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# Critical Reasoning

## ‘Fallacies in the Media and Beyond’

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# Learning more Formal Logic

# For those interested to advance their knowledge

- I created a free app, called 'The Logic Calculator', that makes learning propositional logic a little easier.



Three WiFi Call 18:34 80%

**{P, P→Q, ¬Q}**

inconsistent

C	MS	MR	MC	&
{...}	,	(	)	∨
TABLE	P	Q	R	¬
	S	T	U	→
⌫	ENTER	⌅	↔	

Three WiFi Call 18:36 80%

**((R↔S))**

not well-formed: needless parentheses

C	MS	MR	MC	&
{...}	,	(	)	∨
TABLE	P	Q	R	¬
	S	T	U	→
⌫	ENTER	⌅	↔	

Three WiFi Call 18:35 80%

**valid**

↓ ↓ ↓ ↓

PQR | P P→Q Q→R ⇌R

TTT	T	TTT	TTT	T
TTF	T	TTT	TFF	F
TFT	T	TFF	FTT	T
TFF	T	TFF	FTF	F
FTT	F	FTT	TTT	T
FTF	F	FTT	TFF	F
FFT	F	FTF	FTT	T
FFF	F	FTF	FTF	F

Copy Table

- It allows its users to perform logical operations with the same ease as that offered by a mathematical calculator.



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# Introduction to Some Fallacies

# Bad forms of reasoning

- Fallacies are bad forms of reasoning. The vast majority are deductively *invalid* arguments.
- Knowing under what conditions an argument is (in-/)valid is thus key to understanding why these forms are bad.
- Here's another way to say that an argument is invalid:

That inference is a *non-sequitur*. That is, the conclusion does not (deductively) follow from the premises.

# Affirming the consequent: Preliminaries

- Let's first try to understand conditional if-then statements. Such statements have two parts:

**If**

Jon Snow defeats Cersei Lannister,

**ANTECEDENT**

**then**

Bran Stark will sit on the iron throne.

**CONSEQUENT**

- Recall that the following is a good form of reasoning.
  - If Jon Snow defeats Cersei Lannister, then Bran Stark will sit on the iron throne.
  - Jon Snow defeats Cersei Lannister.

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$\therefore$  Bran Stark will sit on the iron throne.

# Affirming the consequent: Example

- One of the well-known fallacies involves a misunderstanding of this form. Here's an example:
  1. If Liverpool win the premier league in 2020, Man City won't win it.
  2. Man City won't win it.

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∴ Liverpool will win the premier league in 2020.
- What's wrong with this argument?

# Affirming the consequent: Diagnosis

- **Answer:** Even if both premises were true, they would not guarantee the truth of the conclusion.
- In short, neither Liverpool nor Man City may win it as it is (still) mathematically possible for another team to win it.
- Unlike in the first argument, the second premise is the consequence, not the antecedent.

$$\begin{array}{l} 1. P \rightarrow Q \\ 2. P \\ \hline \therefore Q \end{array}$$



$$\begin{array}{l} 1. P \rightarrow Q \\ 2. Q \\ \hline \therefore P \end{array}$$



## *Petitio principii*

- *Petitio principii* is the tactic of assuming, either implicitly or explicitly, what you need to prove.

**lexico.com:** literally, 'laying claim to a principle'.

- Since what you need to prove is what your opponent denies, it is also known as 'begging the question'.

**Trivia:** Historically, lots of proofs of the existence of God relied on such tactics.

## *Petitio principii: Example*

- Oftentimes, the sleight of hands involves synonyms.

‘Opium **induces sleep** because of its **soporific qualities**’

In argument form:

Opium has soporific qualities.

∴ Opium induces sleep.



**NB:** Soporific just means ‘sleep-inducing’.

## *Ad hominem*

- *Ad hominem* is a form of fallacy where instead of criticising a claim at issue one criticises the person making it.

**lexico.com:** literally ‘to the person’.

- We do, of course, want our information to come from ‘reputable’ or ‘reliable’ sources.
- But a character attack is *at best* a tortuous way of getting to the bottom of things; often it is just irrelevant.

**NB:** Worse, it’s a way to divert attention from the truth.

- What’s a direct way to get to the bottom of things?  
Evaluate any arguments or evidence provided!

## *Ad hominem: Example*

- Suppose that you argue, on the basis of some evidence, for the claim that:

‘There is an epidemic of students using essays-for-sale services’.

- Ad hominem arguments are attacks on your character in order to discredit the claim.

**Example:** One might claim that you are not a good student yourself so why should we listen to what you have to say.

NB: Just because such an attack is irrelevant doesn’t mean that the claim at issue is true!

# Equivocation

- To equivocate: “[u]se ambiguous language so as to conceal the truth or avoid committing oneself” (lexico.com).
- The namesake fallacy trades on some equivocation to establish a conclusion.
- To be precise, such a fallacy is committed when the same term is used variably in different parts of the argument.

## Equivocation: Example

1. Persons are either men or else women.
  2. Ephialtes of Trachis is a person.
  3. Men never betray their homeland.
  4. Ephialtes of Trachis betrayed his homeland.
- 
- ∴ Ephialtes of Trachis is a woman.



**NB:** The argument equivocates between two meanings of the term 'men': 'males' and 'honourable males'.

## *Post hoc, ergo propter hoc*

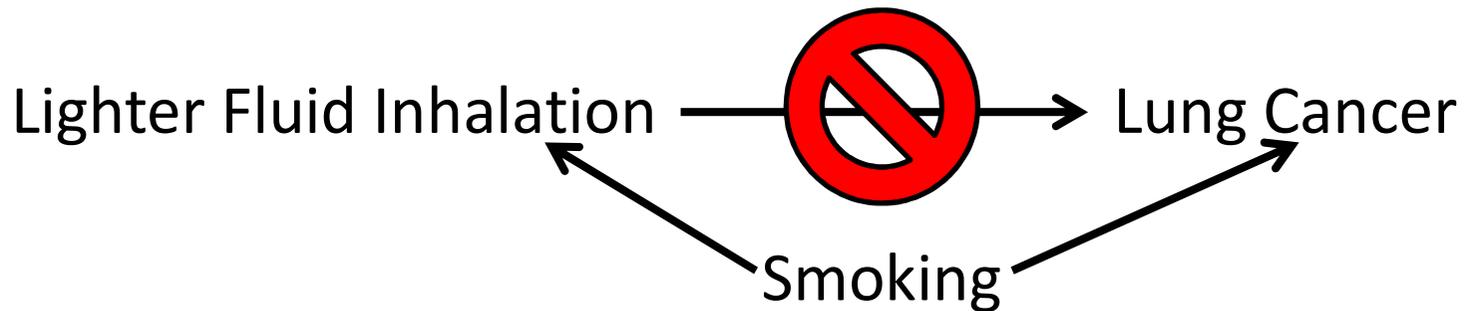
- This fallacy involves inferring that something is responsible for something else because the former precedes the latter.

**lexico.com:** Literally ‘after this, therefore because of this’.

- We all know this kind of fallacy via another name, viz. that correlation does not imply causation.

# Post hoc, ergo propter hoc: Example

- Someone may suppose that lighter fluid inhalation causes lung cancer because it precedes it.
- But that clearly need not be the case. Indeed, we have evidence that there is a common cause to both.



**Which of the following fallacies is being committed here? '1. Anna is a nobody. 2. Nobody is perfect. Thus, Anna is perfect.'**

ad hominem

equivocation

petitio principii

affirming the consequent



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# Fallacies in the Wild: Some Examples

## Journalistic integrity

- In an ideal world, journalism would just be reporting facts and if any opinions were given they would be clearly marked.
- Alas, in the real world, we at best get a mixture of facts and falsities and at worst falsities ‘all the way down’.
- Lying, hiding the truth or even dressing it in different clothes is common practice in the media.
- The motivation behind such a practice is often ideological and/or financial.
- In what follows, I present headlines from 25/09/2019 to show how the same events are reported by different outlets.

# Journalism as an ideological mouthpiece



Boris Johnson at the United Nations in New York. He is returning to Britain to renew his demand for an immediate general election after the Supreme Court ruled that his suspension of parliament had been illegal

**PM flies back to chaos**

- Supreme Court verdict rules parliament suspension unlawful
- Johnson calls Queen and heads to Commons after cutting short US trip
- Judges accused of constitutional coup as senior minister breaks ranks

Stevens Swinford Deputy Political Editor  
 Francis Elliott Political Editor

Boris Johnson said the Supreme Court's verdict that his suspension of parliament had been unlawful was part of an attempt to frustrate Brexit as senior allies attacked the decision as unconstitutional.

The prime minister, who flies into London today facing calls to resign and that he professedly disagreed with the landmark ruling but would "respect" it.

However, Jacob Rees-Mogg, the leader of the Commons, directly criticised the judges after other ministers warned against personal attacks.

During a cabinet conference call, which Mr Johnson took in New York, Mr Rees-Mogg said that the judgment amounted to "a constitutional coup". Senior figures in Downing Street accused the Supreme Court of making a "serious mistake".

Geoffrey Cox, the attorney general who advised the prime minister that

proposing parliament would be legal, is understood to have told colleagues that while they could be critical of the judgment they should refrain from questioning the motives of the judges.

The 11 justices ruled unanimously that the decision was "void" and that as a result parliament had not been suspended. The prime minister is expected to address parliament when it reconvenes today after being forced to cut short his trip to the UN general assembly.

He said that, while he respected the ruling, it was part of an effort to "frustrate" Brexit by people "determined" to stop Britain leaving the EU on October 31.

On an extraordinary day, Mr Johnson spoke to the Queen after the court ruled that the suspension he had asked her to approve was unlawful.

Sir John Major demanded that he make an "unreserved apology" for his treatment of the monarch.

MPs prepared to step up the pressure

on the government to publish the legal advice prepared for the prorogation.

Jeremy Corbyn ruled out whipping Labour MPs to vote for an election until after Mr Johnson had been forced to delay Brexit.

Robert Buckland, the justice secretary, told cabinet that the judgment of the Supreme Court should be "respected" and the rule of law is "paramount".

He said ministers should not make attacks on the impartiality of judges.

Earlier, however, a Downing Street source told the BBC that the Supreme Court had gone too far. "We think the Supreme Court is wrong and has made a serious mistake in extending its reach into these political matters," the source said.

"The Supreme Court has made it clear that its reasons are connected to the parliamentary disputes over, and timetable for leaving the EU. We think this is a further serious mistake."

Another cabinet minister told The Times that the ruling will mean the prime minister will be able to position himself as an "insurgent" who is representing the "will of the people" and taking on the establishment.

Downing Street attempted to distance itself from the comments after a cabinet backlash. "These were not the words the prime minister used," Mr Johnson's official spokesman said.

One ally of Mr Johnson said that he appeared determined as ever to stick to the "parliament versus the people" strategy agreed with the senior No 10 aide Dominic Cummings. "He knows where his ratings come from — and he knows what will happen if he flatters those that want him to dial it down."

Briefing reporters travelling with Mr Johnson, a government official indicated that the prime minister would use the resumption of parliament to point out that there was no majority for any course of action.

"Parliament has repeatedly stated what it is against and is willing to block. It has not yet stated what it is for. If parliament is unable to say what is for and

is only going to block everything that comes as up then — as the PM has set out many times already — the only way around that is in election."

Alles later said that Mr Johnson would consider whether to ask MPs to approve a short recess for the duration of the Conservative Party conference and whether to table another motion under the Fixed-term Parliaments Act calling for an election.

Mr Corbyn, the Labour leader, told his party conference that he will not support calls for a general election until after Mr Johnson had been forced to delay Brexit. Labour will instead focus on attempting to force ministers to resign legal advice drawn up by Mr Cox before the prorogation of parliament.

The party is also expected to oppose a recess for the Tory conference.

**Supreme court ruling, pages 4-11**  
**Daniel Finkelstein, page 29**  
**Alles Thomson, page 31**  
**Letters, page 32**  
**Leading article, page 33**

IN THE NEWS

<p><b>Trump faces impeachment inquiry</b></p> <p>The Democrats have opened an impeachment inquiry into President Trump after claims that he sought Ukraine help to discredit Joe Biden, the party's leading election</p>	<p><b>Air pollution fears</b></p> <p>Short-term increases in air pollution have been associated by US scientists with worse symptoms among children with mental health issues such as depression. <b>Page 4</b></p>	<p><b>Holidays cancelled</b></p> <p>The fallout from the collapse of Thomas Cook has led to the cancellation of the travel arrangements of thousands of people who had booked with it and First Choice. <b>Page 22</b></p>	<p><b>Metro Bank on skids</b></p> <p>Metro Bank is under intense pressure after its shares fell by almost 36 per cent and it disclosed an attempt to raise £250 million of debt required by regulators. <b>Page 41</b></p>	<p><b>Spurs in Cup shock</b></p> <p>Tottenham Hotspur were knocked out in the third round of the Carabao Cup after losing 4-1 on penalties to the League Two side Colchester United. <b>Pages 76-72</b></p>
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# Journalism as an ideological mouthpiece

DAILY NEWSPAPER OF THE YEAR

# THE TIMES

2019 MEDIA BRAND OF THE YEAR • BRITAIN'S MOST TRUSTED DIGITAL NEWS BRAND 2018

65p

**PM faces backchairs**

- Supreme Court verdict on parliament suspension unlawful
- Johnson calls Queen and Commons after cutting short his visit
- Judges accused of constitutional coup as senior minister breached protocol

WEDNESDAY 25 SEPTEMBER 2019  
Number 27,207

**Humiliated PM refuses to resign**

**Labour Party Conference**  
Corbyn promises cheap drugs for NHS patients P11

**Party pledges to make UK carbon neutral by 2030**

**UN CLIMATE SUMMIT**  
World's major economies fail to heed warnings Trump hits out at Thunberg P10

**TELEVISION**  
**'Serial killer? He's very sensitive'**  
Creator of hit crime drama 'You', Caroline Kepnes P34

**TRUMP FACES IMPEACHMENT INQUIRY**  
The Democrats have opened an impeachment inquiry into President Trump after claims that he sought Ukrainian help to discredit Joe Biden, the party's leading election candidate. The president is alleged to have had a phone call with a Ukrainian leader to withhold aid unless it investigated Biden and his son.

**Wild parenting**  
Marooned on a desert island P26

**TRAVEL**  
Britain's star attractions  
Where to see the best night skies P32

**CULTURE**  
Bard on the Mersey  
Shakespeare in Liverpool P27

**PUZZLES P42 | TIME, PLEASE - END OF THE STUDENT BAR P26 | ENGLAND TEAM TO PLAY USA P50**

# Journalism as an ideological mouthpiece

## THE TIMES

DAILY NEWSPAPER OF THE YEAR



2019 MEDIA BRAND OF THE YEAR • BRITAIN'S MOST TRUSTED DIGITAL NEWS BRAND 2018

### PM back to chaos

- Supreme Court verdict on parliament suspension unclear
- Johnson calls Queen and Commons after cutting short his trip to New York
- Judges accused of constitutional coup as senior minister breaks down

**Boris Johnson at the United Nations in New York. He is seen in a video message to the House of Commons after the Supreme Court's decision to suspend parliament.**

Stevens Steinfeld Deputy Political Editor  
Francis Elliott Political Editor

Boris Johnson said the Supreme Court's verdict that his suspension of parliament had been unlawful was part of an attempt to frustrate Brexit as senior allies attacked the decision as unconstitutional.

The prime minister, who flies into London today facing calls to resign, said that he professedly disagreed with the landmark ruling but would "respect" it.

However, Jacob Rees-Mogg, the leader of the Commons, directly criticised the judges after other ministers warned against personal attacks.

During a cabinet conference call, which Mr Johnson took in New York, Mr Rees-Mogg said that the judgement amounted to "a constitutional coup".

Senior figures in Downing Street accused the Supreme Court of making a "serious mistake".

Geoffrey Cox, the attorney-general who advised the prime minister that

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candidate. The probe is alleged to have been a phone call with a leader to withhold aid unless it investigated Biden and his son.

65p

WEDNESDAY  
25 SEPTEMBER 2019  
Number 2727

**TELEVISION**  
**'Serial killer? He's very sensitive'**  
Creator of hit crime drama 'You', Caroline Kepnes



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thepaper thepaper



PUZZLES P42 | TIME, PLEASE

**LABOUR PARTY CONFERENCE**  
**Corbyn promises cheap drugs for NHS patients**



Party pledges to make UK carbon neutral by 2030

**UN CLIMATE SUMMIT**  
**World's major economies fail to heed warnings**  
Trump hits out at Thunberg

**'The verdict is in: Johnson is a liar. And he should pay the price'**

Rafael Behr Journalist

## The Guardian

Wednesday 25 September 2019  
£2.20  
£1.60 for subscribers

# He misled the Queen, the people and parliament

- Decision to shut down Commons is ruled to be unlawful
- Supreme court unanimous in its verdict against PM
- Humiliated Johnson will face angry MPs today

Heather Stewart  
Peter Walker  
Rowena Mason

A humiliated Boris Johnson was forced to cut short a set-piece visit to New York last night and fly back to face furious MPs after his decision to shut down parliament was quashed by the supreme court.

After Lady Hale delivered a crushing unanimous verdict in which she said Johnson's advice to the Queen to suspend parliament was "unlawful, void and of no effect", the prime minister struck a defiant tone.

"Let's be absolutely clear that we respect the judiciary in our country and we respect the court. I disagree profoundly with what they had to say," he said, before pressing ahead with a planned speech on the business links between the UK and the US.

But a No 10 source attacked the 11 supreme court judges, saying they had made "a serious mistake in extending [their] reach to these political matters".

Opposition MPs are determined to force Johnson to face questions in parliament, after the Speaker, John Bercow, announced from College Green that the House of Commons would reconvene today.



Boris Johnson was in New York when the supreme court ruled his suspension of parliament unlawful

Jeremy Corbyn was consulting with fellow opposition leaders last night about how to exert maximum pressure on the prime minister, and ensure that he cannot escape the legal obligation set out in the Bercow bill to delay Brexit if the hasn't passed a deal by 19 October.

The Labour leader, who delivered his conference speech 24 hours early after parliament was recalled, is not expected to take the nuclear option of tabling a vote of no confidence immediately, but the MPs were exploring ways of forcing Johnson to extend article 50.

Corbyn would be unlikely to secure the support of Lib Dem or rebel Tory MPs in a no-confidence vote unless a no-deal Brexit has been definitively ruled out - which many MPs believe means after Johnson has requested a Brexit delay.

However, Johnson has repeatedly insisted that he has no intention of asking for an extension if he has failed to secure a majority for a Brexit deal by 19 October.

Johnson is due to arrive in London around lunchtime today after an overnight flight back from the UN general assembly.

A government official in

**Inside**

**Corbyn calls for the PM to go and tells Labour win an election for the people**  
News Page 8 →

**The incredible Salk v the Incredible Salk: there could only be one winner**  
Sketch John Crace Page 7 →

**'A PM with honour would resign. But Mr Johnson has no honour and no shame'**  
Journalist Leader comment Page 2 →

**"The prime minister's advice to Her Majesty was unlawful, void and of no effect" Lady Hale, supreme court president**



# Journalism as an ideological mouthpiece



# Journalism as an ideological mouthpiece

**DAILY EXPRESS**  
WE'RE BACKING BRITAIN

**Daily Mail**  
WEDNESDAY, SEPTEMBER 25, 2019  
www.dailymail.co.uk

70p

**Family favourite recipes that can BEAT DIABETES**

**FREE pullout INSIDE**

**UN**  
**WH**  
**LAW**  
**ABO**  
**DEN**  
**17.4M**

**BORIS BLASTS:  
WHO RUNS  
BRITAIN?**

**Judges sensationally say PM broke law by suspending Parliament ++ Rees-Mogg rages at 'constitutional coup' ++ Johnson forced to phone Queen ++ MPs return today – but will they give us an election? Dream on!**

**BORIS Johnson declared war on the judiciary last night following a shock Supreme Court ruling that he broke the law.**  
The UK's highest court annulled his decision to suspend Parli-

**From Jason Groves in New York**  
ment for five weeks, branding it 'unlawful, void and of no effect'. The judgment prompted fury in No. 10, with one senior ally of the Prime Minister saying: "The effect of this is to pose the question, who runs this country? Are the courts saying they want to run the country now? It will be very interesting to see what the public makes of that."  
Mr Johnson was forced to telephone the Queen to discuss the unanimous ruling that his advice to her to prorogue Parliament had been illegal. Sources refused to say whether he had apologised. During a stormy Cabinet conference call yesterday, Commons leader Jacob Rees-Mogg accused judges of mounting a 'constitutional coup'. Attorney General Geoffrey Cox said the court had overturned decades of precedent.  
Another No. 10 source said: "We think the Supreme Court is wrong

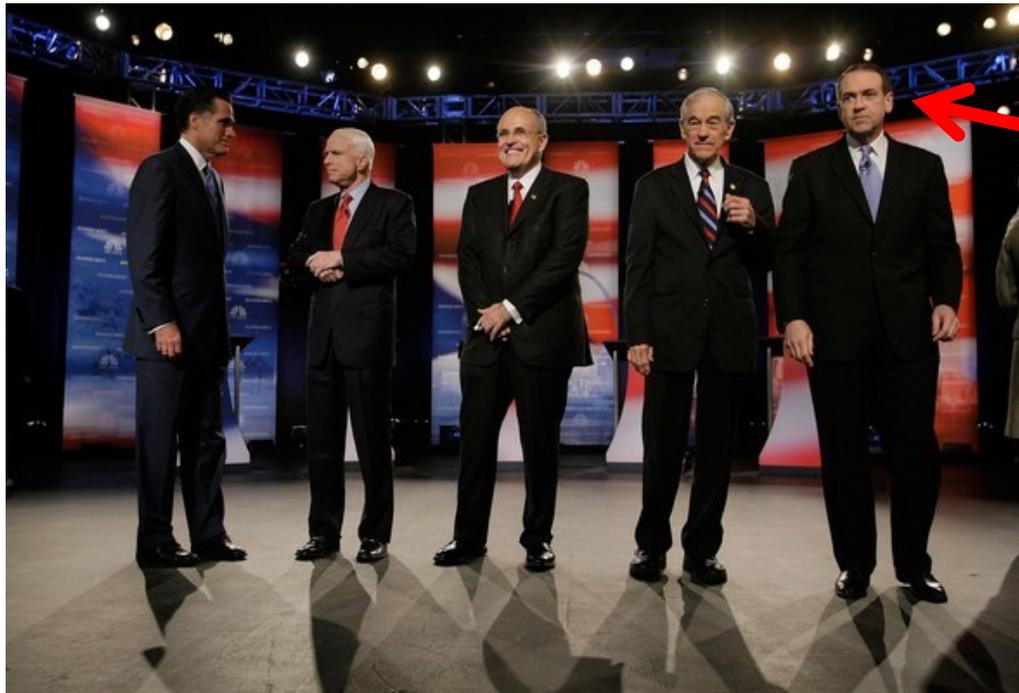
**Turn to Page 2**

# Journalism as an ideological mouthpiece



## Affirming the consequent

- Mike Huckabee was a once a governor of Arkansas and a presidential candidate in the 2008 and 2016 primaries.



This guy

‘The Air Force has a saying... if you’re not catching flak, you’re not over the target... I’m catching the flak; I must be over the target.’ (televised debate January 2008).

## Affirming the consequent

- Here it is in argument form:

If you're not catching flak, you're not over the target.

You're catching flak.

---

∴ You're over the target.

**NB:** This is another form of the same fallacy.

- We can reformulate the conditional (using contraposition) to show the fallacy in the form presented earlier:

If you are over the target, you're catching flak.

You're catching flak.

---

∴ You're over the target.

## Ad hominem: Greta Thunberg

- Greta Thunberg promotes awareness of man-made climate-change and has been the subject of many such attacks.



‘She’s ignorant, maniacal and is being mercilessly manipulated by adult climate bedwetters funded by Putin’

# Ad hominem: Greta Thunberg

## Herald Sun

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NEWS

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Andrew Bolt Blog Posts

## THE DISTURBING SECRET TO THE CULT OF GRETA THUNBERG

Andrew Bolt, Herald Sun

August 1, 2019 9:43am



No teenager is more freakishly influential than Greta Thunberg, the deeply disturbed messiah of the global warming movement.

- Bolt goes on to say: “I have never seen a girl so young and with so many mental disorders”.

## *Petitio Principii*

- Donald Trump, of course, needs no introduction.



‘The news is fake because so much of the news is fake’  
(News Conference 17/02/2017, transcript by CNN).



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# Group Exercise



**Are you aware of any examples of fallacies in  
the media and beyond?**



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The End