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ooRexx at the European Patent Office

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EPO – European Patent Office

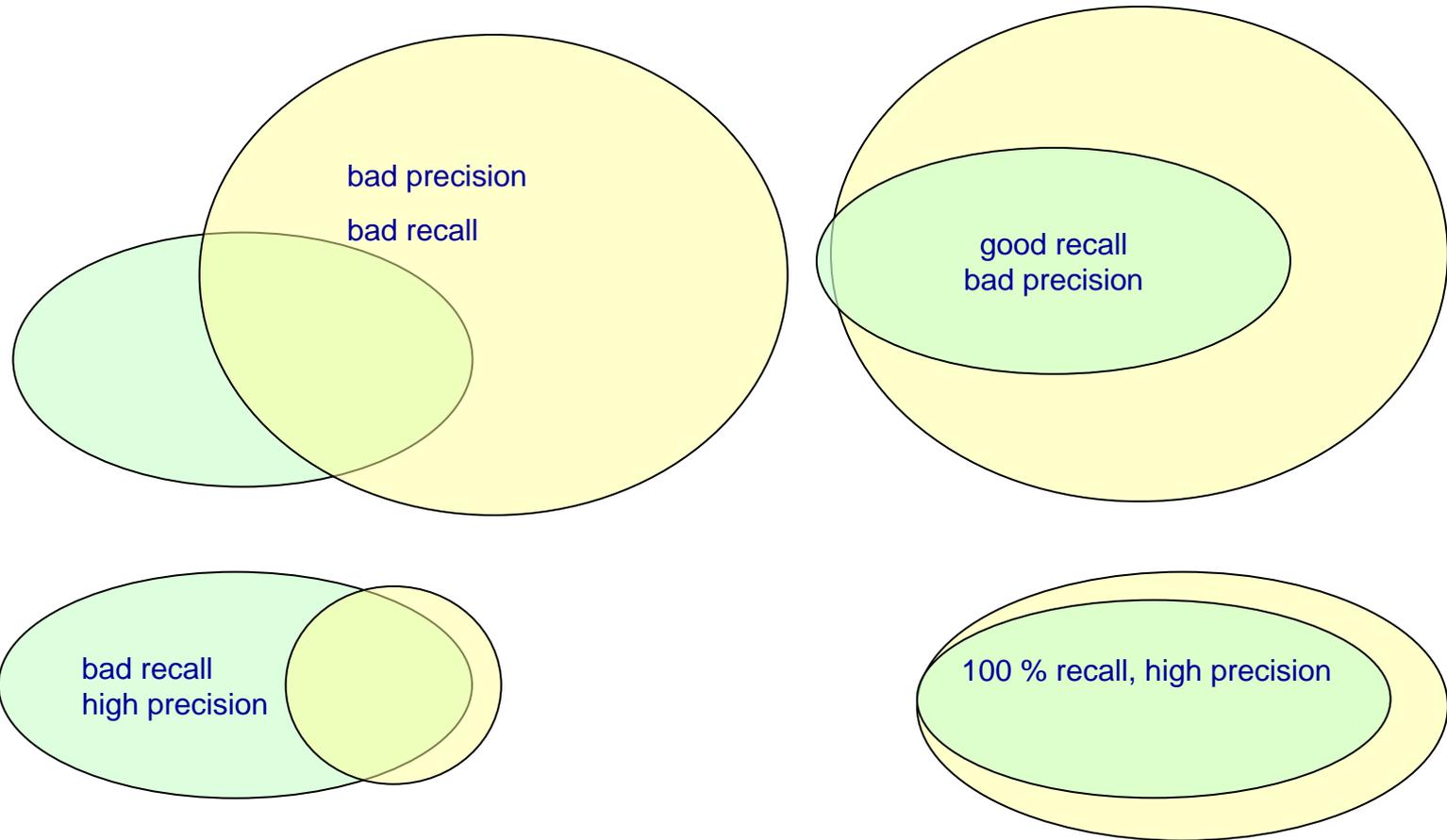
- European patent protection
 - 37 member states
 - Estimation: ~70% of the human knowledge documented as patents
- Patent application in English, French or German
- Patent examiners
 - Highly skilled, multilingual experts
 - Mostly academics
 - Non-trained programming skills ("end-user")
- EPOQUE search system
 - Intellectual Property (IP) Information Retrieval
 - Full, multilingual indexing of patent related texts
 - Additional (re-)search resources from facsimile libraries, electronic libraries, scientific databases, ...

Recall, Relevance, Precision

- 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

$$\text{Recall} = \frac{||\{\text{relevant documents}\} \cap \{\text{documents retrieved}\}||}{||\{\text{relevant documents}\}||}$$

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



Never forget! we need excellent recall, then precision

- 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. Cowlshaw (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 European Patent Office: <http://www.epo.org/>
- Nuyts A.: "The EPO search service" (2005).
<http://www.infonortics.com/chemical/ch04/slides/nuyts.pdf>
- Flatscher R.G.: "Resurrecting REXX, Introducing Object Rexx", Workshop W10 "Revival of Dynamic Languages", ECOOP, Nantes 2006.
http://wi.wu.ac.at/rgf/rexx/misc/ecoop06/ECOOP2006_RDL_Workshop_Flatscher_Paper.pdf
- Homepage Rexx Language Association, owner ooRexx: <http://www.RexxLA.org>
- Homepage ooRexx: <http://www.ooRexx.org>
- Homepage Apache Bean Scripting Framework (BSF): <http://jakarta.apache.org/bsf/>
- Homepage BSF4Rexx: <http://wi.wu.ac.at/rgf/rexx/bsf4rexx/current/>
- Homepage BSF4ooRexx: <http://wi.wu.ac.at/rgf/rexx/bsf4oorexx/current/>
- Flatscher R.G.: "The 2009 Edition of BSF4Rexx", 2009 International Rexx Symposium, Chilworth, 2009. (Package name later changed to "BSF4ooRexx".)
http://wi.wu.ac.at/rgf/rexx/orx20/2009_orx20_BSF4ooRexx-20091031-article.pdf
- 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/>