Variable stroke width in Inkscape
Outline

- Live Path Effects
- LPE examples
- Powerstroke
Live Path Effects = “LPE”

- Live on-canvas editability of non-destructive path modifications
- Since GSoC 2007 → Inkscape 0.46

- Mechanism
  1. Store original path in `inkscape:original-d` attribute in SVG
  2. Do math ← LPE
  3. Write result to the `d` SVG attribute (the normal SVG path data location)

- Other SVG editors/viewer will only 'see' the result after the LPE

- Live Math Effects
  - Heavy use of `lib2geom`
  - `lib2geom workshop in the afternoon`
Live Path Effects – Possibilities and limitations

- Path output **only**
  - Style (color, gradient, etc.) cannot be modified by an LPE
  - For example, LPE Interpolate only interpolates path data, not colors

- LPE stack: effects in series (!!!)
LPE examples
LPE Powerstroke

- Variable stroke width along a path
- Width is edited using the purple knots
- Stored in SVG as a list of (location, width) pairs
  - 0, 5
  - 1.6, 6.3
  - 2.4, 7.3
  - 2.7, 6.4
  - 3, 2.2
- Work in progress!
- To try it out: it is currently in trunk!
Powerstroke output

- Output is a path **outline**
  - **Filling** the result looks like a stroked path
Powerstroke – Joins

- SVG defines 3 types
  - Bevel
  - Rounded
  - Miter (a hat)

- Powerstroke adds 2 new types
  - Spiro (sort of rounded)
  - Extrapolated (sort of miter)
Powerstroke – Sorting control points

- Control points are sorted automatically
- Can be turned off for 'advanced' use
LPE Clone original path

- Accompanying LPE to fill 'powerstroked paths'
- Outputs the original-d path from a referenced path
  - Ignores the original-d of the path it is applied to
- Clone can have a style independent of style of the original
  (not possible with normal clones)
Future work

- Improve the math
  - Fix outline for overlapping parts
  - Speed?

- Improve UI
  - (more) Preset parameter styles
    - Saving of user presets?
  - Calligraphy tool option to output powerstroke path
  - On-canvas control of more parameters

- Asymmetric stroke width

- ...? :-(