Decision Making in a pandemic

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Covid-19: The view in New Zealand

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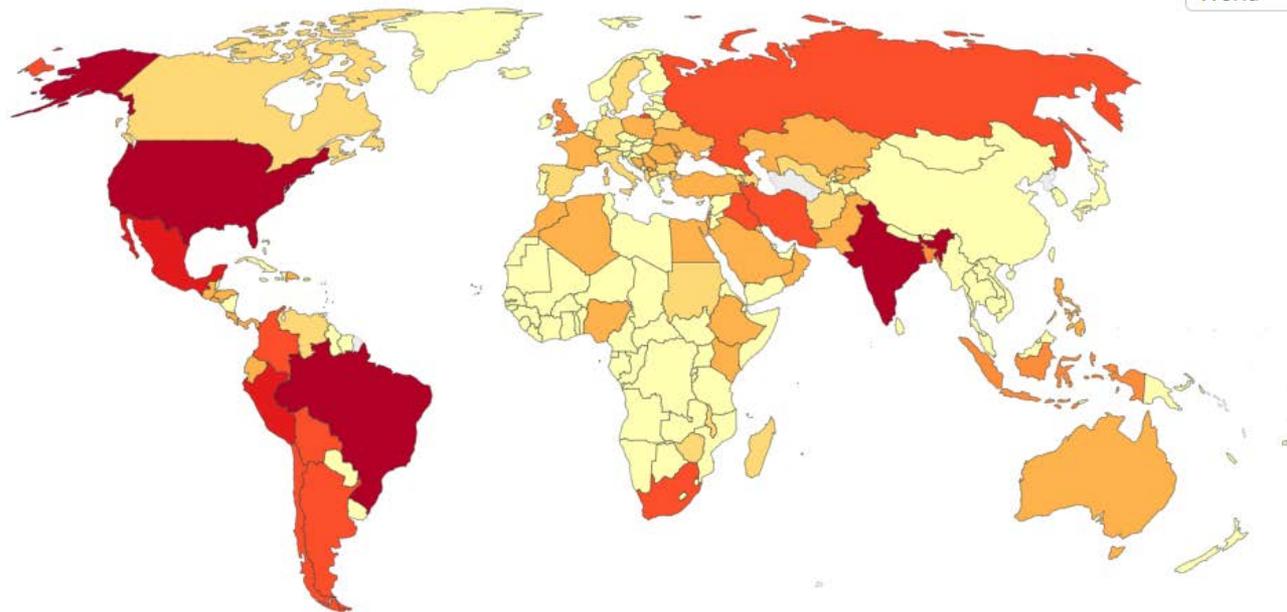N E W   Z E A L A N D

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Early August, 2020, Status quo:
Which world do we live in?

Biweekly confirmed COVID-19 deaths, Aug 6, 2020
Biweekly confirmed deaths refer to the cumulative number of confirmed deaths over the previous two weeks.

Our World in Data

World

No data   <0   50   100   500   1,000   5,000   10,000   50,000

- *A large part of decision making in a pandemic and/or global recessions is dealing with uncertainty.*

- Humans crave certainty and are not very good at dealing with events that are uncertain since we feel an acute loss of control.

- This leaves us vulnerable to making some systematic errors of judgement that often compound the problem.

Three themes (or biases)

- Gut feelings
  - *Distinction between System 1 and System 2 thinking*
- Confirmation Bias
- Difficulty with probabilistic thinking

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- In the immediate aftermath of September 11, 2001, many Americans decided that flying was too risky and chose to drive.

- In the following 12 months, an *additional 1,500 people* lost their lives on the road.

Ananish Chaudhuri Decision Making in Pandemics

- This is more than the total number of passengers who died on the four planes.

- We tend to focus excessively on *"identified lives"; loss of lives right in front of us.*

- We are afraid of losing a large number of lives in a short period.

- But, in doing so, we miss out on the loss of *"statistical lives".*

- Increase in mortalities due to other diseases.
  - Children, especially in developing countries have missed vaccinations; causing a surge in diptheria, measles and cholera
- Lowered life expectancy from higher unemployment.
- Postponed doctor visits, screening and surgeries.
- *But these (even if larger in aggregate) are scattered all over and not reported on in the same breathless manner.*
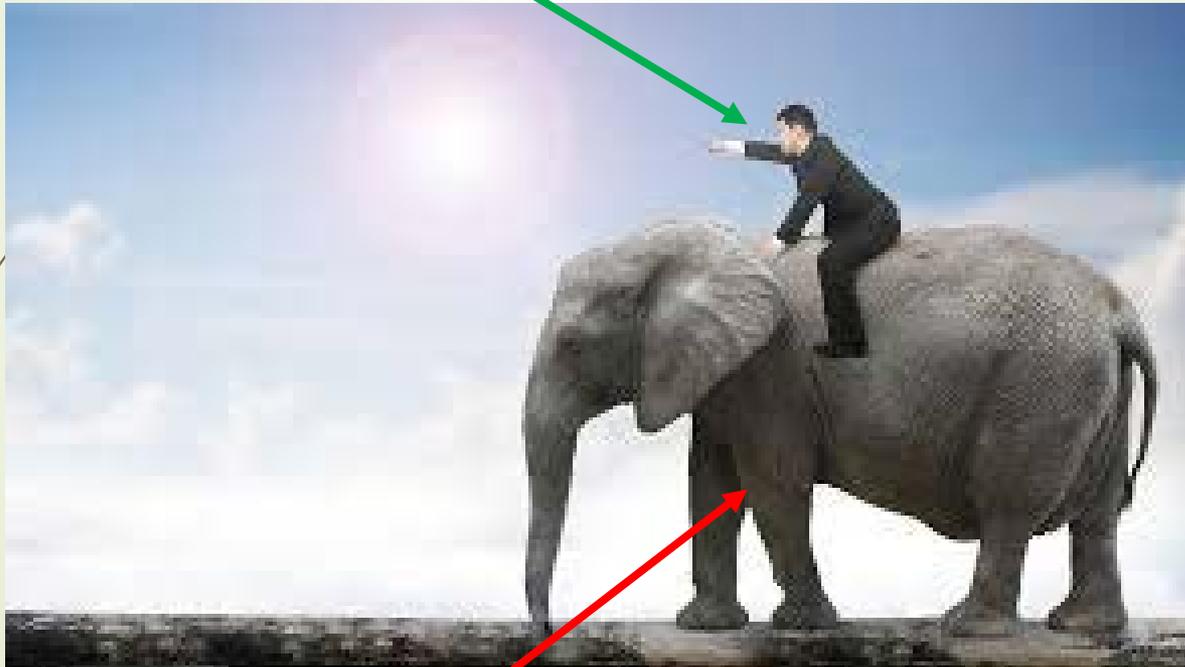
System 1 and System 2 thinking

- *System 1:*
  - *automatic; fast; intuitive; reflexive*
  - *Jumps into action immediately*

- *System 2:*
  - *deliberative, thoughtful, reflective;*
  - *engages later and requires cognitive effort*

System 2: The rider; deliberative, thoughtful, reflective; May need to struggle to turn elephant around

System 1: the elephant; automatic; fast; intuitive; Lurches into action quickly and hard to turn around

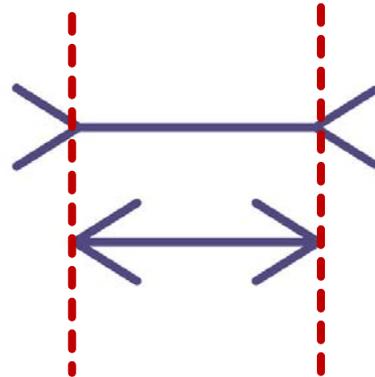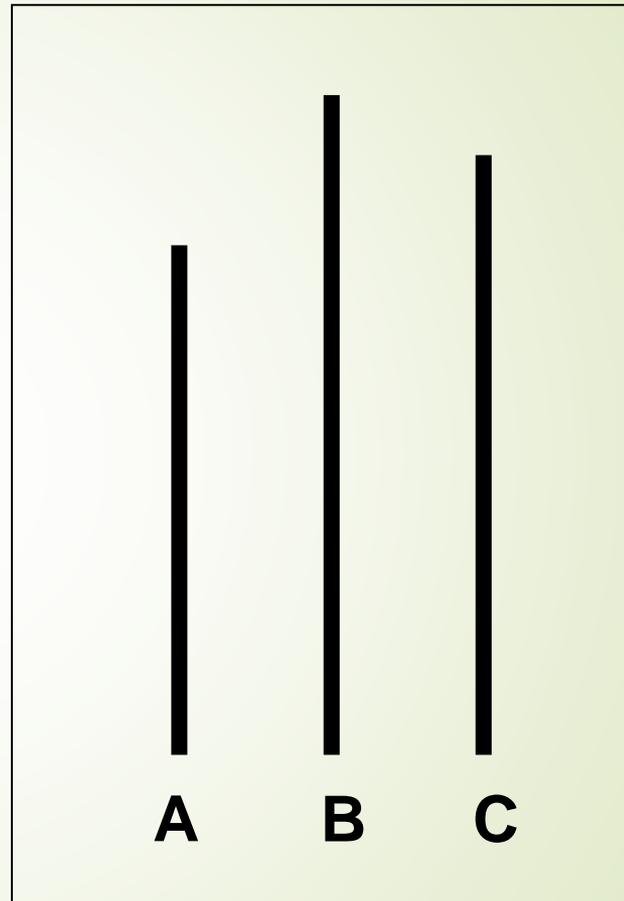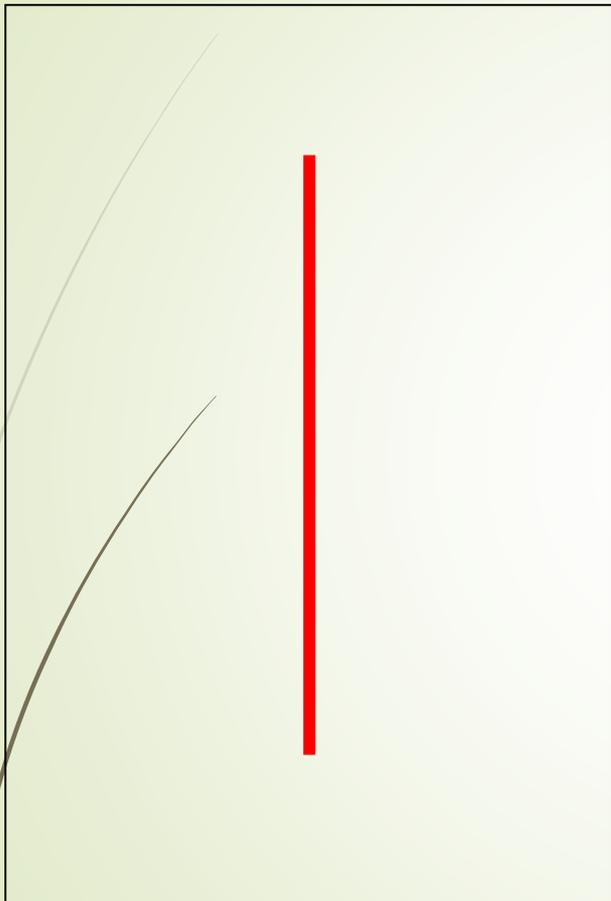# The Mueller-Lyer Illusion: Which line is longer?

A

B

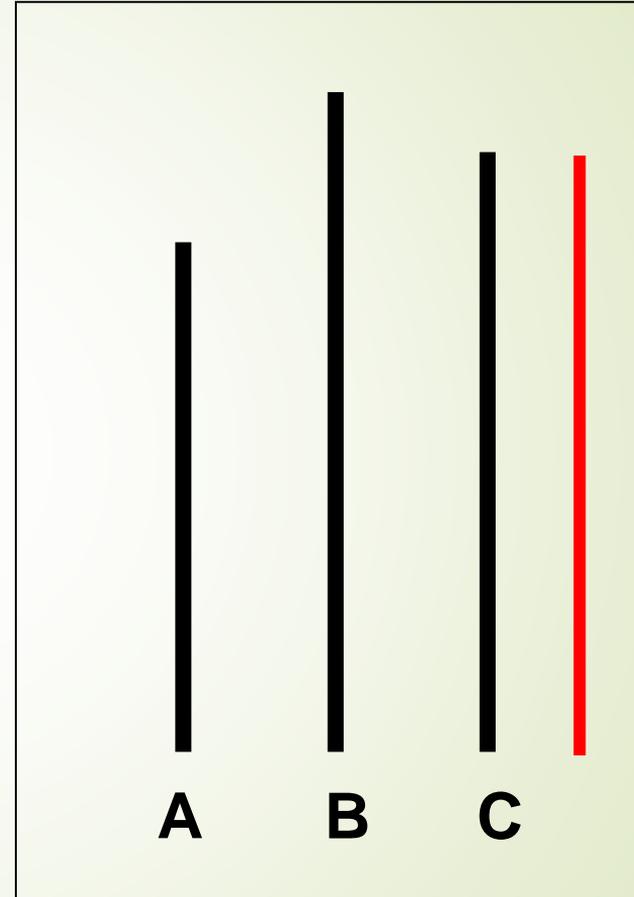# The Mueller-Lyer Illusion: Explained

A

B

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- Having *"seen"* something and come to believe that this is correct, it is extremely difficult to *"unsee it".*

- Once we have created a narrative based on this gut feeling, we tend to look for *confirming evidence* and discount disconfirming evidence.

- It is psychologically painful to change our minds and happens only with difficulty and/or overwhelming evidence.

Steven Colbert talking about George W. Bush at the White House Correspondents' Dinner, 2006

- *We are not that different, he and I.*
- *We both get it.*
- *Guys like us, we are not some brainiac on nerd patrol.*
- *We are not members of the "fact"-onista.*
- *We go straight from the gut. That is where the truth lies. Right down here in the gut.*
- *Do you know that there are more nerve endings in your gut than in your head? You can look it up.*
- *Now, I know some of you will say that "I did look it up and that is not true."*
- *That's because you looked it up in a book. Next time, look it up in your gut.*
- *I did. My gut tells me that's how our nervous system works.*

Difficulty with probabilistic thinking

- ***Case fatality ratio is 3%!***
- ***System 1 goes into overdrive!***
- System 2 says:
  - The Case Fatality Ratio of Ebola is more than 50%, MERS 35% (approx.) and SARS 9%-10% (approx.);
  - More than CFR, we need the *Infection Fatality Ratio* but IFR not known without extensive testing

Lockdowns

18

Lockdowns

- *Weak, if any, correlation between policy stringency and cases.*

- But narrative became about two extremes *"lock down"* or *"let it rip"* with no consideration of the *continuum in between, with associated costs and benefits at each of those levels.*

- People, especially in a high trust society like NZ, can be relied upon to follow instructions and trusted to do the right thing such as self-isolation.

Should we keep our borders closed?
Should we have yet another lock down?
Should people have to pay for quarantine?

Quo tendimus?

- Common theme: lack of understanding of small probabilities

- Beyond a point, it is not worth worrying about low probability events.

- Somewhere along the way our policy response morphed from *"flatten the curve"* (to reduce pressure on health services) to *"elimination"!*

Quo tendimus?

- Elimination is not a feasible goal!

- We thought measles had been eradicated till we had an outbreak in 2019.

- It is a global world; as long people and goods travel, so will diseases.

- If and when a vaccine arrives, not only do you need all Kiwis to get vaccinated, you need everyone else in the world to do so.

Quo tendimus?

- ***A vast bureaucracy and huge costs to deter a*** *relatively low probability event.*

- Getting a probability down from 1 in 10 to 1 in 100 may not be difficult but getting from 1 in 100 to 1 in 1000 or even lower becomes prohibitively costly.

- *We cannot get this probability down to zero and do not need to!*

Quo tendimus?

- Trade-off between further risk minimization and huge economic (and social) costs.
- *But, now that we have committed to the whole elimination story it, how can we turn back?*
- Changing minds now means a loss of reputation;
- It is now more about ego and hubris than evidence-based decision-making.

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It's not a liberal-conservative thing!
(Fischer, Chaudhuri and Atkinson; research funded by RSNZ Marsden Grant: UOA-17-074)

▶ **Liberals** are pro lock down while **conservatives** are opposed.

▶ This unidimensional view of politics is incomplete, if not incorrect.

It's not a liberal-conservative thing!
(*Fischer, Chaudhuri and Atkinson; research funded by RSNZ Marsden Grant: UOA-17-074*)

- Dual evolutionary foundations of political ideology

  - Claessens' et al, 2020

- There are *economic conservatives* and *economic liberals.*

- There are *social conservatives* and *social liberals.*

It's not a liberal-conservative thing!
(*Fischer, Chaudhuri and Atkinson; research funded by RSNZ Marsden Grant: UOA-17-074*)

▶ Economic liberals emphasize cooperation and egalitarianism.

▶ Perceived physical distancing as the cooperative activity; hence support "stringent" lock downs *including military involvement*.

It's not a liberal-conservative thing!
(*Fischer, Chaudhuri and Atkinson; research funded by RSNZ Marsden Grant: UOA-17-074*)

- Social conservative tend to be group-minded, group conformist and threat sensitive.

- They perceived lock downs as mitigating threat and were also supportive of strict lock downs *including military involvement.*

It's not a liberal-conservative thing!
(*Fischer, Chaudhuri and Atkinson; research funded by RSNZ Marsden Grant: UOA-17-074*)

- Resulted in a striking concordance in views between two disparate groups.

- But originating from very different views of the world.

That's my story and I am sticking to it.

Questions?