Z39.50 and the Web
ZIG July 2000
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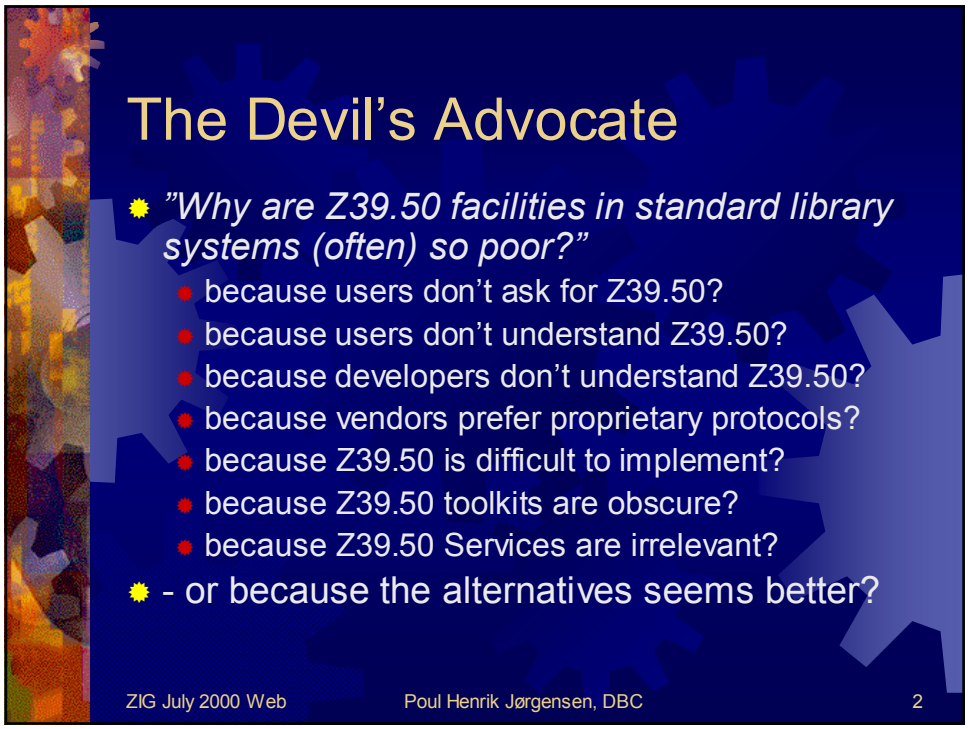
www.dbc.dk


The Devil's Advocate
"Why are Z39.50 facilities in standard library systems (often) so poor?"
because users don't ask for Z39.50?
because users don't understand Z39.50?
because developers don't understand Z39.50?
because vendors prefer proprietary protocols?
because Z39.50 is difficult to implement?
because Z39.50 toolkits are obscure?
because Z39.50 Services are irrelevant?
- or because the alternatives seems better?
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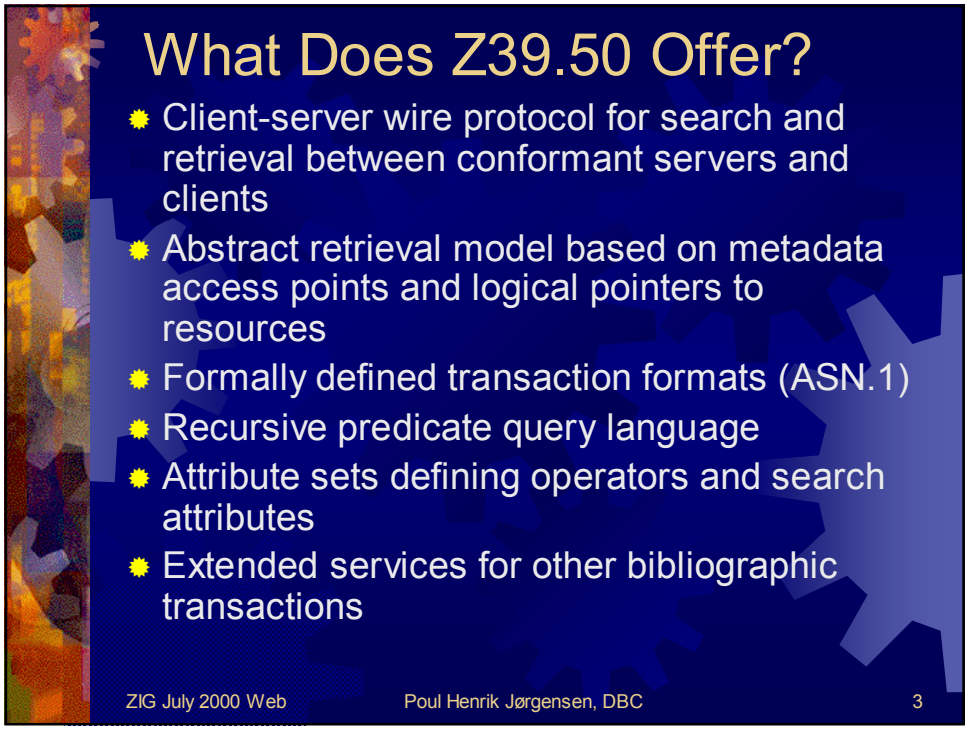
What Does Z39.50 Offer?
Client-server wire protocol for search and retrieval between conformant servers and clients
Abstract retrieval model based on metadata access points and logical pointers to resources
Formally defined transaction formats (ASN.1)
Recursive predicate query language
Attribute sets defining operators and search attributes
Extended services for other bibliographic transactions
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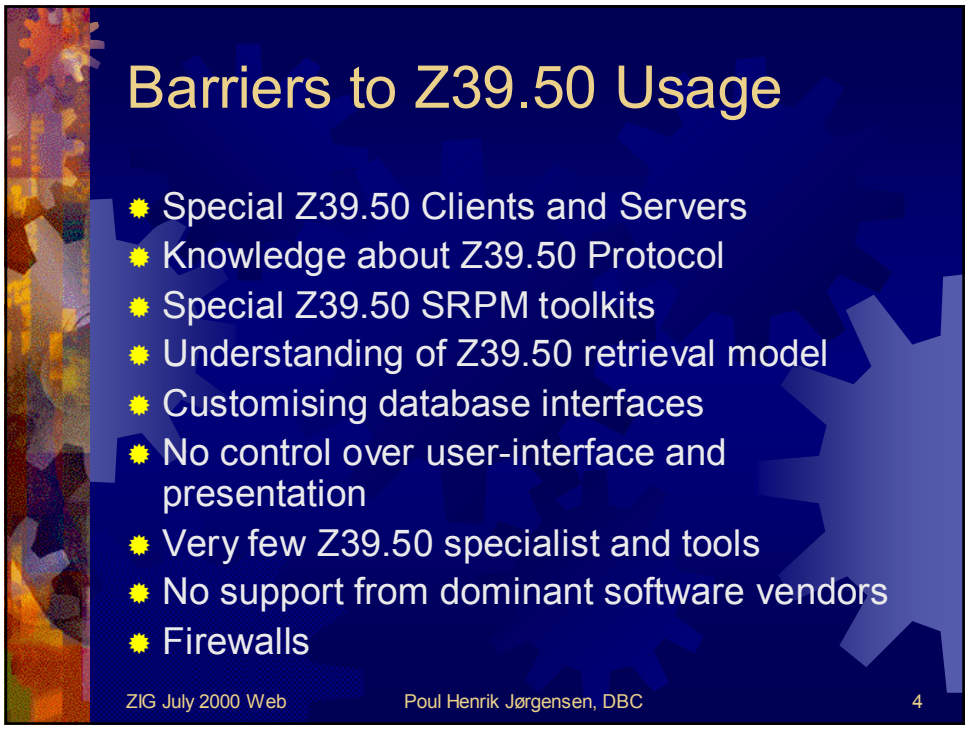
Barriers to Z39.50 Usage
Special Z39.50 Clients and Servers
Knowledge about Z39.50 Protocol
Special Z39.50 SRPM toolkits
Understanding of Z39.50 retrieval model
Customising database interfaces
No control over user-interface and presentation
Very few Z39.50 specialist and tools
No support from dominant software vendors
Firewalls
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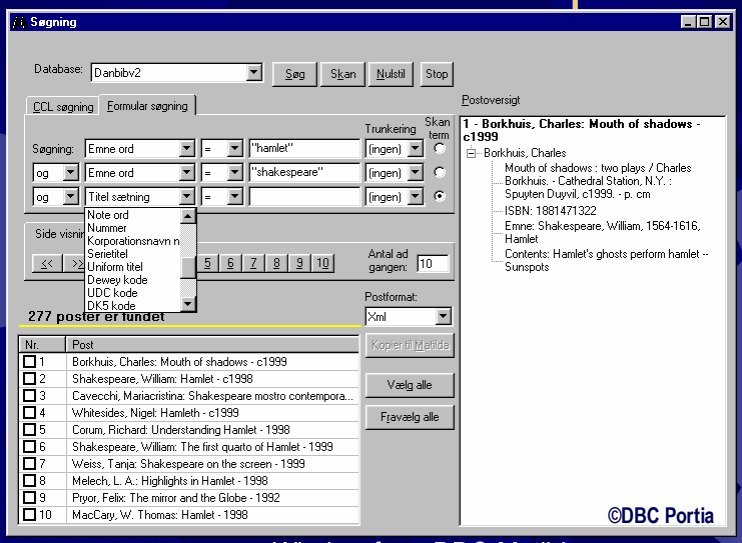
Z39.50 Search Example



Window from DBC Matilda

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What does the Web offer?

- Free Browsers and Servers
- Relatively trouble free interoperability
- Web harvesters and search engines
- Access to text searches and unstructured documents everywhere
- No previous experience required of users
- Thousands of implementers and excellent tools
- Supported by almost everybody

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Web Search Example
altavista: SEARCH
Search
Live!
Shopping
Raging Bull
Free Internet Access
Email
Search
Language:
Advanced Web Search
DoubleClick
Denmark
Annoncer på AltaVista -
verdens største søgemaskine
Click the products tab to earn shopping rewards.
Products
News
Discussions
The Web
Images
MP3/Audio
Video
Directories
AltaVista Recommends
Web Pages
1. William Shakespeare: Hamlet, Prinz von Dänemark.
amazon.com
SHOP HERE!
altavista:
CAREERS
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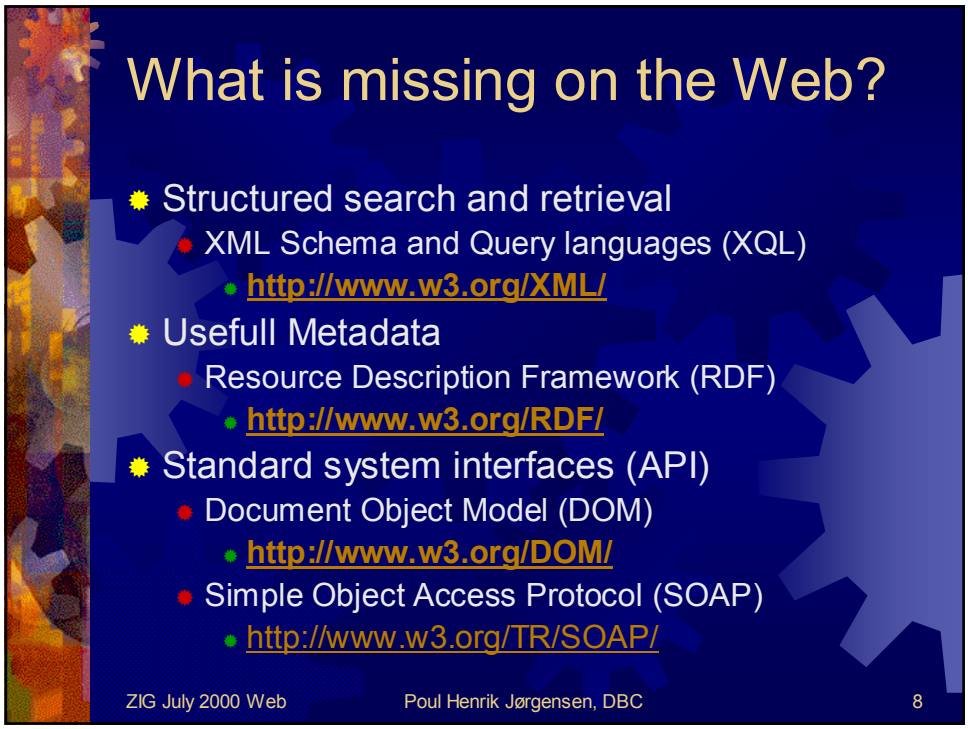
What is missing on the Web?
Structured search and retrieval
XML Schema and Query languages (XQL)
http://www.w3.org/XML/
Usefull Metadata
Resource Description Framework (RDF)
http://www.w3.org/RDF/
Standard system interfaces (API)
Document Object Model (DOM)
http://www.w3.org/DOM/
Simple Object Access Protocol (SOAP)
http://www.w3.org/TR/SOAP/
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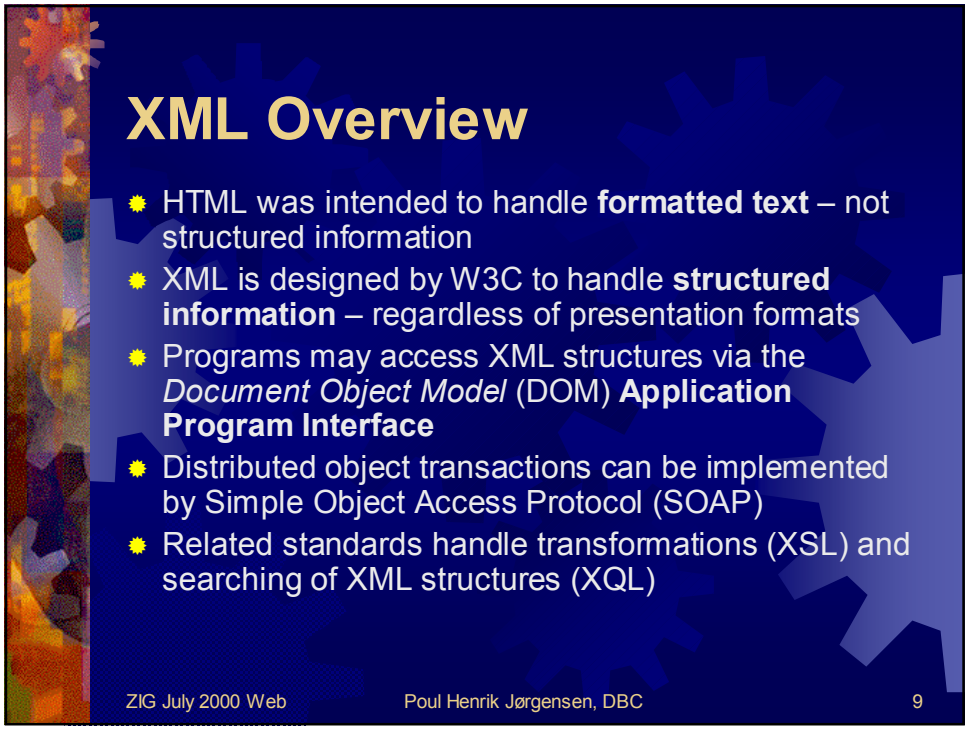
XML Overview
HTML was intended to handle **formatted text** – not structured information
XML is designed by W3C to handle **structured information** – regardless of presentation formats
Programs may access XML structures via the *Document Object Model* (DOM) **Application Program Interface**
Distributed object transactions can be implemented by Simple Object Access Protocol (SOAP)
Related standards handle transformations (XSL) and searching of XML structures (XQL)
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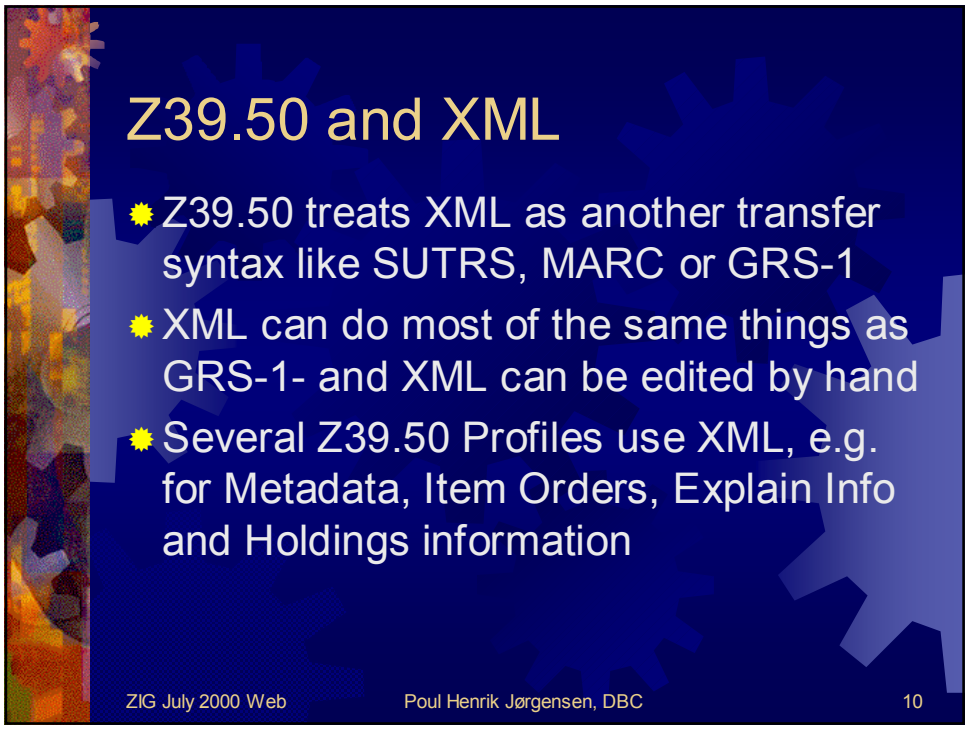
Z39.50 and XML
Z39.50 treats XML as another transfer syntax like SUTRS, MARC or GRS-1
XML can do most of the same things as GRS-1- and XML can be edited by hand
Several Z39.50 Profiles use XML, e.g. for Metadata, Item Orders, Explain Info and Holdings information
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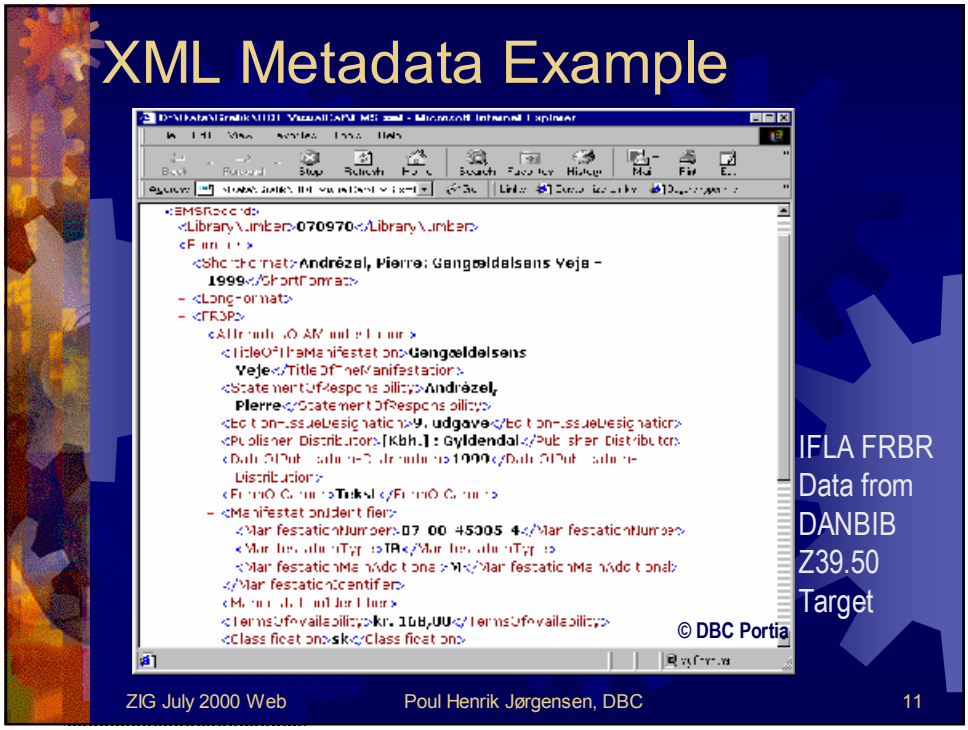
XML Metadata Example
IFLA FRBR
Data from
DANBIB
Z39.50
Target
© DBC Portia
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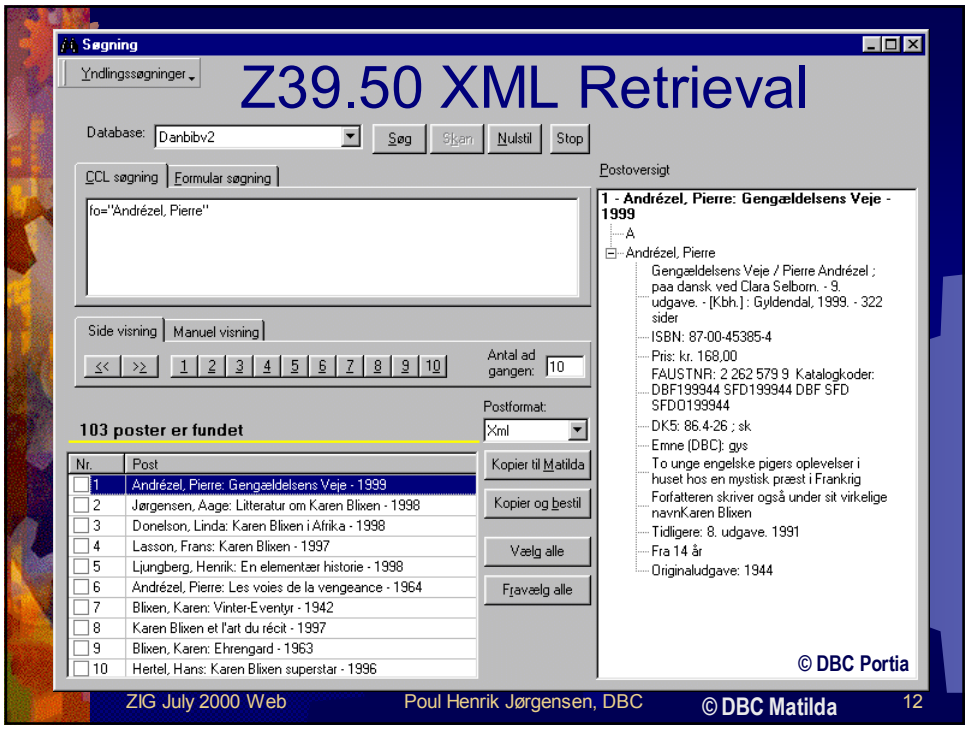
Søgning
Yndlingssøgninger
Z39.50 XML Retrieval
Database: Danbibv2
Søg
Skan
Nulstil
Stop
CCL søgning
Formular søgning
fo="Andrézel, Pierre"
Side visning
Manuel visning
Antal ad gangen: 10
Postformat: Xml
103 poster er fundet
Nr.
Post
1 Andrézel, Pierre: Gengældelsens Veje - 1999
2 Jørgensen, Aage: Litteratur om Karen Blixen - 1998
3 Donelson, Linda: Karen Blixen i Afrika - 1998
4 Lasson, Frans: Karen Blixen - 1997
5 Ljungberg, Henrik: En elementær historie - 1998
6 Andrézel, Pierre: Les voies de la vengeance - 1964
7 Blixen, Karen: Vinter-Eventyr - 1942
8 Karen Blixen et l'art du récit - 1997
9 Blixen, Karen: Ehrengard - 1963
10 Hertel, Hans: Karen Blixen superstar - 1996
Kopier til Matilda
Kopier og bestil
Vælg alle
Fravælg alle
Postoversigt
1 - Andrézel, Pierre: Gengældelsens Veje - 1999
A
Andrézel, Pierre
Gengældelsens Veje / Pierre Andrézel ; paa dansk ved Clara Selborn. - 9. udgave. - [Kbh.] : Gyldendal, 1999. - 322 sider
ISBN: 87-00-45385-4
Pris: kr. 168,00
FAUSTNR: 2 262 579 9 Katalogkoder: DBF199944 SFD199944 DBF SFD SFDO199944
DK5: 86.4-26 ; sk
Emne (DBC): gys
To unge engelske pigers oplevelser i huset hos en mystisk præst i Frankrig
Forfatteren skriver også under sit virkelige navnKaren Blixen
Tidligere: 8. udgave. 1991
Fra 14 år
Originaludgave: 1944
© DBC Portia
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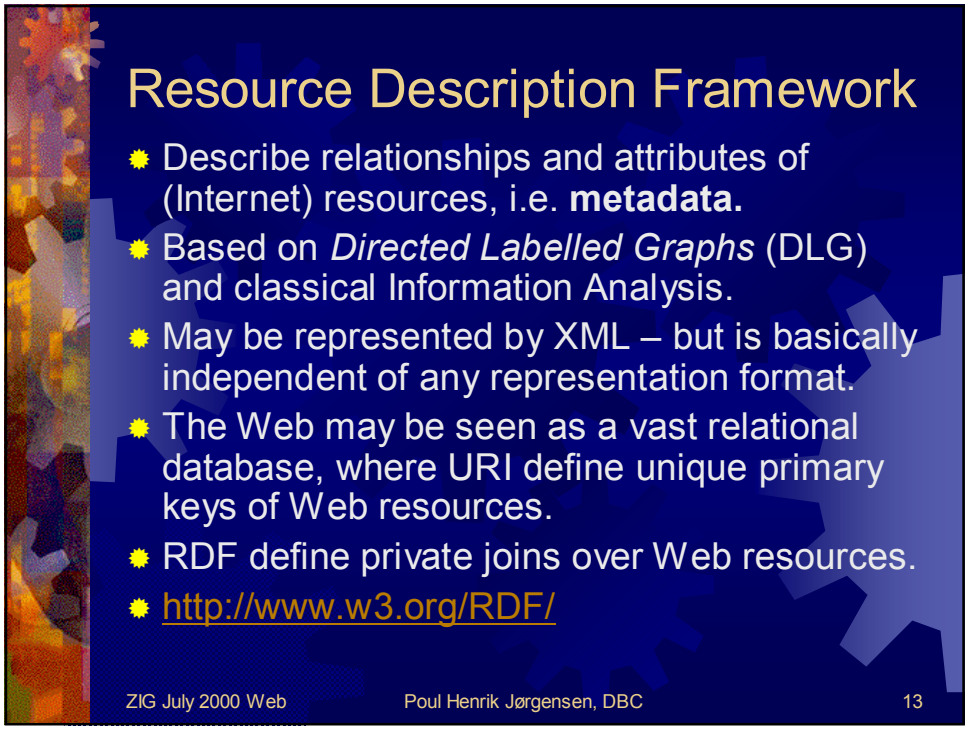
Resource Description Framework
Describe relationships and attributes of (Internet) resources, i.e. **metadata.**
Based on *Directed Labelled Graphs* (DLG) and classical Information Analysis.
May be represented by XML – but is basically independent of any representation format.
The Web may be seen as a vast relational database, where URI define unique primary keys of Web resources.
RDF define private joins over Web resources.
http://www.w3.org/RDF/
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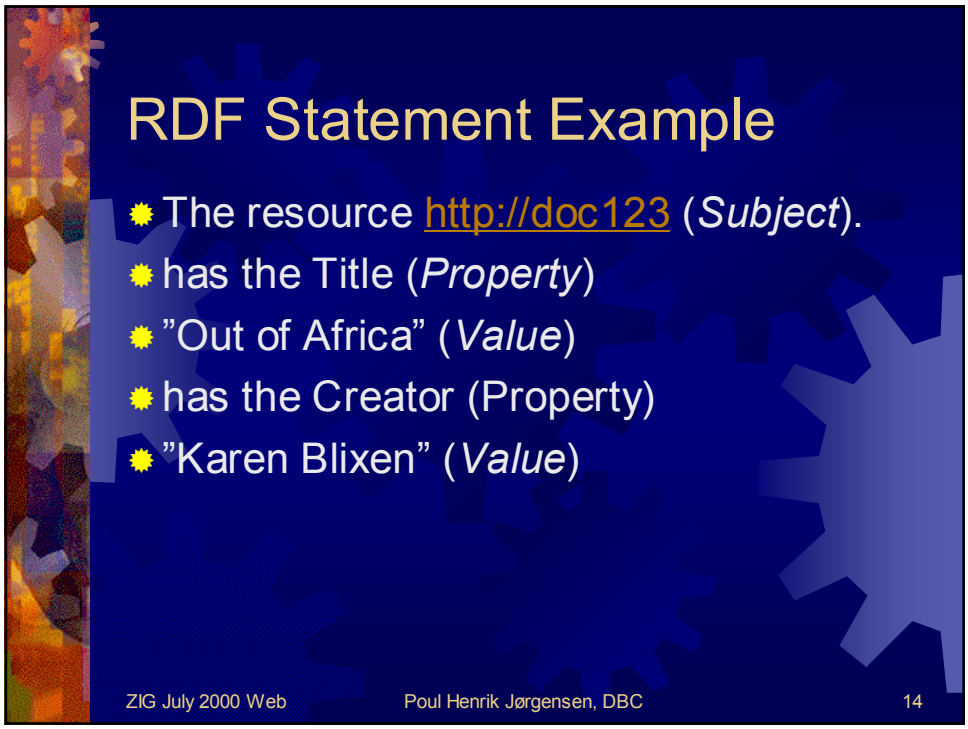
RDF Statement Example
The resource http://doc123 (*Subject*).
has the Title (*Property*)
”Out of Africa” (*Value*)
has the Creator (Property)
”Karen Blixen” (*Value*)
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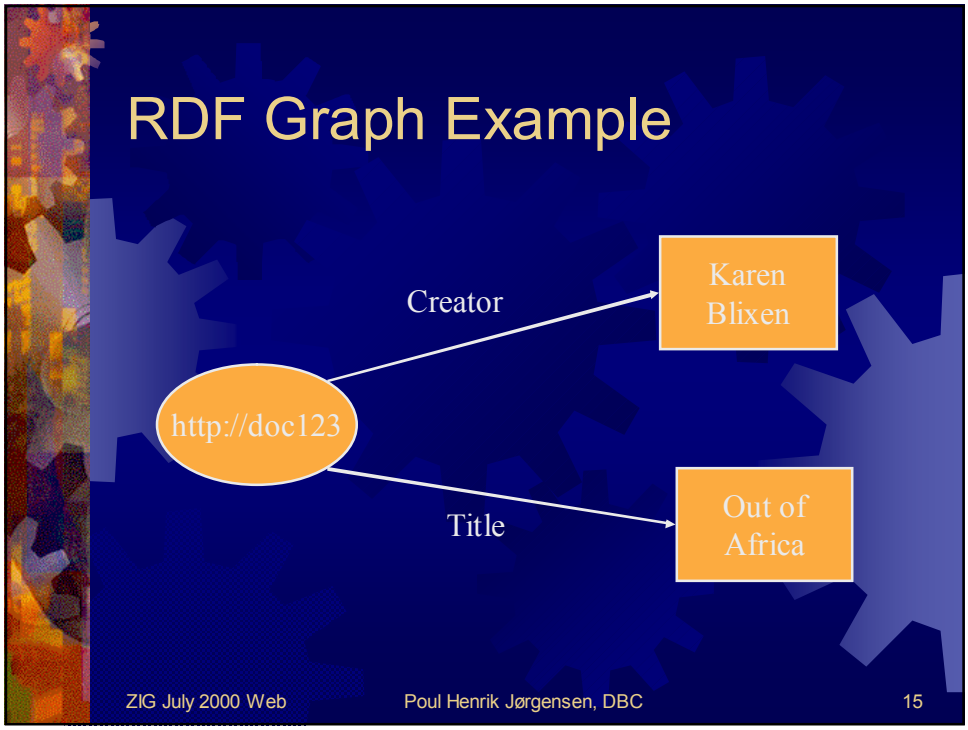
RDF Graph Example
Creator
Karen Blixen
http://doc123
Title
Out of Africa
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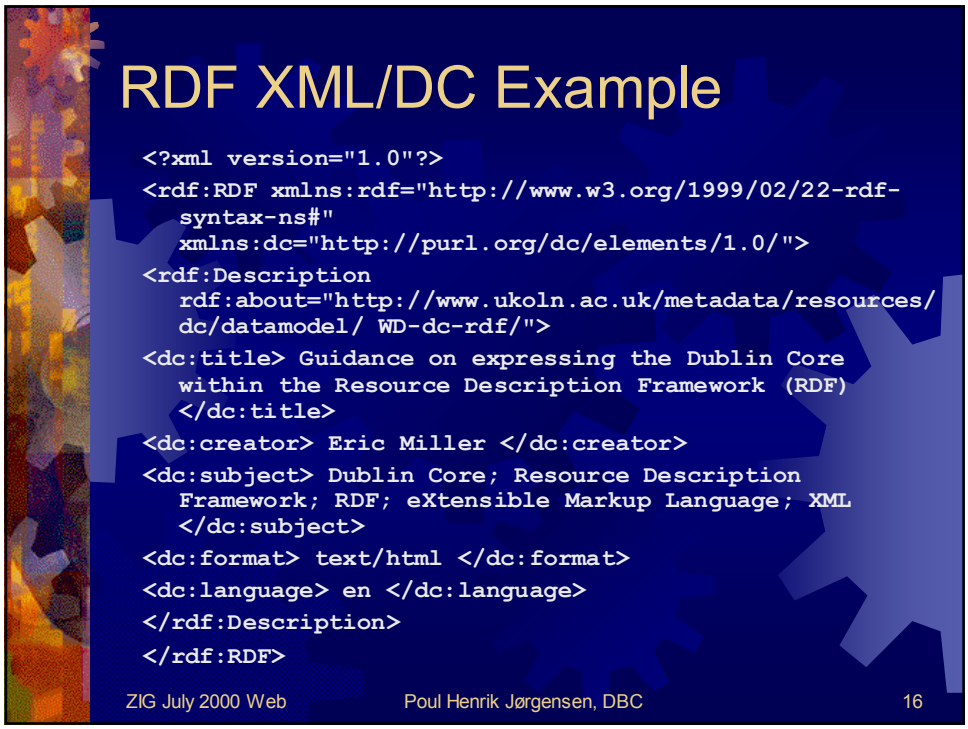
RDF XML/DC Example
<?xml version="1.0"?>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
xmlns:dc="http://purl.org/dc/elements/1.0/">
<rdf:Description
rdf:about="http://www.ukoln.ac.uk/metadata/resources/dc/datamodel/ WD-dc-rdf/">
<dc:title> Guidance on expressing the Dublin Core within the Resource Description Framework (RDF) </dc:title>
<dc:creator> Eric Miller </dc:creator>
<dc:subject> Dublin Core; Resource Description Framework; RDF; eXtensible Markup Language; XML </dc:subject>
<dc:format> text/html </dc:format>
<dc:language> en </dc:language>
</rdf:Description>
</rdf:RDF>
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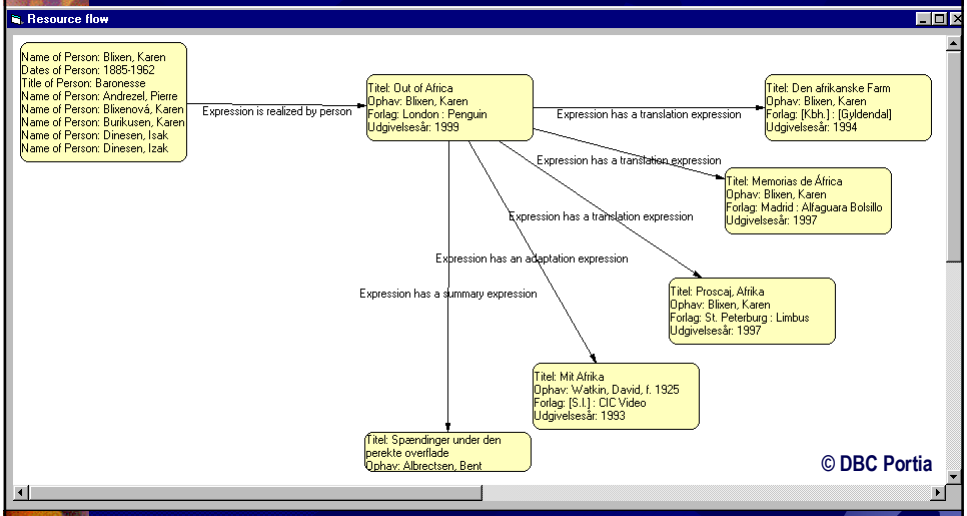
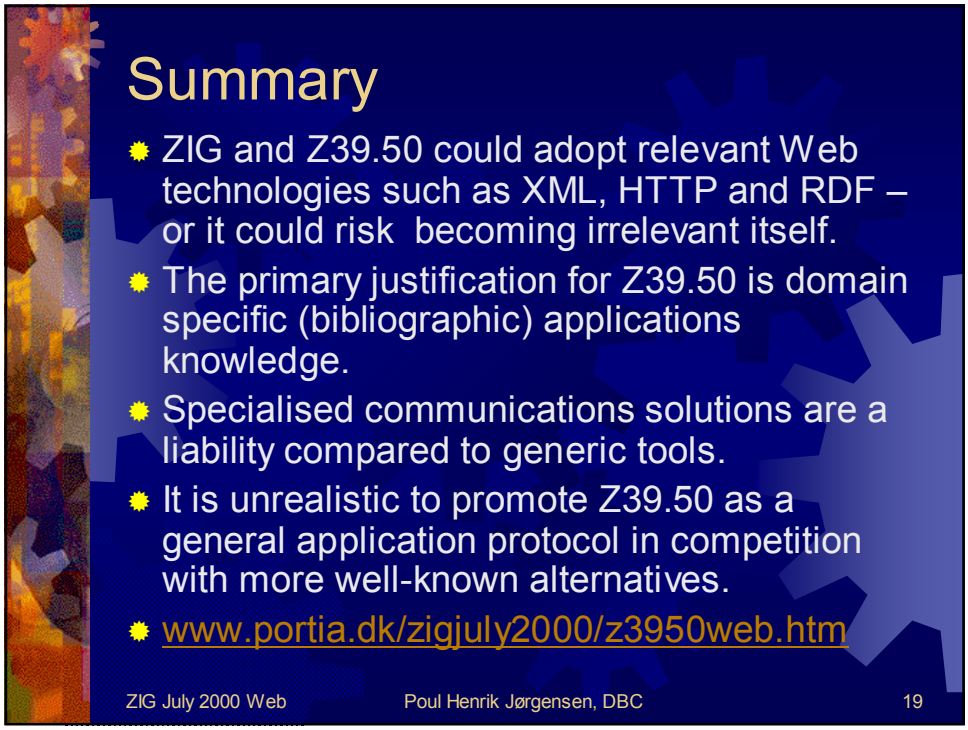
RDF Navigation Example



Window from VisualCat

Z39.50, XML and RDF synergy

- Z39.50 can support XML as transfer syntax.
- Z39.50 can support XQL search language.
- Z39.50 can search and retrieve RDF structures like other relational data.
- Z39.50 could switch to HTTP as transmission protocol. Like OSI was replaced by TCP/IP some time ago.
- Extended Service transactions could be handled by Simple Object Access Protocol (SOAP) http://www.w3.org/Submission/2000/05/


Summary
ZIG and Z39.50 could adopt relevant Web technologies such as XML, HTTP and RDF – or it could risk becoming irrelevant itself.
The primary justification for Z39.50 is domain specific (bibliographic) applications knowledge.
Specialised communications solutions are a liability compared to generic tools.
It is unrealistic to promote Z39.50 as a general application protocol in competition with more well-known alternatives.
www.portia.dk/zigjuly2000/z3950web.htm
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