UP HERE' with an arrow pointing to it.

SCHOOL REPORT

Play the role of a journalist  
with our BBC iReporter game  
© 14 March 2018

E The Evidence Toolkit  
Take fake news to task with this online tool  
© 15 March 2018

IT COULD END UP  
HERE  
We want young people's story ideas!  
© 8 February 2018 | Have Your Say

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The screenshot shows the BBC School Report website. The header includes the BBC logo, a 'Sign in' button, and navigation links for Home, News, Sport, Weather, Shop, Earth, Travel, Capital, and More. A search bar is also present. The main content area features several articles:

- Play the role of a journalist**  
With our BBC iReporter game  
© 14 March 2018
- Take fake news to task with this online tool**  
© 15 March 2018
- We want young people's story ideas!**  
© 8 February 2018 | Have Your Say

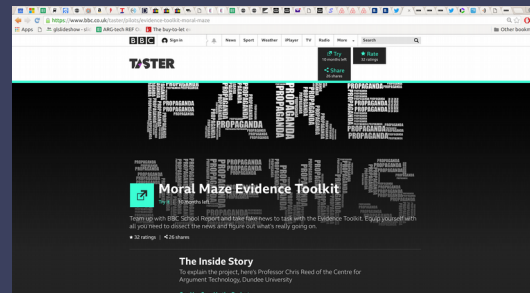
Overlaid on the screenshot are three text boxes with white text:

- Deployed to every secondary school in the UK
- 9 in 10 said it improved their impression of the BBC
- 68% said it helped test the reliability of news

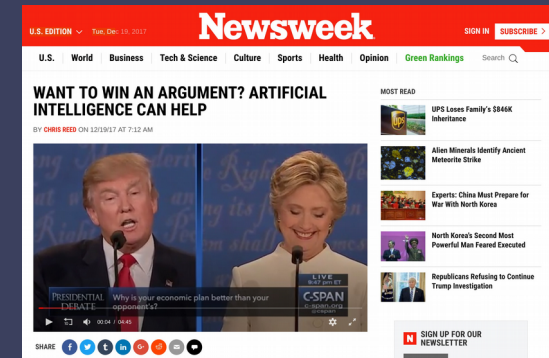
# Concluding Remarks



Find out more at  
[www.arg.tech](http://www.arg.tech)



Try out the  
Evidence Toolkit at  
[arg.tech/schoolreport](http://arg.tech/schoolreport)



Read a recent article at  
[arg.tech/newsweek](http://arg.tech/newsweek)

[chris@arg.tech](mailto:chris@arg.tech)



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