EditEngine on the Overlay
It’s a long way to Tipperary

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Agenda

- Background/Where do we come from?
- First big change – CTL/RTL/TTB
- Second big change - Primitives
- Remaining Problems
- Suddenly – a performance Bug (OMG)
- Third big change - Overlay
- Future: Where could we go...?
- Did you know about TextOnCurve...?
Background – Where do we come from?

Where is it used?
- For interactive Editing: DrawObject Text, MultiLineEdit, TableCell (Calc), all Apps
- For ModelDataChange in core: for all kinds of Text manipulation

Why does it exist?
- Why not use Writer as TextEdit plugin – early tries, HelpSystem, MemLoad, Performance

Basic technic for rendering:
- A vcl::Window (!OutDev) plugin/proxy, all msg passing methods overloaded, direct rendering and layouting
- Works on OutlinerParaObject as data object, operator==, Redlining, Text as String per Paragraph, ParaPortions, ItemSets
First big change – CTL/RTL/TTB

> Massive adoptions, need to write Right-ToLeft, Anchor Top-Right
> TopToBottom: Similar, but another coordinate System again
> All changes executed through multiple complex layers (also Mouse, Selection, ...)
> Result is working CTL/RTL/TTB
> Result is also a non-obvious mix of CoordinateSystem
> The question to ask yourself when you have to touch it: “In which coordinate system am I right now?”
> Would have been better to use linear Transformations/homogen Matrices
Second big change - Primitives

> EditMode: Keep direct rendering

> Layout/Core mode:
  - Decompose to TextPrimitives (Simple/Complex)
  - Sequence of Primitives, deep Structure (Line/Paragraph, ...)
  - Reusable, buffered decompose due to operator== in OutlinerParaObject (before: every paint of every text in every object → setup Outliner, let it layout and paint)
  - Layouted on Top-Left Point(0.0, 0.0)
  - Result is Transformable, so it could follow ObjectTransformations the first time ever (Mirroring, Rotation, Shear, ...)
Remaining Problems

- Acceptable Solution, working for quite some time unchanged
- ‘Fake’ grow/shrink of edited object, may lead to problems
- Still based on direct paint, vcl::Window, OutputDevice
- PrimitiveDecomposer and DirectRendering in parallel, potential differences (see URLs in TextEdit)
- ‘Exceptional’ State in Apps’ EditViews, Overlay disabled (Window, direct), hack to paint at least to OutputDevice
- HeavyEditMode Setup/Shutdown (ever looked at BeginTextEdit...?)
- XOR-Paints for Selections
- The last part in Draw/Impress drawing directly to OutputDevice
Suddenly – a performance Bug (OMG)

> In direct paint/edit mode, EditEngine uses a ‘guessed’ Color (‘handed over at setup) to paint areas getting visible

> This was removed – sure by good intention, but with triggering complete Repaint of the Background when changes happened (every character)

> Usually fast enough, but not with expensive Backgrounds. Remember: Overlay functionality limited in that mode...

> What to do...

  - Bring back the ‘guessed’ color..?
  - Or ... take the chance, do it right, go one step further?
Third big change - Overlay

- Existing Decompose is very stable
- We have working Overlay in all Applications
- Implement an OverlayObject, connect to EditEngine, do not render directly anymore
- Get Primitive Decomposition for visualization (in Overlay)
- At long last: transparent Selection visualization in user-defined color – as done in Writer for some time (on Overlay, too)
- Get away from that ‘exceptional’ paint mode (not completely – MultiLineEdit, Cells)
- Performance Problem is gone, no more Background repaint needed, completely System-Independent
Future: Where could we go…?

- Rework/Remove RTL/CTL/TTB, just use Transformations
- Simpler adaption to run embedded – vcl::Window binding, proxy functionality
- Line/Paragraph buffering of Primitives in OutlinerParaObject
- Use in MultiLineEdit, TableCells → get rid of direct paint completely
- Support InterActionHandles and TextEdit at the same time
- Support TextEdit in transformed mode – do not snap back to centered, non-transformed – do real WYSIWIG
Did you know about TextOnCurve

> Combined with EditMode and Transformation, real WYSIWIG would be nice to have...