

Human-Computer Interaction

Lecture 2: Visual representation

	Graphic Resources	Correspondence	Design Uses
Marks	Shape Orientation Size Texture Saturation Colour Line	Literal (visual imitation of physical features) Mapping (quantity, relative scale) Conventional (arbitrary)	Mark position, identify category (shape, texture colour) Indicate direction (orientation, line) Express magnitude (saturation, size, length) Simple symbols and colour codes
Symbols	Geometric elements Letter forms Logos and icons Picture elements Connective elements	Topological (linking) Depictive (pictorial conventions) Figurative (metonym, visual puns) Connotative (professional and cultural association) Acquired (specialist literacies)	Texts and symbolic calculi Diagram elements Branding Visual rhetoric Definition of regions
Regions	Alignment grids Borders and frames Area fills White space Gestalt integration	Containment Separation Framing (composition, photography) Layering	Identifying shared membership Segregating or nesting multiple surface conventions in panels Accommodating labels, captions or legends
Surfaces	The plane Material object on which the marks are imposed (paper, stone) Mounting, orientation and display context Display medium	Literal (map) Euclidean (scale and angle) Metrical (quantitative axes) Juxtaposed or ordered (regions, catalogues) Image-schematic Embodied/situated	Typographic layouts Graphs and charts Relational diagrams Visual interfaces Secondary notations Signs and displays

ANALYSIS EXAMPLES

Kyrie eleison (I)
Adagio

The musical score is arranged in a system with the following parts from top to bottom:

- Flauto traverso 1
- Flauto traverso 2
- Oboe d'amore 1
- Oboe d'amore 2
- Fagotti
- Violino 1
- Violino 2
- Viola
- SOPRANO 1
- SOPRANO 2
- ALTO
- TENORE
- BASSO
- Continuo

The lyrics for the vocal parts are:

SOPRANO 1: Ky - ri - e, Ky - ri - e - - - - - le - - - i - son, e - - - le - - i - son.

SOPRANO 2: Ky - ri - e - - - - - le - - - i - son, e - - - le - i - son, e - - - i - son.

ALTO: Ky - ri - e - - - - - e - - - le - i - son, Ky - ri - e - - - - - e - - - le - - i - son.

TENORE: Ky - ri - e, Ky - ri - e, Ky - ri - e e - - - le - i - son.

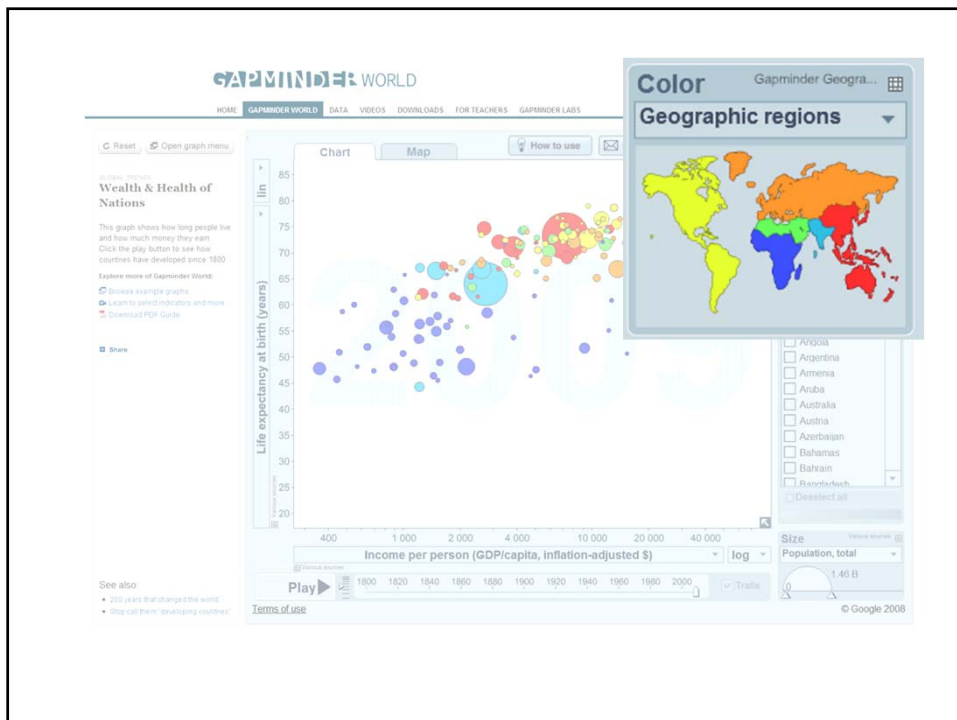
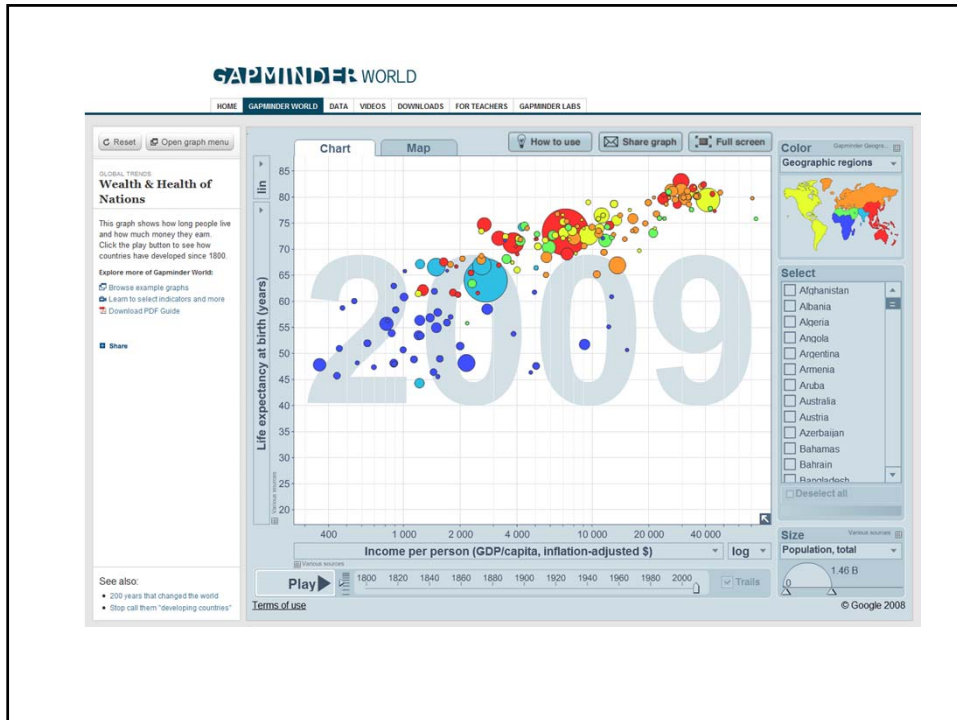
BASSO: Ky - ri - e, Ky - ri - e, Ky - ri - e e - - - lei - - - son.

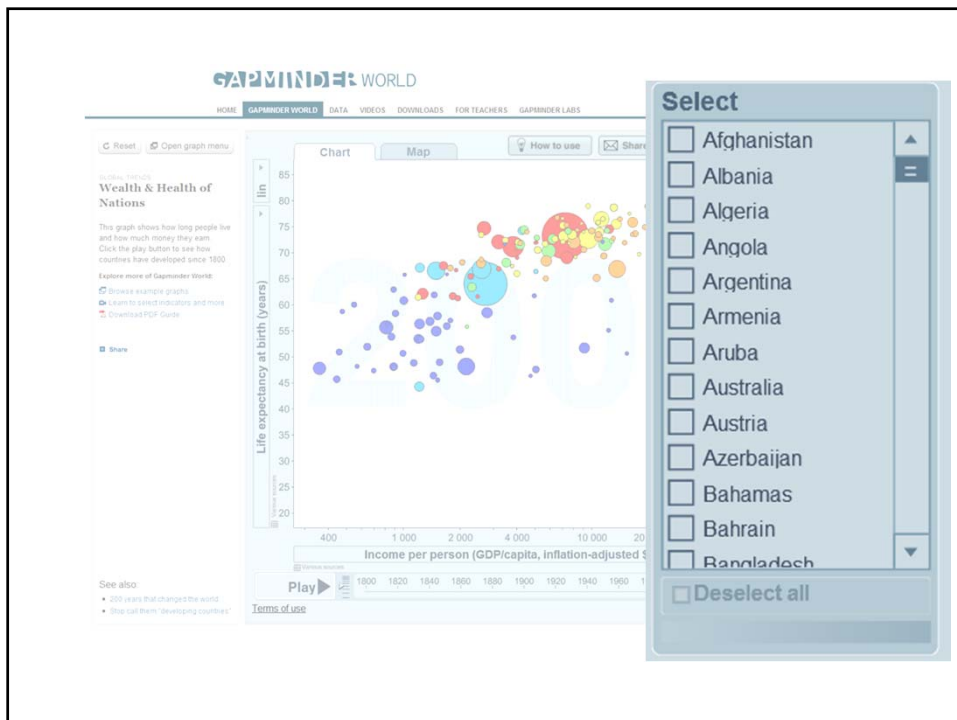
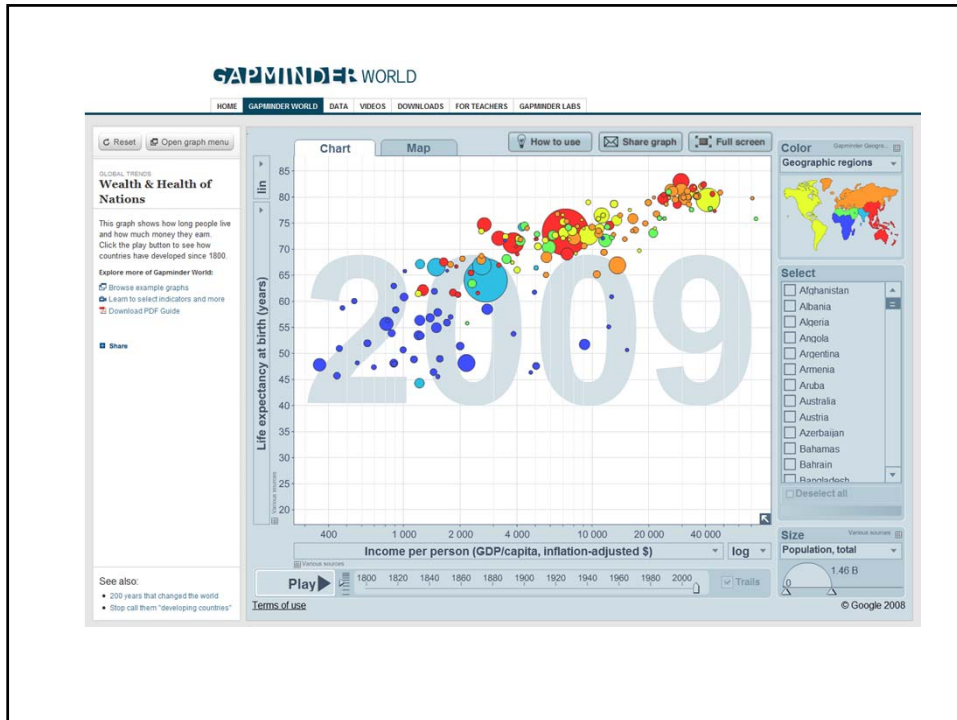
The Continuo part includes figured bass notation: 7 6, 7 6, 6 9 8, 6 5, 6 7 6, 7.

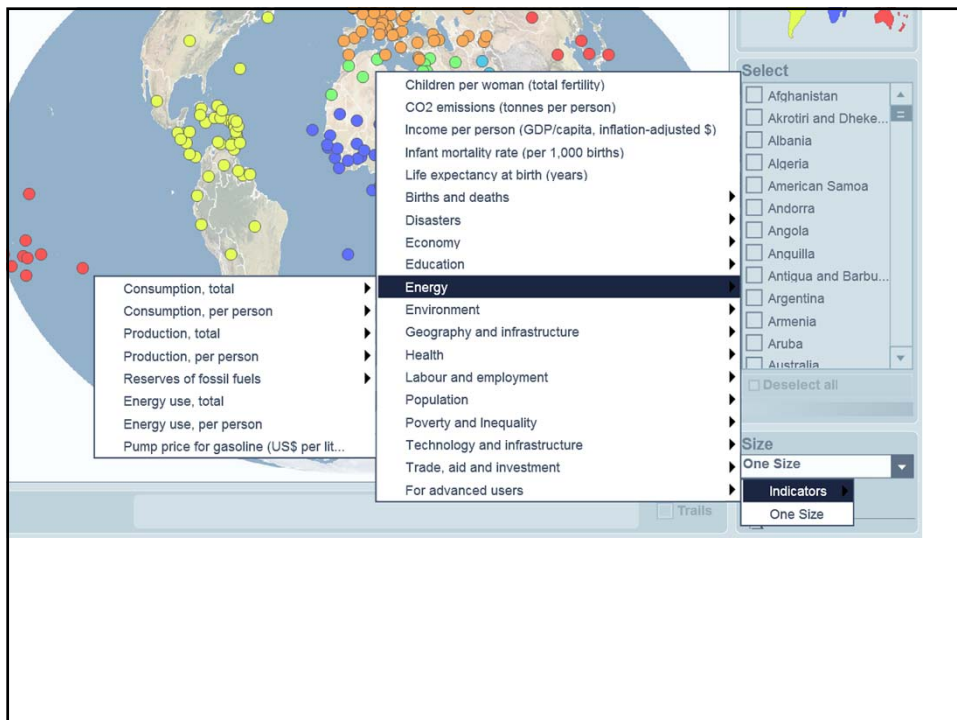
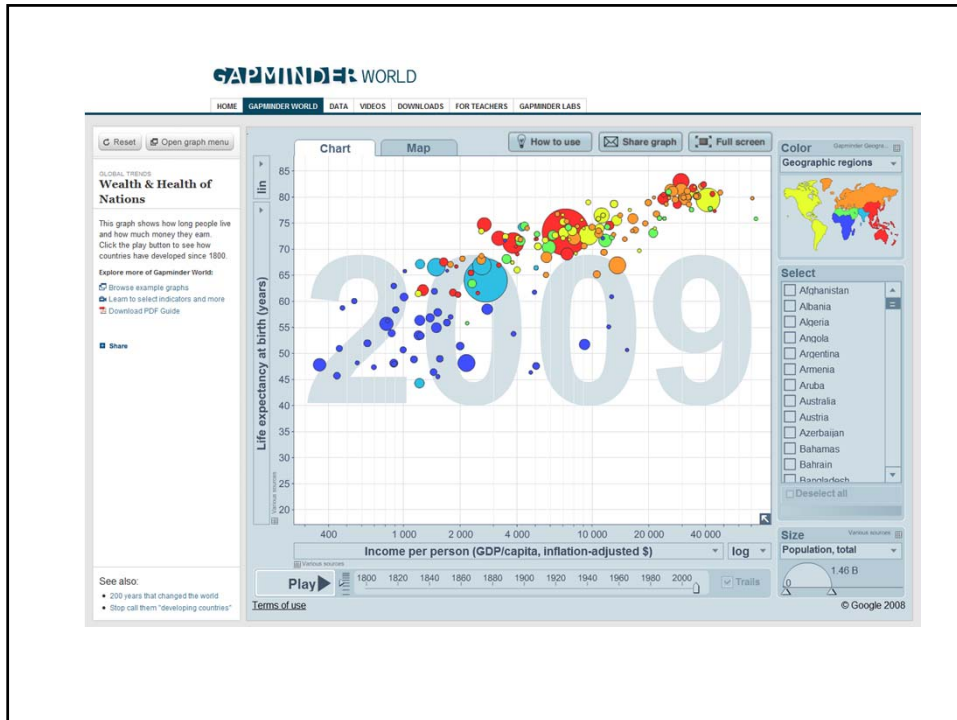
BASSO

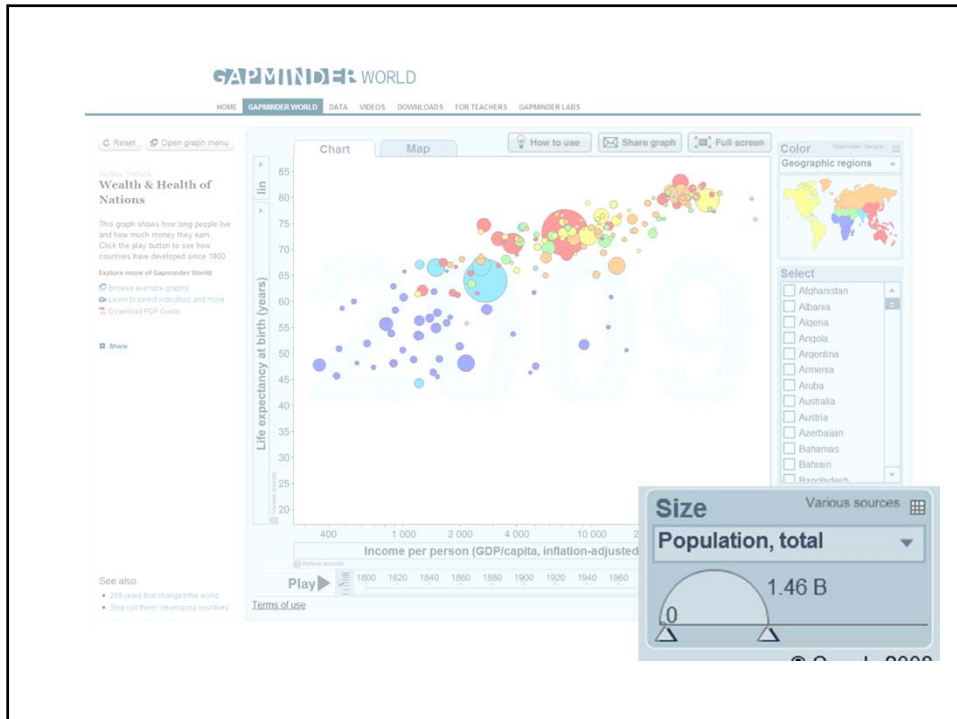
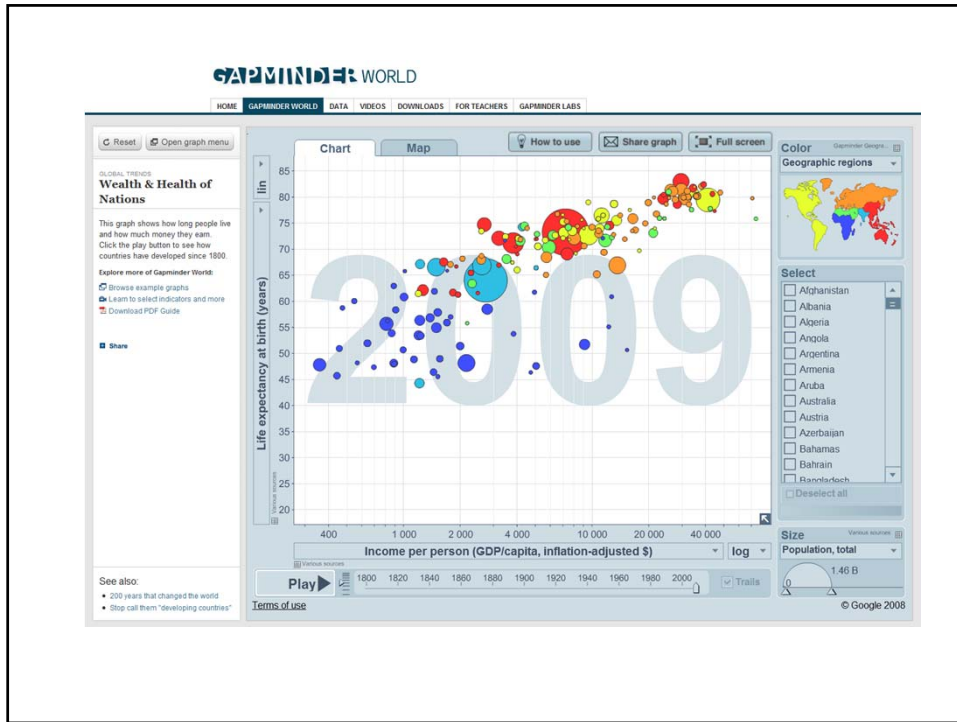
Ky - ri - e, Ky - - ri - e,

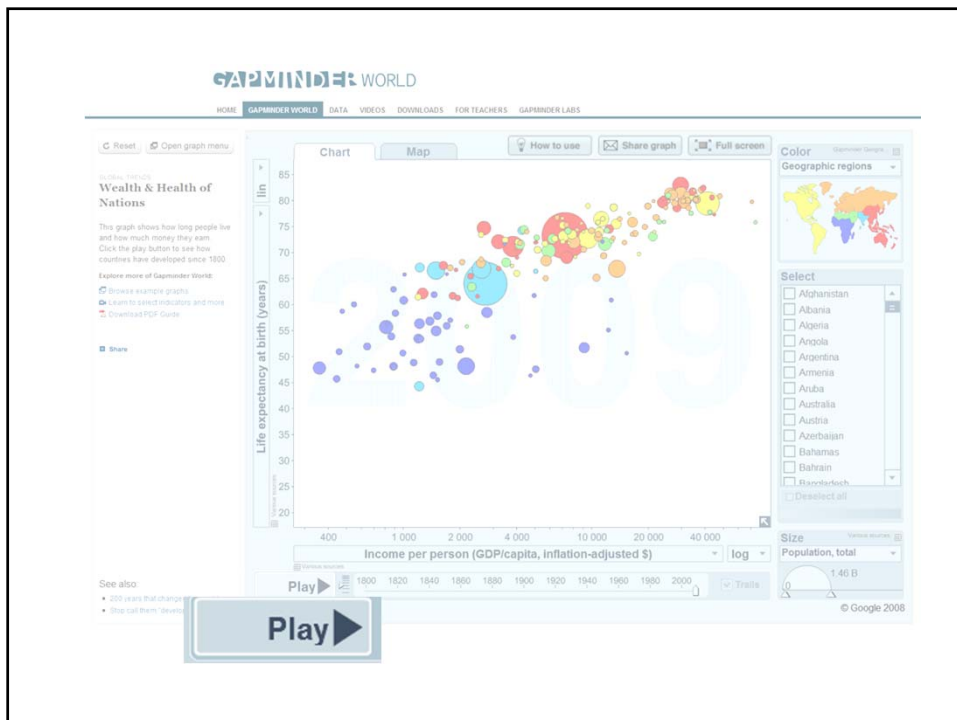
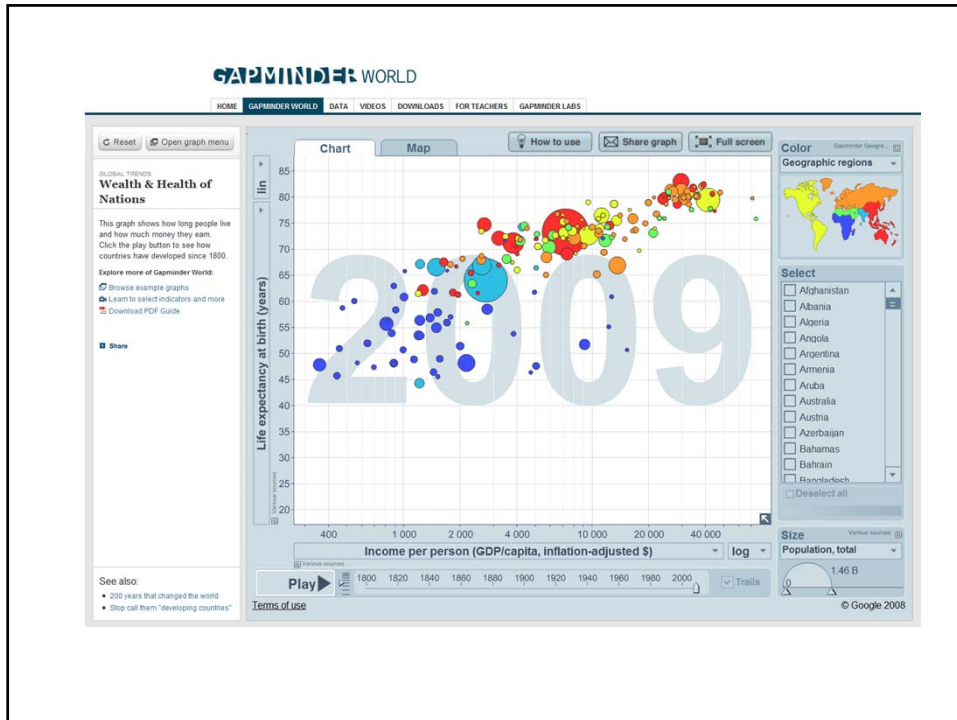
	Graphic Resources	Correspondence	Design Uses
Marks	Shape	Conventional (arbitrary)	Mark position identify category (shape)
Symbols	Geometric elements Letter forms Connective elements	Topological (linking) Acquired (specialist literacies)	Texts Definition of regions
Regions	Alignment grids White space	Containment Separation	Segregating and nesting multiple surface conventions in panels Accommodating labels
Surfaces	Material object on which the marks are imposed (paper)	Metrical (quantitative axes) Juxtaposed and ordered (regions)	Musical score

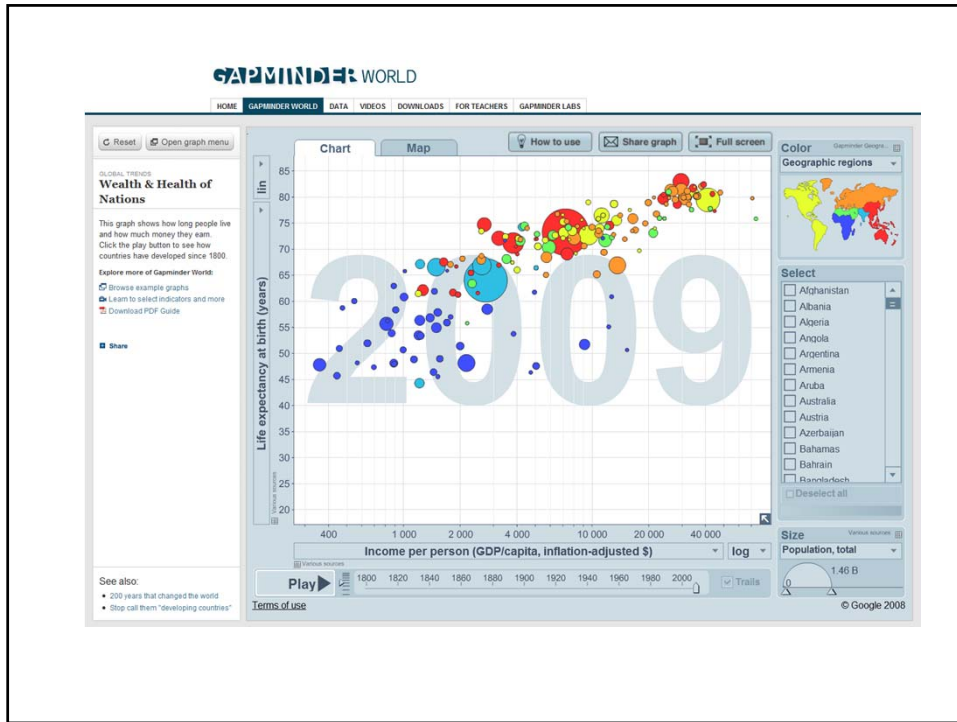


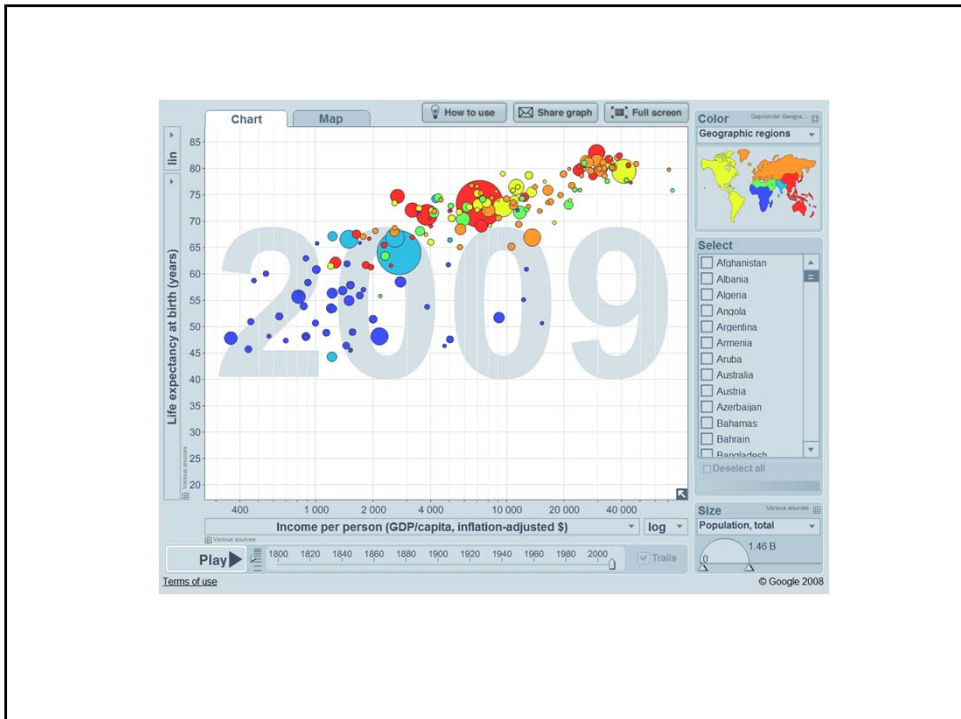
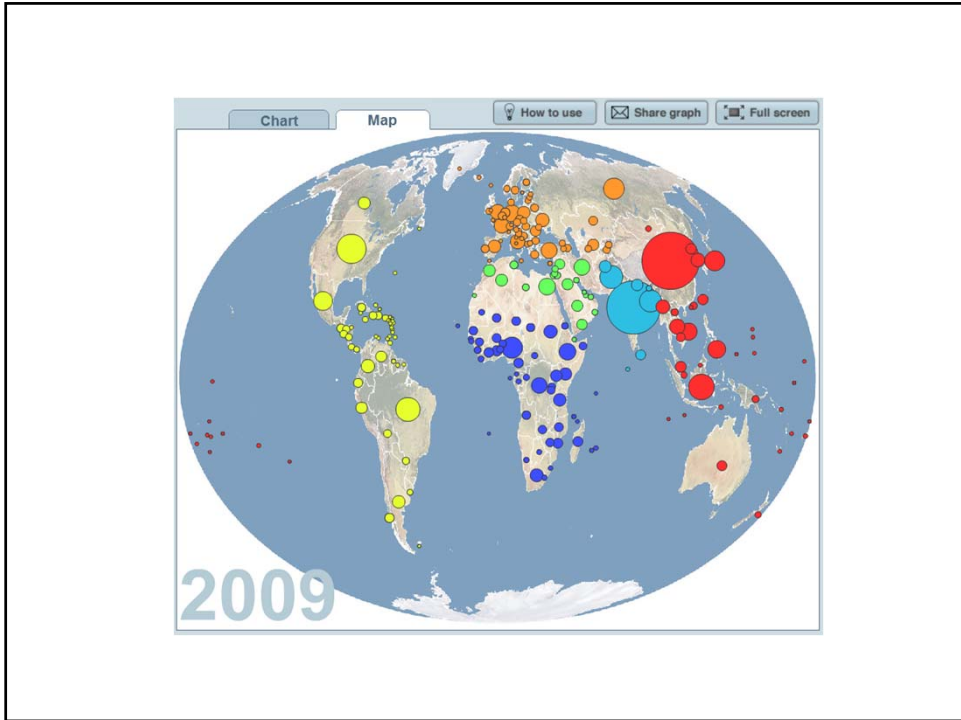


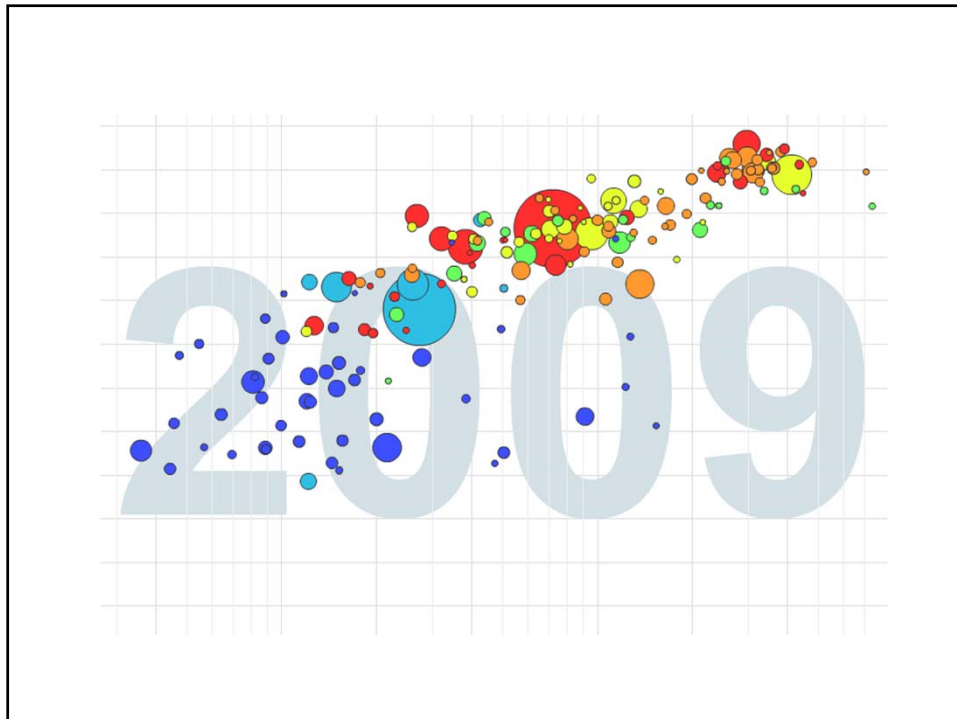
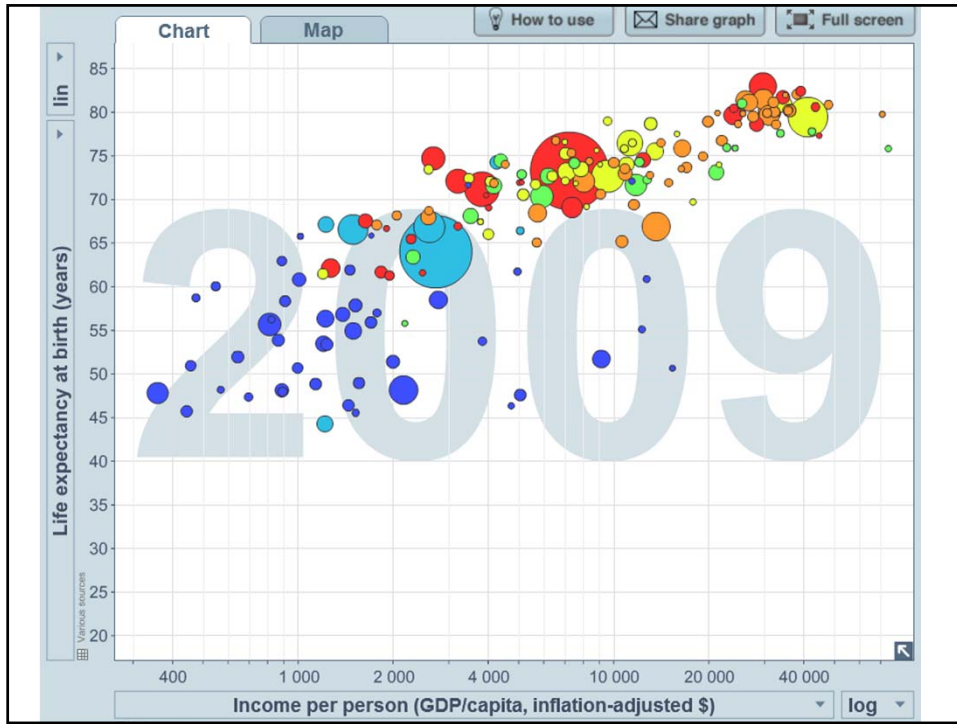












	Graphic Resources	Correspondence	Design Uses
Marks	Size Colour	Mapping (quantity, relative scale)	Mark position identify category (colour) Express magnitude (size)
Symbols	Geometric elements Connective elements	Topological (linking)	Diagram elements Visual rhetoric
Regions	Alignment grids	Containment Separation Framing (composition)	Segregating or nesting multiple surface conventions in panels Accommodating labels, captions or legends
Surfaces	Display medium (web browser)	Metrical (quantitative axes) Image-schematic?	Graphs and charts

WORKED EXAMPLE

- Visit Guardian data blog
- Browse "Data A-Z"
- Propose new visualisation

The screenshot shows the Guardian Data Store website. At the top, there is a navigation bar with links for News, Sport, Comment, Culture, Business, Money, Life & style, Travel, Environment, Tech, TV, Video, Dating, Offers, and Jobs. Below this is a search bar and a 'DATA STORE' header with the tagline 'Facts are sacred'. The main content area is divided into several sections:

- Latest from the Datablog:** Features an article titled 'Dangerous drivers: how old are they really?' with a photo of a busy road and a sub-headline 'A government report has suggested that the minimum driving age should be raised to 16. Is that likely to create safer roads?'. It has 2 comments.
- Editor's picks:** Includes an article 'The world's wealthy: where on earth are the richest 1%?' with a sub-headline 'A new report from Credit Suisse reveals striking inequalities – such as 35% of Russia's riches in the hands of 110 people'. It has 151 comments.
- Why do energy bills rise?:** Sub-headline 'The energy firm SSE has claimed it had to raise prices due to factors not under its control – factors such as global markets and government green energy levels. We check the claims against the numbers'. It has 9 comments.
- What information can retailers see when they track customer movements?:** Sub-headline 'Customers have shown concern about businesses using physical tracking – but they might feel differently if they knew the data that was being used'. It has 2 comments.
- Number of university students seeking counselling rises 33%:** Sub-headline 'Demand for counselling services on campuses in the UK has risen by a third since 2008 according to a new investigation'. It has 3 comments.
- Investigate politicians' expenses:** Sub-headline 'We've made politician's expense claims available in a searchable database. Help us fix claims to events'. It has 30 comments.
- Football-related arrests: how does it differ by club and offence?:** Sub-headline 'Football-related arrests rose by 4% during the 2012-13 season according to the Home Office. See how the figures break down by club, location and offence type'. It has 45 comments.
- Literacy and numeracy: which country tops the league?:** Sub-headline 'When it comes to literacy, numeracy and basic problem-solving, which is the strongest labour market in the world?'. It has 33 comments.
- The Sun says 1,200 people have been killed by 'mental patients' – is it true?:** Sub-headline 'The front page of the Sun on Monday carried an "exclusive" about a "dangerous crisis in'...'. It has 3 comments.

On the right side, there is a 'Highlights' section with various data visualizations and a 'Public spending' section with a chart titled 'Your taxes spent'. At the bottom right, there is an advertisement for 'THE NEW £229 HP CHROMEBOOK FOR EVERYONE' and a section titled 'About the Datastore' with a link to 'Data journalism at the Guardian: what is it and how do we do it?'.