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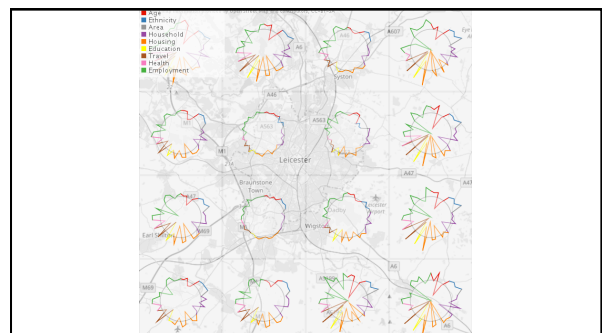
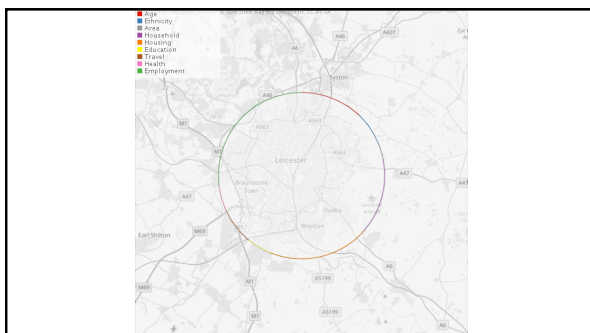
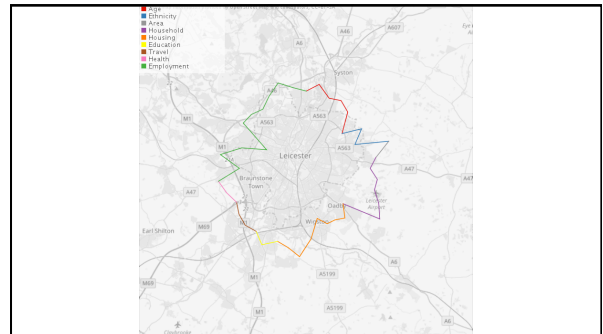
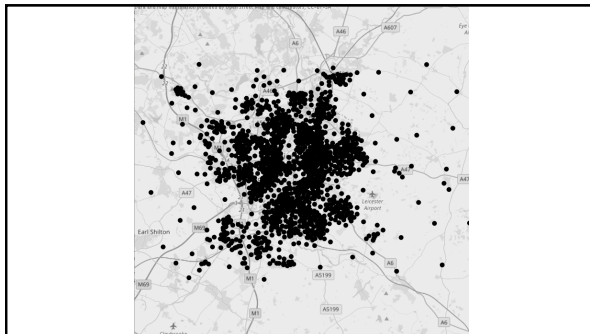
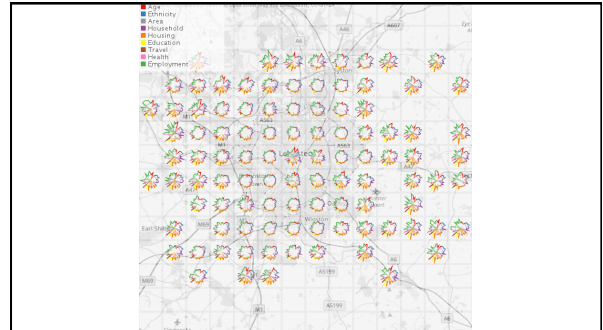
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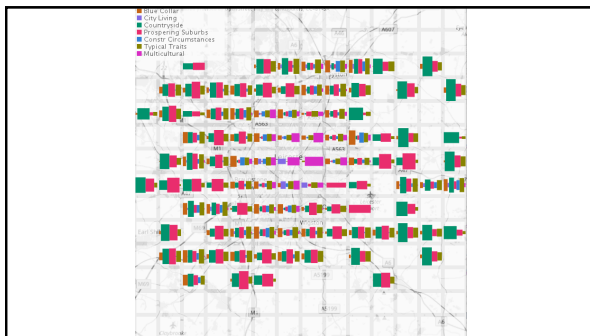
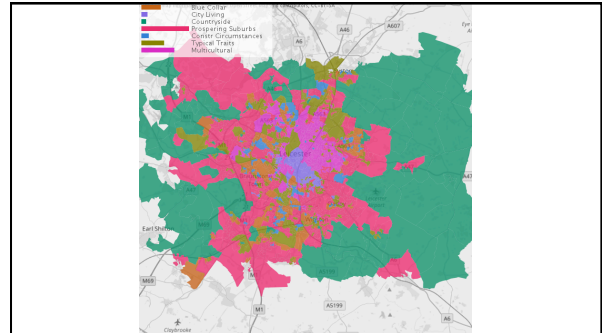
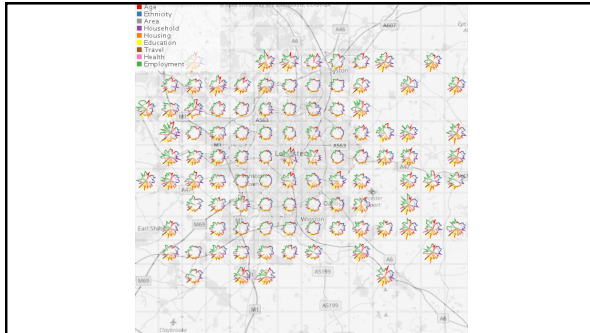
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Tilemaps for Summarising Multivariate Geographical Variation

Depict multivariate variation over geographical space by placing glyphs on maps

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WHAT FOR?

What for?

- Multivariate data
- Different measures
- Statistical distributions

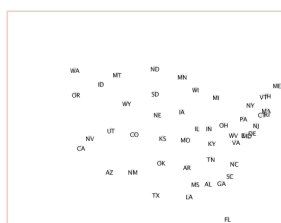
CONTIGUOUS AND NON-CONTIGUOUS LAYOUTS

DESIGN SPACE

Design space

- **Type of layout:** contiguous or non-contiguous, partial geographic layouts, sq/rect/hex
- **Layouts:** MAUP, density of variation
- **Glyph design:** can be anything... but: shape, ease of comparison, geographic precision and glyph complexity tradeoff

Type of layout: partial geographic layouts



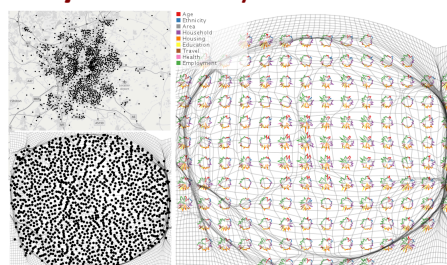
Type of layout: partial geographic layouts



Layout: Modifiable Areal Unit Problem

- Re-aggregating data in tiles can deal to artefacts
 - The “Modifiable Areal Unit Problem” (MAUP)
- Possible ways to deal with this
 - Interactively move the grid around
 - Allocate data points at edges of cell to all adjacent cells using inverse-distance-weighted function

Layout: density of variation



Glyph design: shape

- Glyphs that fit inside tiles

Glyph design: ease of comparison

- Facilitate comparison in all directions
- Consistent layout
- Symmetrical

Glyph design: geographic precision and glyph complexity tradeoff



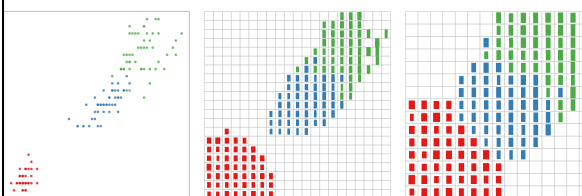
(Possible) disadvantages

- Glyphs break up geographical continuity
- Modifiable Areal Unit Problem
- Geographical distortion may vary (for non-contiguous layouts)
- Are they readable?

(Possible) advantages

- Depict multivariate data across space
- Associations between variables (at locations)
- Rich summaries possible
 - Multivariate data
 - Different measures
 - Statistical distributions
 - Geographically-weighted statistics

Also works for non-geographical space



<http://openaccess.city.ac.uk/15167/>

More rich **geographical** summaries
of multivariate data please!