ooRexx at the European Patent Office

Rony G. Flatscher, WU (http://www.wu.ac.at)
European patent protection
- 37 member states
- Estimation: ~70% of the human knowledge documented as patents

Patent application in English, French or German

Patent examiners
- Highly skilled, multilingual experts
- Mostly academics
- Non-trained programming skills ("end-user")

EPOQUE search system
- Intellectual Property (IP) Information Retrieval
- Full, multilingual indexing of patent related texts
- Additional (re-)search resources from facsimile libraries, electronic libraries, scientific databases, ...
A few notes on searches
- Retrieving more results than earlier paper-only searches
- Missing a relevant document may incur serious problems

Indicators, terms
- "Recall"
  - Completeness: are all related documents retrieved?
- "Precision"
  - Exactness or fidelity: are all relevant documents retrieved?
- "Retrieved documents"
  - List of documents produced by a query
- "Relevant documents"
  - List of all documents that are relevant for a certain topic
Recall = \frac{|\{\text{relevant documents}\} \cap \{\text{documents retrieved}\}|}{|\{\text{relevant documents}\}|}

Precision = \frac{|\{\text{relevant documents}\} \cap \{\text{documents retrieved}\}|}{|\{\text{documents retrieved}\}|}

Never forget! we need excellent recall, then precision.

Source: EPO 2011
- Mainframe based Java server application
  - Integrates databases
  - Proper query language (EPO query language)
- Rexx and ooRexx script programs ("preparations")
  - Dispatched from Java
    - Bean scripting framework (BSF) for Rexx (and BSF4ooRexx)
  - Narrow search results
  - Create integrated reports
  - Available
    - Patent examiners as authors, located in their "sandbox"
    - Publically in "tool evaluation area", most successful ones turn to
      "EPOQUENet Applications" in "production tool evaluation area"
    - Top ten preparations used appr. *four million times/year*!
Rexx and ooRexx Preparations

- Rexx and Object REXX originates at IBM
  - IBM SAA procedural language (scripting language)
  - Available for all IBM operating systems
  - Opensourced version: "Open Object Rexx" (ooRexx)
- Appr. 200.000 (!) Rexx preparations in existence
  - Mainly *developed by patent examiners themselves*, not professional programmers!
  - Appr. 5.000 EPO patent examiners employ these programs
- Professional management of Rexx preparations
  - "Knowledge capture team"
  - Determining most used public Rexx preparations
    - Creating and maintaining "EPOQUENet Applications"
  - Maintenance and rollouts systematically organized
Background
Enabling Concepts, 1

- Rexx intended to replace awkward EXEC2 on IBM mainframes in 1970
  - Original author: Mike F. Cowlishaw (IBM Fellow, England)
  - Major design aim: "human oriented language"
  - First language designed using multi-national input

- Concepts of Rexx
  - Interpreter, no compiler infrastructure needed
  - Behaviour should be intuitive to users (programmers)
    - Interpreter not necessarily easy to implement
  - No strict case (everything gets uppercased)
  - No strict type (everything is a string)
  - Should be a *small* language (easy to remember)
Enabling Concepts, 2

- Concepts of Rexx (continued)
  - English like language (easy to read)
    - Looks like an easy to comprehend pseudo code language
  - Simple syntax (no complex or awkward syntax rules)
    - No signature based functions
  - Associative arrays ("stems")
  - Simple extension mechanism for adding external functions

- Concepts of ooRexx in addition
  - Everything is an "object"
  - Explicit message operator (the tilde ~)
  - Easy to define classes and methods
  - UNKNOWN mechanism
    - E.g. BSF4ooRexx can camouflage Java as if it was the dynamically typed, caseless object-oriented programming language ooRexx.
Links (As of 2011-11-29)

- Homepage ooRexx: [http://www.ooRexx.org](http://www.ooRexx.org)
- Homepage BSF4Rexx: [http://wi.wu.ac.at/rgf/rexx/bsf4rexx/current/](http://wi.wu.ac.at/rgf/rexx/bsf4rexx/current/)
- Homepage BSF4ooRexx: [http://wi.wu.ac.at/rgf/rexx/bsf4oorexx/current/](http://wi.wu.ac.at/rgf/rexx/bsf4oorexx/current/)
- Some student's work, many of them being "end-user" kind of programmers; Open Office related papers explore and give examples on programming OpenOffice.org with ooRexx [http://wi.wu.ac.at/rgf/diplomarbeiten/](http://wi.wu.ac.at/rgf/diplomarbeiten/)