

fontspec TeX Gyre Pagella

End of Topic Test – Chapter 4: Critical Analysis

Answer all questions in the spaces provided.

1. Identifying evidence, reasoning and conclusions

Read the following extract:

“Local councils should invest more in cycling lanes. A recent poll of 500 residents found that 68% would cycle more if routes were safer. This proves that expanding cycling lanes will reduce traffic congestion.”

- (a) (2 points) Identify the *evidence* used in the extract.

- (b) (2 points) Identify the *reasoning* used.

- (c) (2 points) State the *conclusion* of the extract.

- (d) (3 points) Criticise the argument, referring to sample representativeness, assumptions, or logical leaps.

2. Evaluating claims about exercise and wellbeing

A local newspaper claims:

“Building more sports facilities will significantly improve public health.”

The UK Government recently stated that:

“More than 1,100 new and upgraded grassroots sport facilities will open across the UK... The investment aims to get more people active and improve physical and mental wellbeing.”

A review by HFE notes:

“Evidence for the effectiveness of exercise referral schemes remains mixed... Some studies show small improvements in physical activity and wellbeing.”

- (a) (3 points) Explain how the government quotation supports the newspaper's claim.
- (b) (4 points) Explain how the HFE quotation challenges or weakens the newspaper's claim.
- (c) (3 points) Evaluate the overall strength of the newspaper's claim, using both quotations.

- (b) (4 points) Explain how the HFE quotation challenges or weakens the newspaper's claim.

- (c) (3 points) Evaluate the overall strength of the newspaper's claim, using both quotations.

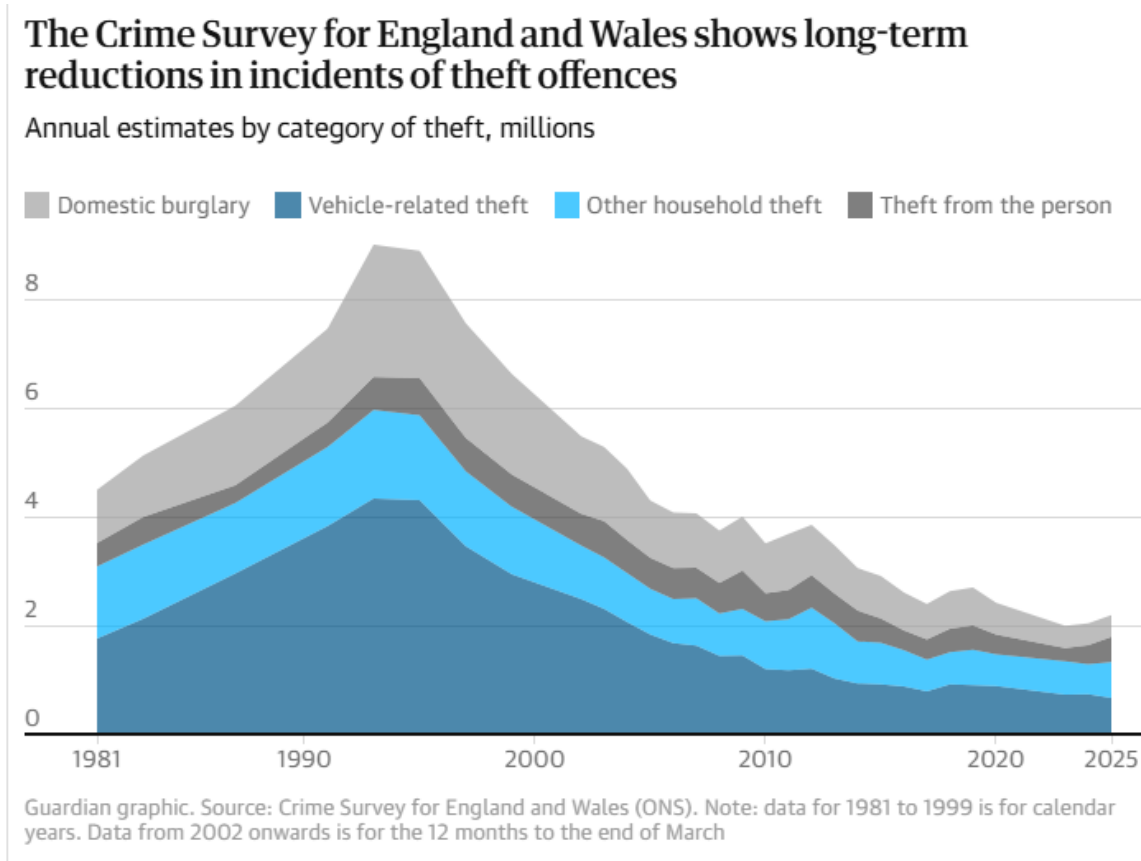


Figure 1:

3. Interpreting claims about crime trends

A recent newspaper article discusses whether London is experiencing a “crime wave”. It reports that:

“Police-recorded crime in London has increased in several categories over the past year, leading some commentators to describe the situation as a ‘crime wave’ gripping the capital.”

Later, the article contrasts these headlines with long-term evidence:

“Long-term data from the Crime Survey for England and Wales shows that overall crime has fallen sharply since the 1990s.”

The chart above shows the long-term theft trends in England and Wales.

- (a) (3 points) Give three reasons why the headline claim of a “crime wave” may be misleading when compared with the long-term trend shown in the chart.
- (b) (3 points) Explain how the long-term quotation challenges the idea that London is experiencing a crime wave.

- (c) (3 points) Suggest one additional piece of information that would help a reader judge whether London is experiencing a genuine crime wave.

4. Sampling and bias

A school wants to know whether students support a ban on mobile phones. A teacher surveys 30 students from her own Year 13 class.

- (a) (2 points) Identify the sampling method used.
- (b) (3 points) Give two reasons why this sample may be biased.
- (c) (3 points) Suggest a more appropriate sampling method and explain why it would be better.

5. Correlation and causation

A study finds a strong correlation between hours spent on social media and levels of reported anxiety.

A research paper states:

“ a significant proportion of young adults spend a substantial amount of time on social media, with a sizable percentage exceeding recommended usage limits. The results also indicate a positive correlation between social media usage and both anxiety and stress levels, suggesting that as individuals increase their engagement with social media, their reported anxiety and stress levels tend to be higher. These findings contribute to the existing literature on the psychological effects of social media and have implications for promoting mental well being among young adults. The study underscores the importance of addressing social media usage and its potential impact on mental health in interventions and strategies to promote overall well-being in this population.”

- (a) (2 points) State the meaning of “correlation” in this context.

- (b) (3 points) Explain why the correlation does *not* necessarily mean that social media causes anxiety.

- (c) (2 points) Suggest one additional piece of data or research that could help investigate causation.

6. Reasoning flaws: electric scooters and pollution

A newspaper article starts: Are Electric Scooters Reducing Urban Air Pollution?

“E-scooters produce no direct exhaust emissions during operation. This fact drives their appeal as environmentally friendly transportation. Cities worldwide have embraced shared e-scooter programs to reduce traffic congestion and improve air quality. The global electric scooter market grew at over 7% annually between 2021 and 2026, fueled by environmental concerns and urban mobility needs.”

However, an environmental review notes:

“Electric scooters don’t automatically deliver the clean transportation experience marketing suggests. Current infrastructure forces riders into high-pollution road environments. The convenient, affordable mobility comes with hidden health costs from air pollution exposure that riders largely don’t recognize. as their enviromental impact depends heavily on how they are manufactured , used and charged ”

- (a) (3 points) Critically analyse the newspaper’s reasoning.
- (b) (3 points) Suggest two alternative explanations for rising pollution levels.
- (c) (2 points) “Their overall environmental impact depends on factors such as charging practices, battery production, and how long the scooters remain in service.”
Explain how the quotation challenges the newspaper’s claim.