Dyalog APL support for LATEX
(a work in progress)

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About

LATEX functionality:

- LATEX is programming language
- but sometimes very awkward to use
- and TEX is sometimes voodoo...
- TeXstudio is very good but not perfect

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- use APL functions as help

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Outline

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Outline of section on LATEX-usage in ERGO

In this section we outline:

Specifications specifications and documentations

Documents legally binding or official documents

Communication communication and presentations

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Target WS framework

How do we use LATEX for internal documentations?

- specification of health core functionality (health, Fachvorgabe Rechenkern)

- specification and discussion of IFRS17 model (health)

- documentation of APL workspaces (health)

- specification and documentation of privileges (health)

- diverse small actuarial "papers"

- R output through R Markdown

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WS builds for different purposes

How do we use LATEX for official documents?

- plan specifications/descriptions (life, Geschäftspläne and health, Technische Berechnungsgrundlagen)
- balance sheet (life, Anhang zum Geschäftsbericht)
- declaration of capping scheme (health, Limitierungserklärung)

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External and internal communication

How do we use LATEX for communication?

- external letters et cetera for supervising authority (life, BaFin)
- internal presentations (health, beamer theme)

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In this section we outline:

Necessities usage summary and derived necessities

Interaction interaction with LATEX and TeXstudio

Pre-compiler creation of data as pre-compiling

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What is LATEX needed for?

- very big and/or complex projects

- many tables, partially coming out of programs

- complete documents/projects created under program control

- official and/or legally binding documents

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What support is needed for LaTeX?

- easy export of APL matrices as LaTeX code

- compilation through DOS commands and parsing of log files

- search and replace functionality for whole projects

- creation of messages for and control of TeXstudio

- automated creation of actuarial notation basis

- automated change log in document for audit purposes

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Dyalog APL as controller

Workspace LATEX is interface between Dyalog and LATEX

- ns **tex** is main ns of LATEX
- ns **tex.gener** contains general functionalities
- ns **tex.imp** contains functions for importing LATEX files
- ns **tex.exp** contains functions for exporting data and handling LATEX or TeXstudio

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Dyalog APL as pre-compiler

Workspace LATEX creates input for LATEX compilation, instructions
are included in the document itself

- ns **tex.notat** contains functions for analysing notation
    - big part of actuarial notation based on multi-indexed symbols
    - possible to analyse defined and used macros of the sort
    - descriptions may be provided in "database"
- ns **tex.svn** contains functions for analysing SVN revisions
    - SVN repositories, revisions and commentaries may be analysed
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    - results can be presented as tables

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LATEX-usage in ERGO   Necessities
APL-support for LATEX   Interaction
                             Pre-compiler

Conclusion

Stand:

- migration from APL+Win to Dyalog almost done
- code refactoring necessary
- many enhancements planned
- GUI to be added

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