

Transformations on the information market

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Overview

- *Information market*
- Highlights of a model for information supply
 - Motivation
 - Transformations
 - Open issues
 - Questions

Information Market

- Web as a source of information
- Publish resources = *supply*
- Search information = demand
 - Information encoded in resources
 - Resources are “data”
- On the market: supply meets demand

Micro Economics

- Consumers optimize utility
- Preference over bundles of goods
- Preference based on utility
- Consumption is constrained by a budget
- Rational behavior
 - More is better
 - Always choose the “best” bundle

...on the information market

- Goods → resources
- Utility → “value” of a resource to a consumer
 - Informational value
 - Form
 - Format
- Budet → time / money / ...
- Aptness instead of relevance only!

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Data resources

- Any “thing” with a URI
 - Webpage in HTML
 - Some report formatted as PDF
 - A person with an E-mail address
- Typing
- Subtyping
- Types follow population

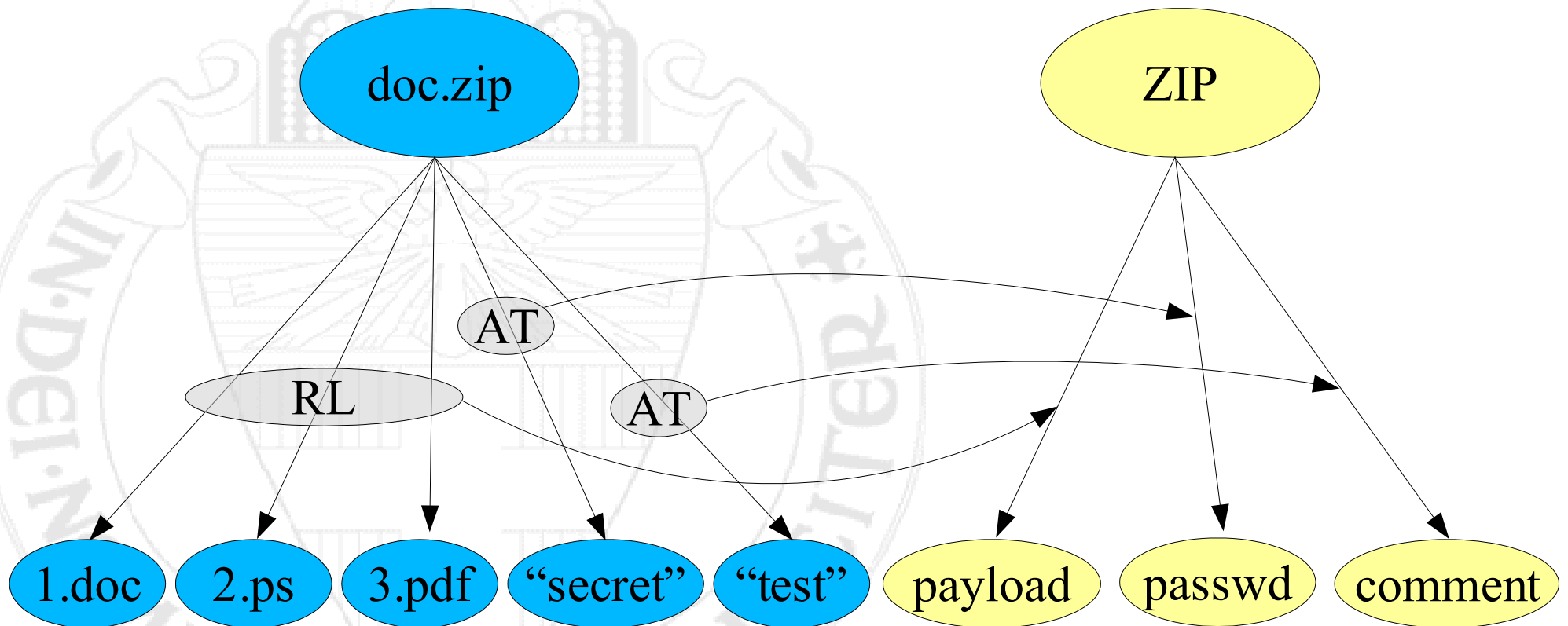
Relations and Attributes

- Data resources are interrelated
- Different types of relations
 - e.g. Part-of / Hyperlink
- Data resources have attributed values
- Different types of attributes
 - e.g. Password / Price

Complex data resources

- Instance:
 - Data Resource
 - Data Value
- Connection:
 - Relation
 - Attribution
- Accessor: those connection that form complex data resources

Example



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Example search problem

- Suppose you need to find out how Google works
- The information has to be in Dutch
- You're a manager, not an engineer
- You only have a browser at your disposal (no other software)
- Your connection is slow and buggy (i.e. In Africa)

Aptness

- Aptness > “relevance”
 - Topical relevance, as used in traditional information retrieval
 - Advanced search in search engines
- Sometimes transforming a resource may increase its aptness
 - Form
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Transformations

- Input type (domain) and Output type (range)
- Transformations may affect form & format
 - PostScript to PDF
 - Abstract generator
- Concatenation of transformations

Complex transformations

- Transformation operates on instances that were used to create instance of complex type
- Removal transformation
 - Remove accessor and all instances at its base
- Deep transformation
 - Transform instances at the base of an accessor

Transformations and the real world

- Regard existing transformations as “black box”
 - Point of view: interfaces
 - Ignore: what goes on on the “inside”
- Learn about their effects by performing transformations on real instances
 - Effects on attributes
 - Effects on relations

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Issues

- “Clearing house” for transformations is implemented
- Plans for transformation broker are underway. Retrieval system?
- How can *aptness* be assessed?
- Quality of transformations?
- Controlled environment?



Questions ?