

3. Conceptual Entities Used to Segment Lines

We invoke convenient entities within fictional conceptual models to bootstrap knowledge. A number of different areal units have been investigated within line modelling. Here, is a starter list:

- Convex hulls and the Concavity Tree (Sklansky)
- unidirectional *parts* for recognition (Hoffman and Richards, 1982 - an inspirational work)
- nested shape-defining and part-defining triangular regions for elimination (Visvalingam and Whyatt, 1993; Visvalingam and Williamson, 1995)
- bi-directional bends for elimination (Wang, 1996)
Bend elimination on its own may provide better results than the integrated Bendsimplify algorithm
 - Visvalingam and Whyatt (1990) - Carmarthen Bay
 - Visvalingam and Herbert (1999)
 - Large-scale road data
 - Coastline of Humberside

Perhaps the Swiss Society of Cartography were thinking in term sof parts rather than bends!

- nested branches (mentioned by Wang and Muller)

van der Poorten and Jones (this Workshop)

4. The CISRG approach to line structuring (Case study - large-scale road boundary)

- Pre-process with Visvalingam's algorithm to rank points.
- Use rank in post-process to segment parts

Problems:

- ◇ points which share rank can be in different regions
- ◇ regions can become segmented due to spurious data
- ◇ not all regions should be segmented; some are shape-defining
- ◇ semantic components may overlap
- ◇ the bounding points of regions need adjustment

Segmentation also requires:

- ◇ domain knowledge to identify semantic entities, e.g. branch roads, filleted curves, curves and inflections in road, car parking bays.
 - ◇ additional data-dependent rules
- Segmentation is recursive and yields a hierarchic part structure.
 - Parts are distinguished from shapes on geometric criteria.

STATUS

- comparing depth-first with a different approach
- journal paper in pipeline