

GET1001 & GEX1003: Seeing The World Through  
Maps

AY25/26, Y3S1

Exam Preparation Notes

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# 1 Past Year & Sample Questions: Argument Flows

## 1.1 Topics 3 & 4: Politics and Economics

### 1.1.1 2019 Exam Question

**Question:** “Maps are powerful political instruments used by governments as much as they are effective economic tools deployed by private enterprises for their specific purposes.” To what extent would you agree with this assertion? Make use of concrete examples to support your stand.

**Argument Flow:**

- **Introduction:** Define maps not as neutral mirrors of reality, but as social constructions with specific agendas. State agreement with the assertion that both sectors manipulate map elements (the 4Ms: Mapmaker, Message, Medium, Men/Women) to exert power or generate profit.
- **Political Instruments (Governments):**
  - Argument: Governments use maps to claim territory, legitimize borders, and foster national identity.
  - Example 1: Colonial mapping (e.g., British in India/Australia) used to erase indigenous presence and define ownership.
  - Example 2: The “Geo-body” of Thailand (Siam), where mapping created the nation rather than just reflecting it.
  - Example 3: Disputes like Pedra Branca or the South China Sea, where maps are legal documents of sovereignty.
- **Economic Tools (Private Enterprises):**
  - Argument: Private entities use maps for advertising, distorting reality to seduce consumers (“Maps that Lie”).
  - Mechanism: Use of Simplification (removing negative features like slums or competitors) and Amplification (exaggerating amenities like pools or proximity to transport).
  - Example 1: Transport maps (e.g., Airlines straightening routes to suggest efficiency).
  - Example 2: Real estate/Tourism maps (distorting scale to make hotels seem closer to beaches or city centers).
- **Synthesis/Nuance:** Both spheres rely on the authority of the map to persuade. However, political maps often deal with existential/territorial rights, while economic maps deal with consumer choices.

- **Conclusion:** Reiterate that the power of maps lies in their ability to select what to show and what to hide, serving the specific interests of the mapmaker, whether political or commercial.

### 1.1.2 2017/18 Exam Question

**Question:** “Amplification and simplification are the most basic means by which cartographers manipulate maps to serve strategic agendas.” Discuss the different ways in which maps may be socially constructed, and consider the advantages and drawbacks of such constructions. Illustrate your answer with real-life examples.

#### Argument Flow:

- **Introduction:** Define social construction in cartography—maps reflect the subjective values and biases of their makers. Define Simplification (omission) and Amplification (exaggeration).
- **The Mechanics of Manipulation:**
  - Discuss the “subjective dimensions” (e.g., aesthetics, judgement, courage/fear of blank spaces).
  - Explain how mapmakers choose symbols, projection, and scale to frame a narrative.
- **Advantages (Utility and Clarity):**
  - Simplification removes clutter (e.g., Harry Beck’s London Underground map) to make navigation easier.
  - Amplification highlights safety hazards or key landmarks for tourism.
- **Drawbacks (Deception and Exclusion):**
  - Political erasure: ”Silences” on maps where indigenous lands or slums are removed to present a ”clean” image.
  - Economic deception: Real estate maps that hide neighboring industrial sites.
  - Propaganda: Distorting sizes (e.g., Mercator projection implications) to project imperial power.
- **Conclusion:** While social construction is necessary for a map to be readable, readers must possess ”cartographic literacy” to deconstruct the hidden agendas behind the design choices.

## 1.2 Topics 2, 3 & 4: History and General Concepts

### 1.2.1 2016/17 Exam Question

**Question:** Maps have been valued since the days of hunters and gatherers. Consider the different ways in which maps have served practical and powerful purposes across time. In your view, what is the single most important reason for having maps today?

#### Argument Flow:

- **Introduction:** Acknowledge the enduring human instinct to map (to locate oneself). Thesis: Maps have evolved from survival tools to instruments of power and now to platforms for social data.
- **Historical Purposes:**
  - Hunter-Gatherers: Practical survival (food sources) and Spiritual/Cosmological connection (Dreamtime tracks). Ephemeral media.
  - Age of Discovery/Colonialism: Navigation, conquest, and resource extraction. Maps as legal claims to land.
  - Nation Building: Creating a shared "imagined community" (e.g., Thailand).
- **The "Single Most Important Reason" Today (Choose one strong stance):**
  - *Option A: Managing Complexity/Data.* In the digital era, maps organize vast amounts of spatial data (traffic, weather, disease spread, climate change) to enable governance and survival.
  - *Option B: Navigation/LBS.* The ubiquitous reliance on GPS and Location Based Services for daily functioning.
- **Conclusion:** While the medium has changed (rock to paper to pixels), the core desire remains to control space, but today the focus has shifted to managing dynamic, real-time human-environment interactions.

## 1.3 Topic 2: History of Maps

### 1.3.1 Sample Question 1

**Question:** Discuss what you know about maps drawn by 'Hunting and Gathering' societies. In addition to this, explain the value and power of such 'indigenous maps'. Would you consider contemporary maps as having the same kind of value to societies today?

#### Argument Flow:

- **Characteristics of Hunter-Gatherer Maps:**
  - Medium: Ephemeral (sand, wood, skin, dance, song).

- Content: Not just topographic but cosmological (spiritual beliefs, ancestors).
- Perspective: Often lack standard orientation or scale; focus on the "lived experience" and relational space.

- **Value and Power:**

- Cultural survival: Passing down knowledge of resources and history.
- Political power: Used in modern courts (e.g., Mabo decision in Australia) to prove historical land ownership (Native Title).

- **Comparison to Contemporary Maps:**

- Modern maps value scientific objectivity and standardization over spiritual connection.
- However, contemporary "Story Maps" or "Deep Mapping" attempt to recapture the narrative/emotional value found in indigenous mapping.
- Digital maps (social media check-ins) return to a form of "performative" mapping, documenting personal history.

## 1.4 Topic 5/7 & 8: Social/Political Digital Maps & LBS

### 1.4.1 Sample Question 2 (Digital Bias)

**Question:** Discuss why and how digital maps differ from traditional paper maps regarding social and political biases? Elaborate your answer using concrete examples and personal experiences.

**Argument Flow:**

- **Introduction:** Digital maps are dynamic, interactive, and algorithm-driven, unlike static paper maps. This shifts bias from "design choices" to "data and algorithmic choices."

- **Differences in Bias:**

- *The Digital Divide:* Bias is now about who has the device to map. "Map deserts" exist where there is no commercial value or data (e.g., slums vs. CBDs).
- *Algorithmic Bias:* Search results on Google Maps prioritize paid advertisers or popular spots, rendering smaller businesses invisible.
- *Fluid Borders:* Digital maps can show different borders to users in different countries (e.g., Kashmir appearing differently in India vs. Pakistan).

- **Concrete Examples:**

- Pokemon GO stops located mostly in white/affluent neighborhoods.

- Strava heatmaps revealing military bases (privacy/security bias).
- **Conclusion:** Digital bias is more insidious because it is hidden behind a veneer of technological objectivity and real-time accuracy.

### 1.4.2 Sample Question 3 (LBS Pros/Cons)

**Question:** Please discuss the advantage and disadvantage of using LBS (Location Based Service) in everyday digital life.

**Argument Flow:**

- **Introduction:** LBS uses real-time geolocation data (GPS, WiFi, Cell ID) to provide services. It is ubiquitous.
- **Advantages:**
  - Convenience: Real-time navigation (avoiding jams), finding nearby amenities (food, clinics).
  - Safety: Emergency response tracking, contact tracing (during pandemics).
  - Personalization: Tailored recommendations.
- **Disadvantages:**
  - Geoprivacy: The "Paradox of Geoprivacy." Users trade data for service, often unknowingly.
  - Surveillance: Corporate profiling (Surveillance Capitalism) and potential for state monitoring.
  - Security: Risks of stalking or data leaks (e.g., Strava leaks).
- **Conclusion:** LBS is a double-edged sword requiring greater digital literacy and ethical regulation.

## 1.5 Topic 7: Evolution of Maps

### 1.5.1 Sample Question 4 (Evolution Rational)

**Question:** The evolution of maps in digital era has been largely driven by technology advances... Discuss the rationale of advancing map mapping technologies to human societies.

**Argument Flow:**

- **Introduction:** Shift from paper to GIS to Web 2.0 to Mobile/Cloud.
- **Rationale 1: Efficiency and Management:** Managing complex urban systems, logistics (Grab/Uber), and resources requires dynamic, layered data.

- **Rationale 2: Democratization:** Moving from elite cartographers to "Neogeography" (Citizen Science). Empowering the public (OpenStreetMap) to map their own communities.
- **Rationale 3: Crisis Response:** Real-time data is crucial for disaster relief (Haiti earthquake, floods) where paper maps are too slow.
- **Conclusion:** Technology advances are driven by the need for speed, participation, and the management of an increasingly complex world.

## 1.6 Topic 9: Storytelling

### 1.6.1 Sample Question 5 (Power/Responsibility)

**Question:** Beyond technical aspects, which responsibility do we have when choosing whose stories to be mapped?

#### Argument Flow:

- **Introduction:** Story maps combine narrative with spatial data. Mapping is an act of power that creates visibility.
- **The Power of Selection:**
  - Brian Harley's "Silences of the Map": What is left out is as important as what is shown.
  - Mapping vulnerable communities can empower them (visibility) or endanger them (exposure).
- **Responsibilities:**
  - Representation: Avoiding stereotypes or "poverty porn."
  - Ethics: "Nothing about us without us." Mapping *with* communities, not just *of* them.
  - Accuracy vs. Narrative: Ensuring the story doesn't distort the spatial reality to the point of falsehood.
- **Conclusion:** The mapmaker has an ethical duty to consider the consequences of visibility and representation.

## 1.7 Topic 10: Crowdsourcing

### 1.7.1 Sample Question 6 (Crowdsourcing Pros/Cons)

**Question:** Please discuss the advantages and limitations of crowdsourced and socially sensed data... What challenges must be addressed?

### **Argument Flow:**

- **Introduction:** Definition of VGI (Volunteered Geographic Information) and Citizen Science. Shift from top-down to bottom-up mapping.
- **Advantages:**
  - Speed and Scale: rapid response (e.g., Humanitarian OpenStreetMap Team).
  - Local Knowledge: Mapping places satellites can't see (informal settlements).
  - Cost-effectiveness.
- **Limitations/Challenges:**
  - Data Quality/Credibility: Vandalism, lack of standards.
  - Bias: Who contributes? (Often young, male, tech-literate).
  - Ethics: Privacy of contributors.
- **Conclusion:** To be sustainable, crowdsourcing needs validation mechanisms and inclusivity efforts to bridge the digital divide.

## **1.8 Topic 11: Environment**

### **1.8.1 Sample Question 7 (Climate Change)**

**Question:** Please discuss how digital maps contribute to climate change monitoring, adaptation, and mitigation... What are the societal, ethical, and governance challenges?

### **Argument Flow:**

- **Introduction:** The "One Earth" concept. Maps as a global lens.
- **Contribution:**
  - Monitoring: Deforestation tracking (Global Forest Watch), ice cap melting.
  - Mitigation: identifying sites for renewable energy.
  - Adaptation: Modeling sea-level rise (Singapore's coastal protection), Urban Heat Island mitigation.
- **Challenges:**
  - Environmental impact of IT: "Green AI" vs. the carbon footprint of training large models/data centers.
  - Data Equity: Global South often lacks high-res climate data.
  - Governance: Cross-border data sharing issues.

- **Conclusion:** Digital maps are vital for planetary health but must be developed sustainably and equitably.

## 2 Five New Related Questions

### 2.1 Question 1: The Evolution of "Truth" in Mapping

**Question:** "Traditional paper maps claimed to show the objective truth, while modern digital maps openly embrace subjectivity and personalization." Discuss this statement with reference to the history of cartography and modern LBS.

**Argument Flow:**

- **Introduction:** Contrast the "God's eye view" of the Renaissance/Scientific era with the user-centric view of the Digital era.
- **Traditional "Objectivity":**
  - Renaissance/Colonial maps used mathematics/trigonometry to claim scientific authority.
  - However, this objectivity was often a mask for colonial claiming (Mitchell map) or control (Jackson plan). The "truth" was the mapmaker's truth.
- **Digital Subjectivity:**
  - LBS overtly centers the user ("You are here").
  - Algorithms tailor the map content (search results) based on personal history.
  - Subjectivity is feature, not a bug (e.g., reviews, photos).
- **Synthesis:** Both eras contain bias. Traditional maps hid it behind science; digital maps automate it through algorithms.
- **Conclusion:** The definition of "truth" in mapping has shifted from "absolute geographic accuracy" to "relevant personal utility."

### 2.2 Question 2: Maps as Tools of Exclusion

**Question:** Throughout history, maps have been used as tools of exclusion as much as inclusion. Compare how this dynamic played out in the colonial era versus the digital era.

**Argument Flow:**

- **Introduction:** Maps define who belongs and who doesn't.
- **Colonial Era Exclusion:**
  - Terra Nullius: Maps depicting land as empty to justify colonization (Australia).

- Renaming: Erasing indigenous names and replacing them with European ones (New France, New Britain).
- **Digital Era Exclusion:**
  - The Digital Divide: ”Map Deserts” in favelas or rural areas where data is not profitable.
  - Algorithmic Invisibility: Small businesses not appearing on maps because they don’t pay for ads.
- **Comparison:** Colonial exclusion was often deliberate/political; Digital exclusion is often economic/technological, but the result (invisibility) is the same.
- **Conclusion:** Cartography requires active effort (e.g., humanitarian mapping) to be inclusive.

### 2.3 Question 3: The Shift in Map Ownership

**Question:** ”The greatest revolution in cartography is not the technology, but the map-maker.” Evaluate the shift from state-monopolized mapping to crowdsourced mapping (VGI). What is gained and what is lost?

#### Argument Flow:

- **Introduction:** Define the shift from authoritative (National Mapping Agencies) to asserted (User-generated) data.
- **The State Monopoly (Past):**
  - Maps were state secrets (Cold War, Colonial era).
  - High standards of accuracy but slow updates.
  - Focus on control and taxation.
- **The Crowd (Present):**
  - Democratization (OpenStreetMap).
  - Rapid updates (Disaster response).
  - Focus on user needs and local details.
- **What is Lost:** Standardization, guaranteed liability/accuracy, and potentially national security.
- **Conclusion:** We have moved from a ”regime of truth” to a ”regime of trust” in data.

## 2.4 Question 4: Environmental Monitoring vs. Data Impact

**Question:** Digital maps are essential for solving the climate crisis, yet the infrastructure required to run them contributes to it. Discuss this paradox with reference to "Green AI" and sustainable mapping.

**Argument Flow:**

- **Introduction:** The tension between the utility of digital tools and their physical cost.
- **The Utility:**
  - Digital Twins (e.g., Cooling Singapore) allow for simulation of heat mitigation.
  - Satellite monitoring of deforestation.
- **The Cost:**
  - Energy consumption of data centers hosting cloud maps.
  - Carbon footprint of training AI models for image recognition in maps.
- **Resolution:** The need for "Green AI" (efficiency over raw performance), renewable energy for data centers, and optimizing code.
- **Conclusion:** Maps must become sustainable to effectively advocate for sustainability.

## 2.5 Question 5: The Future of the "Geo-body"

**Question:** Thongchai Winichakul coined the term "Geo-body" to describe how maps created the nation-state. In an age of fluid digital borders and global connectivity, is the concept of the "Geo-body" still relevant?

**Argument Flow:**

- **Introduction:** Define Geo-body (the identification of the self with the territorial shape of the nation).
- **Relevance Remains:**
  - Territorial disputes (South China Sea, Pedra Branca) show that physical borders still matter intensely to governments.
  - Nationalism is often visualized through the map shape (logos, education).
- **Relevance Challenged:**
  - Digital flows (information, capital) ignore borders.

- Digital maps can change borders based on IP address (Google Maps' fluid borders), destabilizing the fixed image of the "Geo-body."
- **Conclusion:** The "Geo-body" remains politically potent, but digitally, it is becoming more porous and malleable.