

Critical Thinking.

or

Thinking for yourself: don't leave it to a cousin of a friend who knows a man who lives next door to someone high up in the council.

What we will cover....

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- What is it?
- Why do we need it?
- How do you do it?
- Let's do some practice
- When not to do it.
- Summary

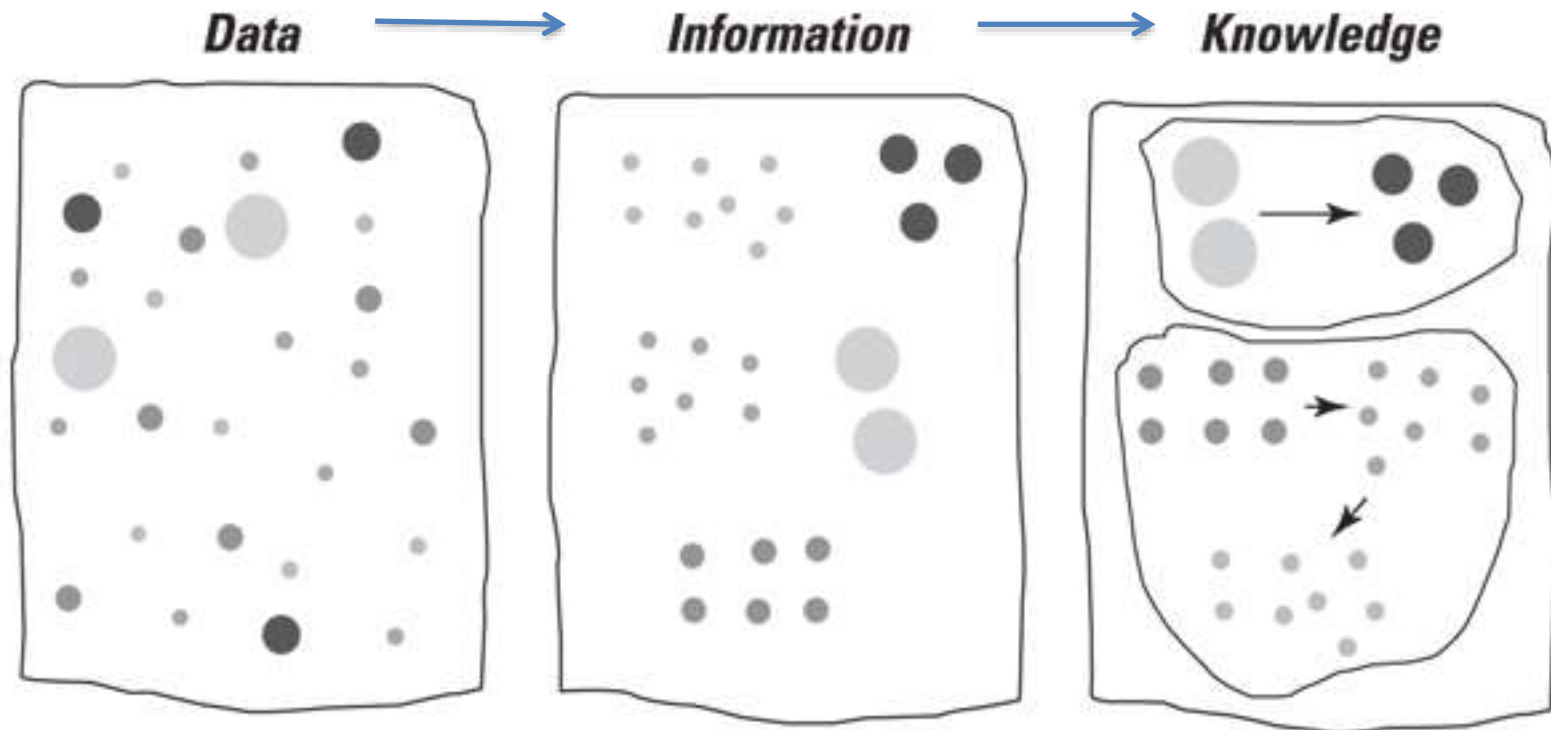
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Using Zoom

- Everyone will be muted at the start
- Please raise your hand – either physically or using the icon if you have a question
- Please also use the chat feature
- I will be using “polling” and “breakout rooms” today

Critical Thinking: What is it?

“The analysis of facts to form a judgement”



Data

- Things you read, hear or see...
 - Opinions?



Why do we need to do it?

- Critical Thinking is hard work and requires energy – so we don't always do it
 - We have developed thinking “shortcuts” or habits to help us but they don't always help
 - We need an “insurance policy” against our own thinking habits
- Now more than ever...

Health information-seeking behaviour



- We get data and information from:
 - Health Professionals
 - Pamphlets
 - Newspapers
 - TV
 - Radio
 - Friends and relatives
 - On-line

On-line

- Specific Websites: NHS, WHO, CDC
- Media Websites: BBC, etc.
- Search Engines
- Applications (Apps)
- User generated content
 - Wikipedia
 - YouTube, Vimeo
 - Twitter
 - User reviews and comments
 - FaceBook
 - Twitter
 - WhatsAPP
 - Instagram, Pintrest,



But....

“Many popular YouTube videos about prostate cancer contained biased or poor-quality information. A greater number of views and thumbs up on YouTube does not mean that the information is trustworthy”

Loeb, S., Sengupta, S., Butaney, M., Macaluso, J. N., Czarniecki, S. W., Robbins, R., Braithwaite, R. S., Gao, L., Byrne, N., Walter, D. and Langford, A. (2019) “Dissemination of Misinformative and Biased Information About Prostate Cancer on Youtube,” *European Urology*, 75(4). doi: 10.1016/j.eururo.2018.10.056.

And..

“ The reliability of websites presenting prostate cancer information is questionable. There were noted deficiencies in attribution, currency, and readability. While information on detection and treatment is well-covered, information related to prognosis is lacking”

Kobes K, Harris I.B, Tekian A, Regehr G and Ingledew P.-A (2018) “Malignant Websites? Analyzing the Quality of Prostate Cancer Education Web Resources,” Canadian Urological Association Journal, 12(10), pp. 344–350. doi: 10.5489/cuaj.5084.

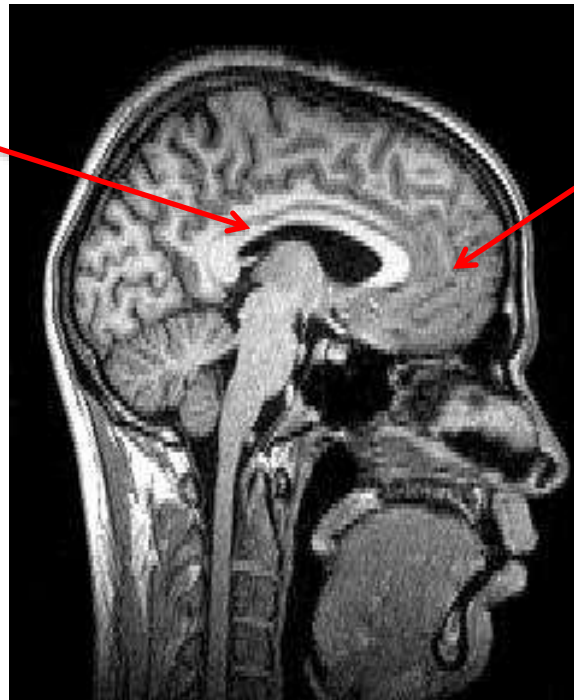


We think Fast and Slow



System
1
FAST

Unconscious
Every-day decisions
Automatic
Error prone



System
2
SLOW

Conscious
Complex decisions
Effortful
Reliable

- A bat and ball cost £1.10
- The bat costs £1 more than the ball
- How much does the ball cost?

- Ball 10p
- Bat £1.00
- Total £1.10
- Difference 90p

- Ball 5p
- Bat £1.05
- Total £1.10
- ✓ Difference £1

Which is correct?

The yolk of the egg is white

or

The yolk of the egg are white



We take mental shortcuts



- Instinctively categorising people or things without being aware of it
- Our thinking may be guided by past experience and mental pre-conditioning

Some thinking /cognitive biases

- Bandwagon effect
- Confirmation bias
- Ostrich effect
- Authority bias
- Horns and Halo effects
- Stereotyping



Bandwagon effect

- The rate of uptake of beliefs, ideas, fads and trends increases the more that they have already been adopted by others

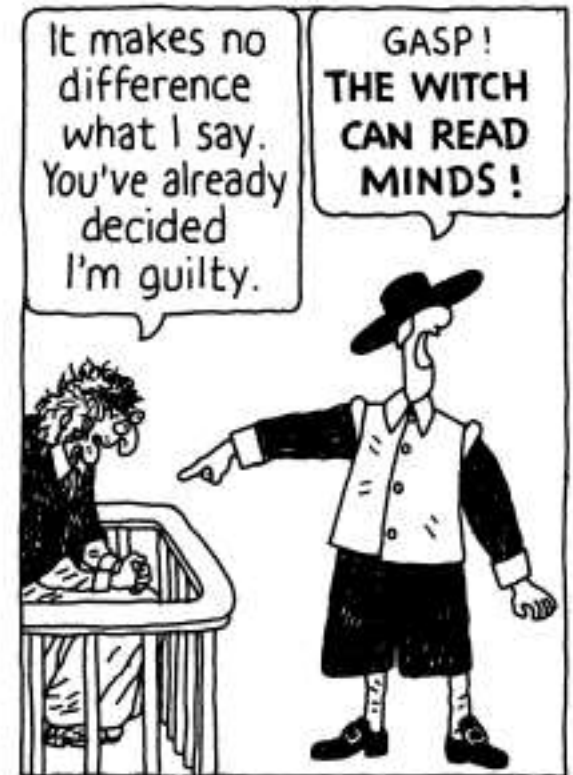


Fashion



Confirmation bias

- The tendency to search for, interpret, favour, and recall information in a way that confirms or strengthens one's prior personal beliefs or hypotheses



- Also the Backfire effect
 - The reaction to disconfirming evidence by strengthening one's previous beliefs

Prejudgment

“Faced with the choice between changing one's mind and proving that there is no need to do so, almost everybody gets busy on the proof.”

JK Galbraith (Economics, Peace and Laughter, 1971)



“Don’t believe everything you read on the Internet just because there’s a picture with a quote next to it.”

—Abraham Lincoln

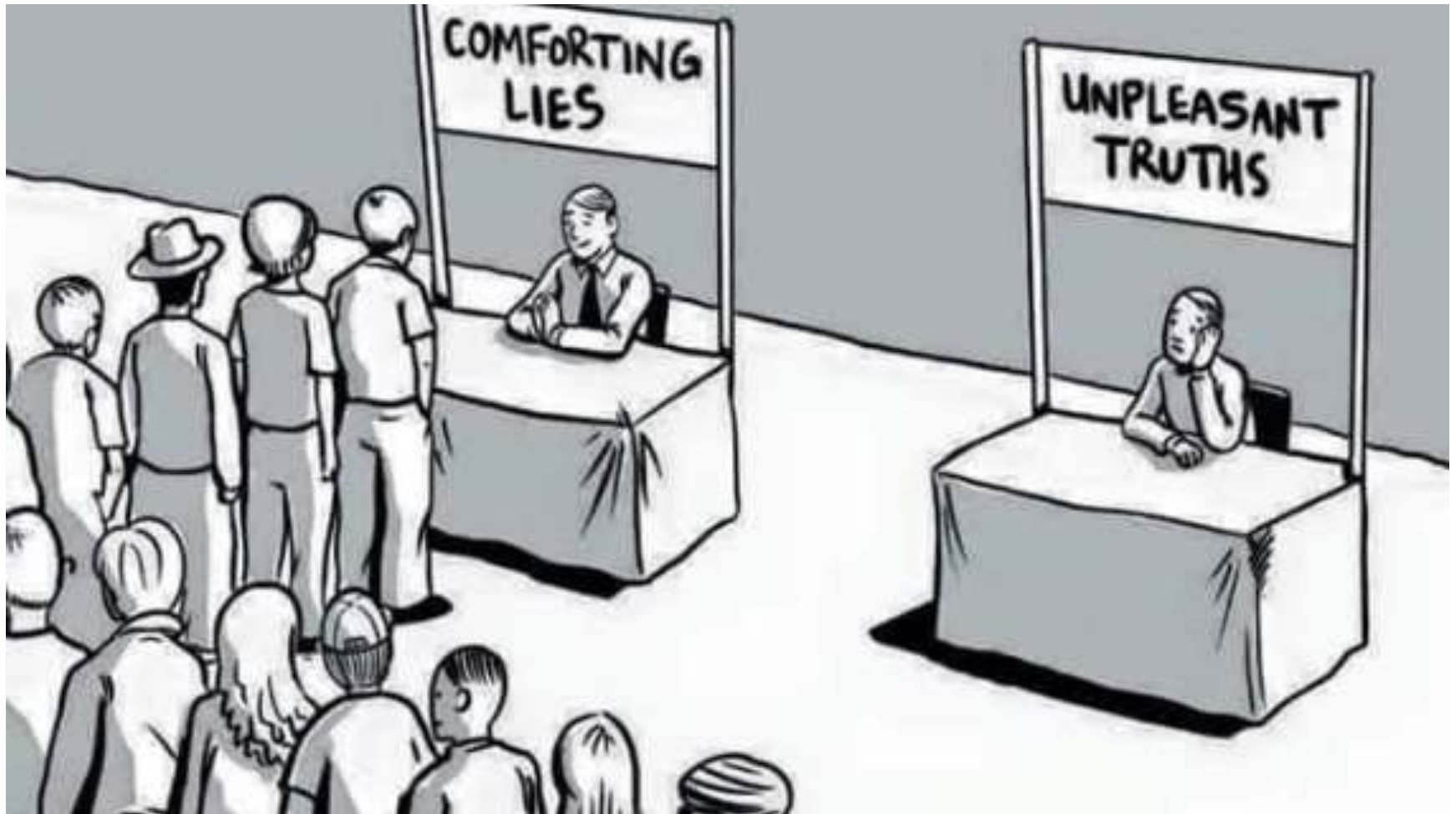
Ostrich effect

- Avoiding negative information



- The elephant in the room that we don't talk about

Unpleasant / inconvenient truths



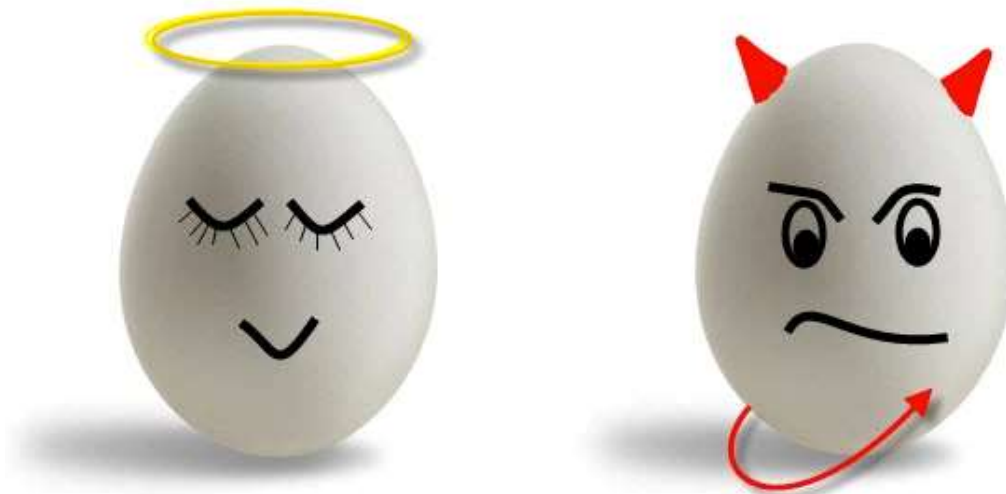
Authority bias

- The tendency to attribute greater accuracy to the opinion of an authority figure (unrelated to its content) and be more influenced by that opinion



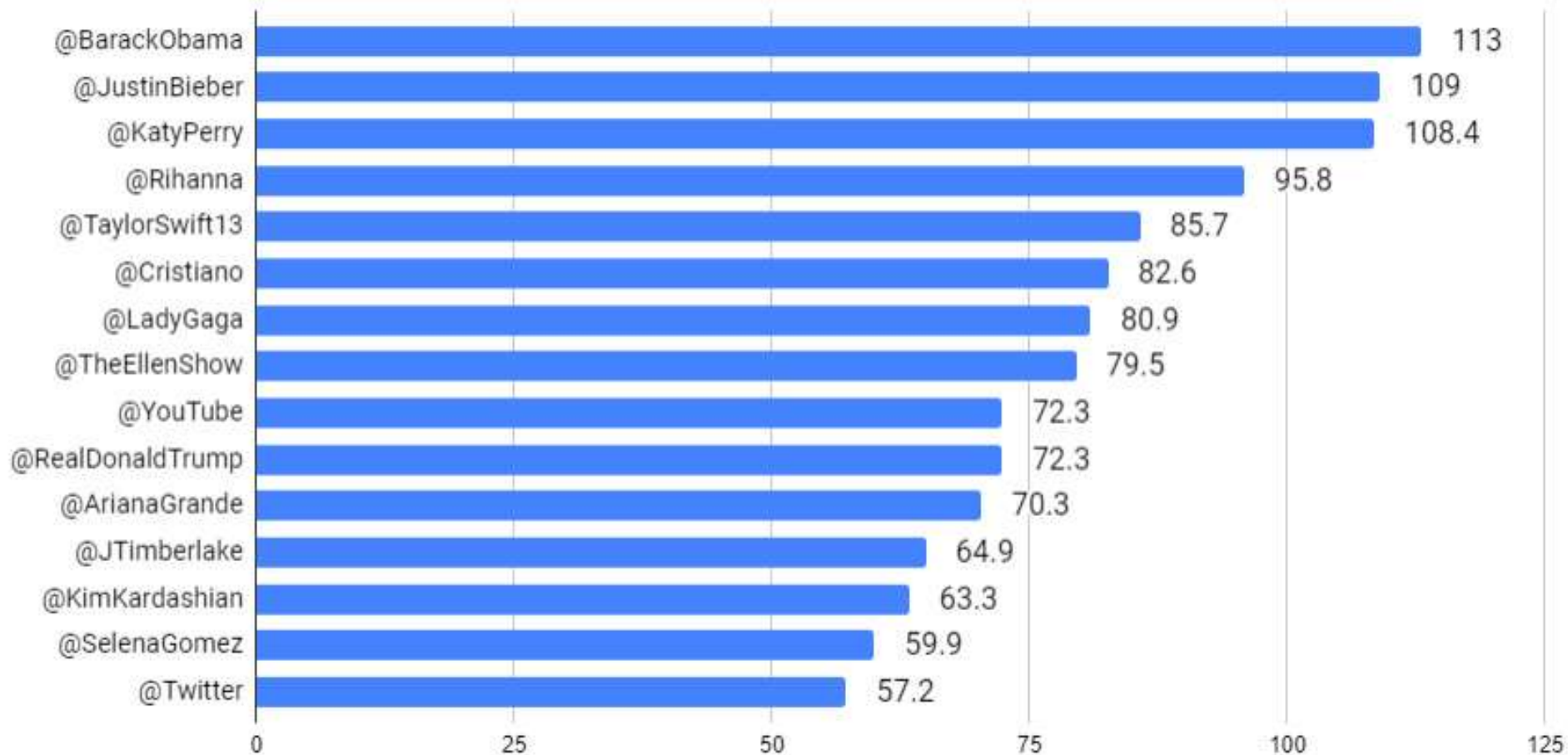
Horns and Halo Effect

- Halo– is when one's perception of another to be unduly influenced by a single positive trait
- Horns is the opposite



2020 Top Twitter Accounts

Most Followed Accounts on Twitter (in millions)





Elon Musk ✓

10.4K Tweets



⋮

Follow

Elon Musk ✓

@elonmusk



📅 Joined June 2009

81 Following **33M** Followers



Elon Musk ✓

@elonmusk



Maybe worth considering chloroquine for C19
docs.google.com/document/d/e/2...

♥ 57K 9:31 PM - Mar 16, 2020



💬 17.2K people are talking about this



us

Hydroxychloroquine: how an unproven drug became Trump's coronavirus 'miracle cure'



Media

Influencers among 'key distributors' of coronavirus misinformation

Study suggests mainstream news outlets struggling to compete with celebrities' and politicians' reach

- Coronavirus - latest updates
- See all our coronavirus coverage



▲ Actor Woody Harrelson shared a series of Instagram posts making baseless claims linking the coronavirus to 5G technology. Photograph: Frazer Harrison/Getty Images

Celebrities and politicians with large social media followings are proving to be key distributors of disinformation relating to coronavirus, according to a study that suggests the factcheckers and mainstream news outlets are struggling to compete with the reach of influencers.

The actor Woody Harrelson and the singer MIA have faced criticism after sharing baseless claims about the supposed connection of 5G to the pandemic, while comments by the likes of the Brazilian president, Jair

Advertisement



Stereotyping

- An over-generalized belief about a particular category of people



Outside influences

- Social Media
- Influencers
- Advertisers
- Public Relations (PR)
- Campaigners
- Criminals
- Propaganda
- Public Opinion



This isn't new

1930

*The figures quoted here have been verified and certified to be correct by the American Medical Association and the American Lung Association.

20,679* Physicians
say **“LUCKIES**
are less irritating”

“It's toasted”
Your Throat Protection against irritation against cough

1946



He's one of the nation's men in black. While his close ones say "Office Hours 2 to 4," he's actually on call 24 hours a day.

The doctor is a scientist, a diplomat, and a friendly sympathetic human being all in one, no matter how long and hard his schedule is.

According to a recent Nationwide survey:

MORE DOCTORS SMOKE CAMELS THAN ANY OTHER CIGARETTE

DOCTORS (every branch of medicine)—111,297 in all—were queried in this nationwide study of cigarette preferences. Their leading research assignment: smoke the survey. The gist of the query was—What cigarette do you smoke, Doctor?

The brand named was... Camels!

The rich, full flavor and cool softness of Camels' superb blend of choice tobaccos seem to have the same appeal to the smoking taste of doctors as to millions of other smokers. If you are a Camel smoker, this preference among doctors will hardly surprise you. If you're not—well, try Camels soon.



Your "T-Zone" Will Tell You...

T for Taste ...
T for Throat ...

That's your guiding ground for any cigarette. See if Camels don't suit your "T-Zone" as a "T."

CAMELS Costlier Tobaccos

"Chesterfields are so Mild
they leave a clean, fresh taste
in my mouth."

Gene Douglas

EDWIN MARK WITH A MORN
A Chesterfield Salesman



...and Jesse L. Tripp
PROMINENT TOBACCO FARMER
Capt. Greenfield always
keeps the finest and best tobacco
in his field. They know what it
tastes like in a cigarette.
They make better and better
cigarettes.
Jesse L. Tripp
1930s N.C.

Always Buy CHESTERFIELD

...the Best cigarette for YOU to Smoke



"My cigarette is
the MILD cigarette...
that's why Chesterfield
is my favorite"

Ronald Reagan

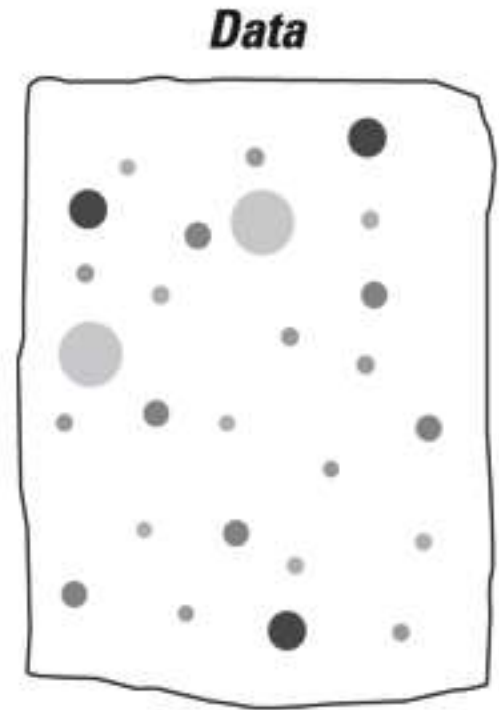
FRANKLIN D. ROOSEVELT
"THE VOICE OF THE TWENTY"



ALWAYS BUY
ABC CHESTERFIELD
BLENDING MASTERS • BETTER TASTING • NICOTIN FREE

All in the mix

- Rumour
 - Filling the vacuum
- Misinformation
 - Wrong facts, e.g. Thalidomide, MMR
- Disinformation
 - Deliberately wrong facts aimed to deceive



So how do we know what is true?

“Fake News”?

“False stories that appear to be news, spread on the internet or using other media, usually created to influence political views or as a joke”

Britain threatens to invade Switzerland over Toblerone shape row

NOVEMBER 8, 2016

907
SHARES

f Facebook

Twitter

Email

Reddit

G+ Google+



By Doug Trench, Defence Editor

Britain is drawing up plans to invade Switzerland unless the country reverses its controversial decision to change the shape of Toblerone.

Prime Minister Theresa May has asked our forces to "ready themselves" in case diplomatic efforts to bring back the original much-love chocolate bar fail.

© 2016 The Daily Telegraph

Why?

- Fake news is written and published usually with the intent to mislead in order to damage an agency, entity, or person, and/or gain financially or politically,
- Often using sensationalist, dishonest, or outright fabricated headlines to increase readership.
- Similarly, clickbait stories and headlines earn advertising revenue from this activity

Is it Fake News?

International Federation of Library Associations and Institutions

- Consider the source (to understand its mission & purpose)
- Read beyond the headline (to understand the whole story)
- Check the authors (to see if they are real and credible)
- Assess the supporting sources (to ensure they support the claims)
- Check the date of publication (to see if the story is relevant and up to date)
- Ask if it is a joke (to determine if it is meant to be satire)
- Review your own biases (to see if they are affecting your judgment)
- Ask experts (to get confirmation from independent people with knowledge).

Time to apply critical thinking

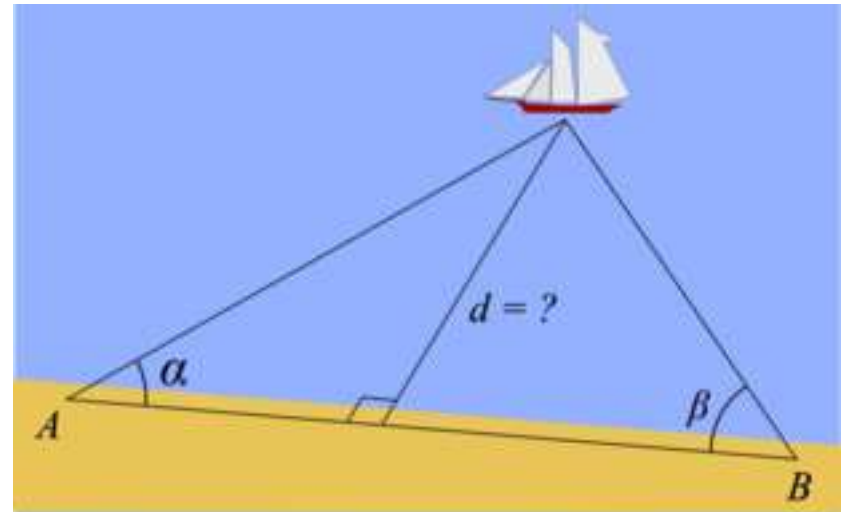


Applying critical thinking

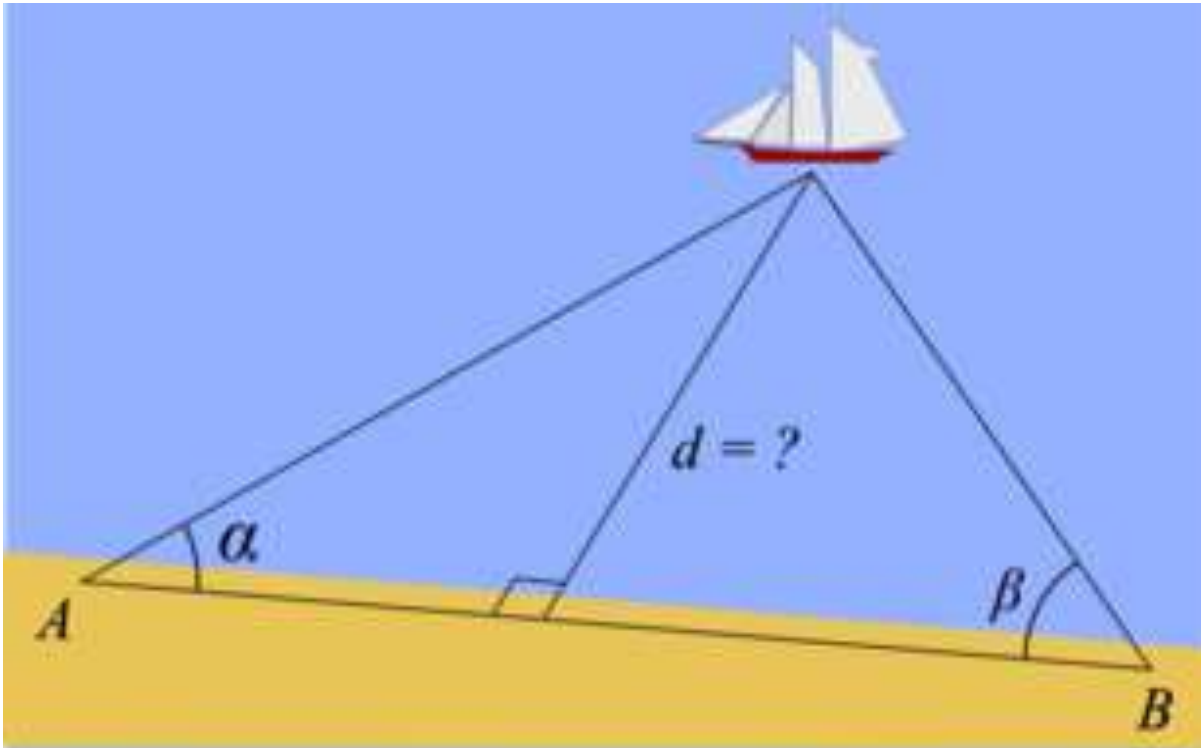
- Suspend judgement
- Who says so, what's their credibility on this subject
- Challenge assumptions, yours and theirs
- What's the hard evidence, the facts
- What's the context
- What's missing
- Be skeptical
- Triangulate

Triangulation

- In trigonometry and geometry, triangulation is the process of determining the location of a point by forming triangles to it from known points.



Triangulation



- Get your data from multiple and different credible sources

Some practice

➔ *Forwarded*

If you know anyone using WhatsApp you might pass on this. An IT colleague has advised that a video comes out tomorrow from WhatsApp called martinelli do not open it , it hacks your phone and nothing will fix it. Spread the word. If you receive a message to update the Whatsapp to Whatsapp Gold, do not click !!!!!

Please inform all contacts from your list not to open a video called the "Dance of the Pope". It is a virus that formats your mobile. Beware it is very dangerous. They announced it today on BBC radio. Fwd this msg to as many as you can!

11:08

Triangulate - Google “Martinelli”



WhatsApp ‘Martinelli’ virus: What to do if you receive strange message about ‘WhatsApp gold’ video

There’s no need to worry about the message or its threats

Andrew Griffin | [@_andrew_griffin](#) | Monday 23 March 2020 10:46 |



Some practice



The image shows a screenshot of a Facebook page for a business named "Apricots From God". The page header includes the Facebook logo, the name "Apricots From God", a search bar, and navigation links for "Aidan", "Home", "Find Friends", and "Create". There are also icons for a profile picture, a message notification (with a red '3'), and a help icon.

The main content area features a large, high-quality photograph of fresh apricots. Some are whole, while others are sliced into halves and quarters, showing their orange flesh and dark pits. The background is a warm, wooden surface.

Below the main image is a row of interaction buttons: "Like", "Follow", "Share", and a three-dot menu. To the right of these buttons are two larger buttons: "Watch Video" and "Send Message".

On the left side of the page, there is a vertical navigation menu with the following options: "Home", "Reviews", "Photos", "Posts", "About", "Community", and "Twitter". At the bottom of this menu is a green button that says "Create a Page".

Below the main image, there is a section for writing a post. It starts with a circular profile picture of a person and the text "Write a post...". Below this are four buttons: "Photo/Video", "Tag friends", "Check in", and a three-dot menu.

On the right side of the page, there is a section titled "Health & wellness website". Below this is a "Community" section with the following information:

- Invite your friends to like this Page
- 4,612 people like this
- 4,697 people follow this



Home



Share



66

Start your day by asking for
The Washington Post

[Learn more](#)

Morning Mix

New York arm-wrestling legend and his mom arrested for selling 'Apricots From God' as bogus cancer cure

According to the federal complaint, Vale and his mother have raked in \$850,000 since 2013 selling apricot seeds and related products containing amygdalin or laetrile. The FDA does not support these products for treating or curing cancer, making their sale for medicinal purposes illegal. In fact, [the National Cancer Institute has found](#) that the cyanide contained in apricot seeds or laetrile can cause poisoning, which can be deadly. Vale's website does not appear to contain any such warning.

Practice

- Facemasks

THE DAILY NEWSLETTER

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NewScientist

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Do face masks work against the coronavirus and should you wear one?

A little bit of fun

- Humour as a mature defence mechanism
- A demonstration on how it is hard to suspend judgment



















9

10



Applying critical thinking

- Suspend judgement
- Who says so, what's their credibility on this subject
- Challenge assumptions, yours and theirs
- What's the hard evidence, the facts
- What's the context
- What's missing
- Be skeptical
- Triangulate



PROSTATE CANCER UK

Our Specialist Nurses
0800 074 8383



PROSTATE INFORMATION

GET SUPPORT

ABOUT US

[Home](#)

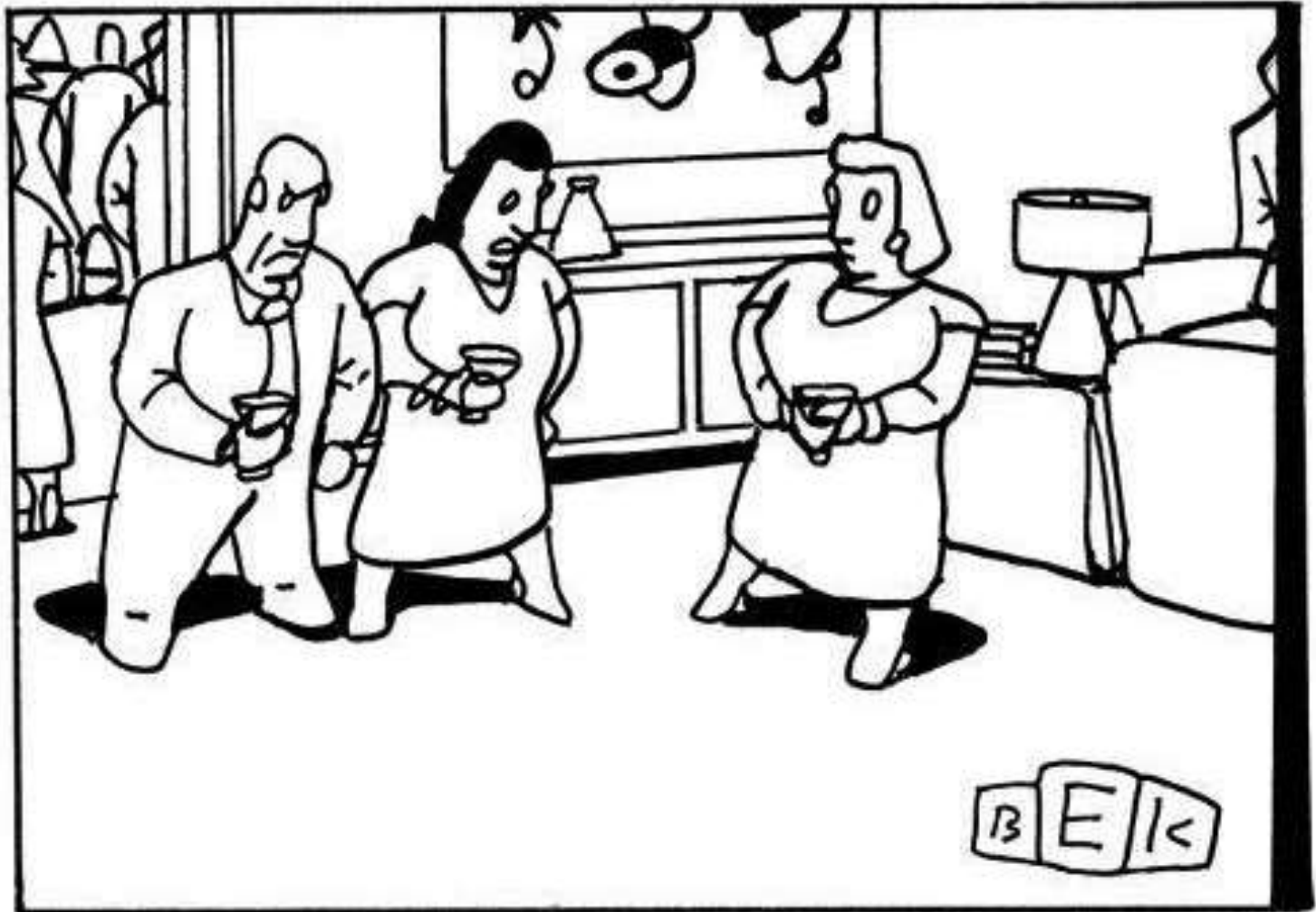
Coronavirus (COVID-19): what you need to do

Stay at home

- Only go outside for food, health reasons or work (but only if you cannot work from home)
- If you go out, stay 2 metres (6ft) away from other people at all times
- Wash your hands as soon as you get home

Do not meet others, even friends or family. You can spread the virus even if you don't have symptoms.

When not to apply critical thinking



“He saves all his critical thinking for my behavior.”

Summary

- If you do seek or receive health information from many sources
 - Understand what biases might be operating
 - Think critically about what you read, see or hear
 - Remember you are not alone if you need help with this

Breakout Rooms

- You will now be randomly allocated to a breakout room with up to four of you to allow you to have a 5-10 minute discussion about today's session.
- You will be notified when it's time to return to the main Zoom meeting

