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The public use of travel surveys: The metadata perspective

KW Axhausen

IVT
ETH
Zürich

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Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

A look back

The action list arising from Eibsee and elsewhere was:

- Systematic archiving of transport data sets
- Stipulation of archiving as part of contracts and grants
- Development of uniform data set descriptors
- Implementation of web-based on-line tabulation software
- Development of specialised transport data archives

What has been achieved ?

- Systematic archiving: No progress, but see www.itdb.bts.gov
- Required archiving: No progress
- Uniform data set descriptions: Substantial progress outside transport
- On-line tabulation: Limited progress
- Specialised data archives: No progress

On-line tabulation

No wave of implementations in spite of the web growing popularity:

- Substantial set-up costs
- No standardisation
- No customer pressure

Current examples:

- www-cta.ornl.gov/npts
- sturm.math.fundp.ac.be/~test and related sites for the UK NTS and the Belgian NTS

Specialised on-line tabulation

Capabilities:

- Tabulation (one, two and three-way)
- Some graphing
- Proper weighting and suppression of cells with unreliable estimates

Missing:

- Aggregation functions
- Mapping

Example: Test - website

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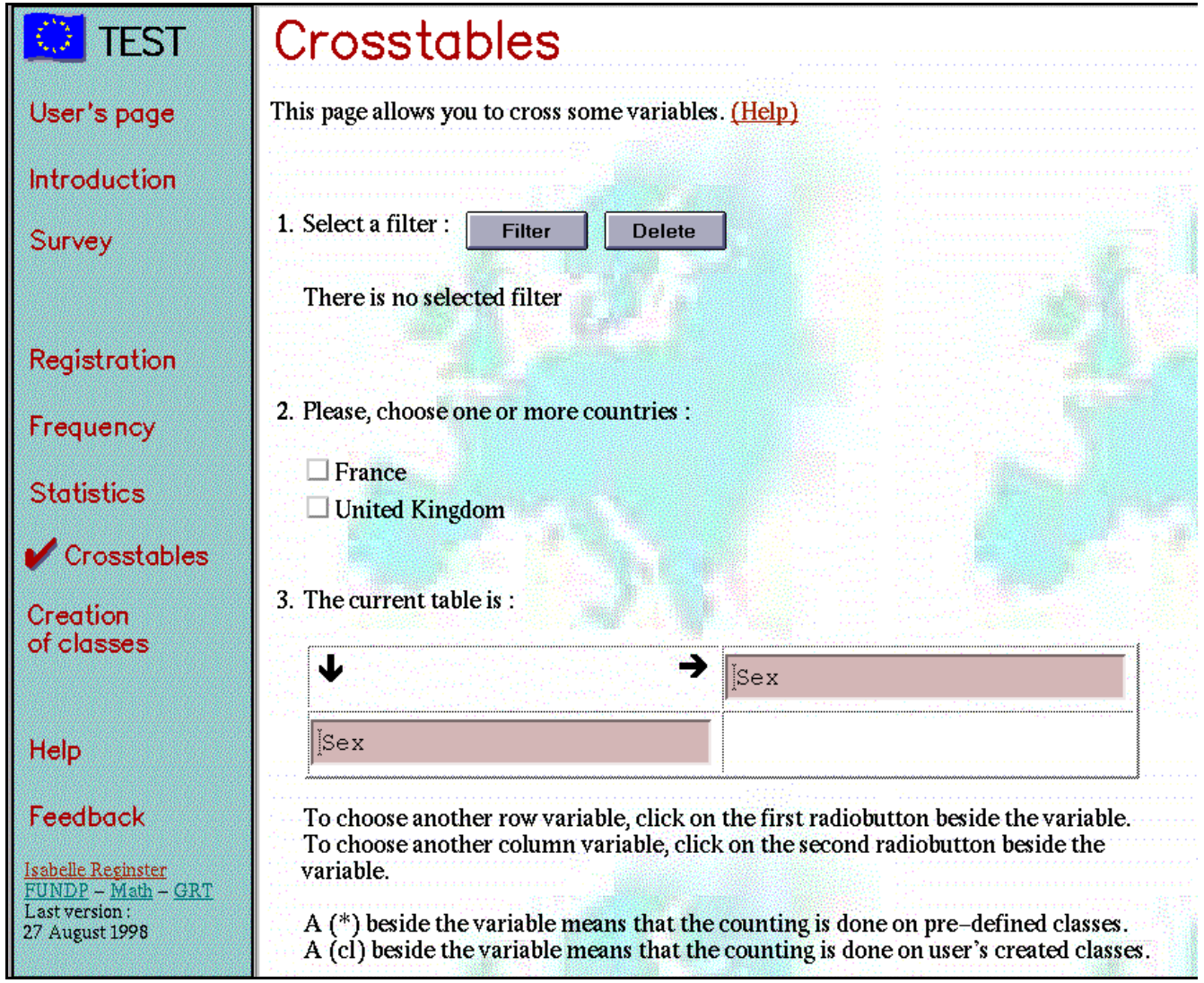


Metadata: data about data

Why:

- Better searching
- Higher quality documentation

- Base for data analysis tools

What:

- Standardised set of descriptors
- Joint vocabulary for the descriptors

Metadata: What ?

In the context of survey research:

- Description of the archived files
- Description of the survey and its conduct
- Description of the responsibilities for the survey and its documentation
- Supplementary data

Examples:

- Any standardised data base or data exchange protocol
- “Dublin core” (bibliography and responsibilities)
- ddi - DTD

Metadata: How ?

Development:

- Suitable standard development process
- Ad-hoc developments
- Competitive market-driven development

Technologies:

- Any suitable database description language
- Edifact
- SGML
- XML

XML: extended mark - up language

What is it ?

- Subset of SGML
- Language to describe contents (and rendering)

What does it offer ?

- Easy definition of languages to describe data
- Imposes grammar checks on files through “document type definitions”

ddi and Nesstar: Progress through standardisation

ddi: Data documentation initiative (University of Michigan)

- XML - DTD to describe data sets for archiving

Nesstar: ddi - DTD based software to publish, search and interrogate data on the web (EU - funded, British and Norwegian data archives)

- Client software to search and tabulation
- Server software for publication

ddi - DTD: Structure

Structured description:

- docDscr (Document)
- stdyDscr (Study)
- fileDscr (File(s))
- dataDscr (Variables)
- othMat (Other materials)

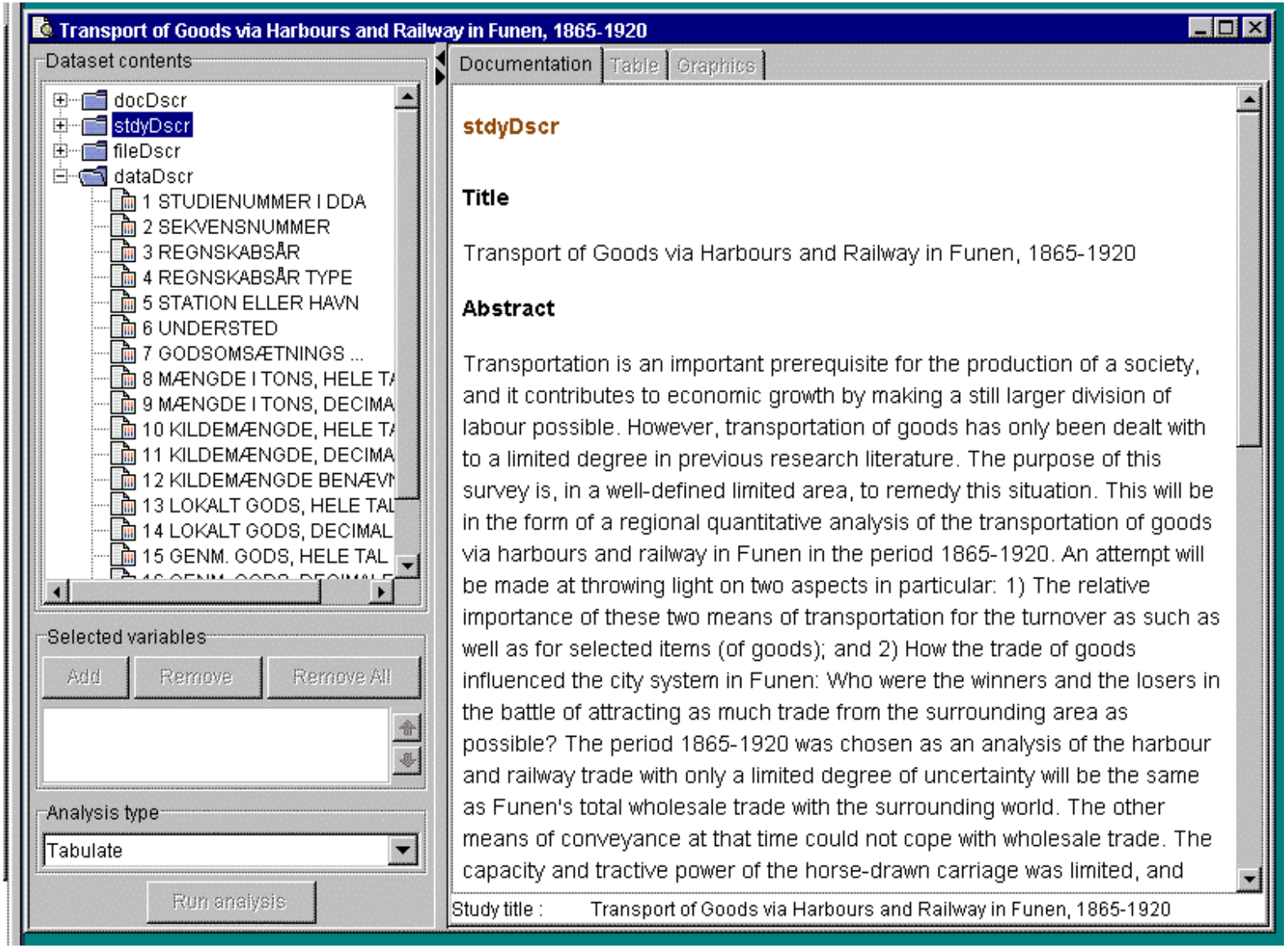
ddi - DTD: Example

```
|-- 4.0 dataDscr* (ATT == ID, xml:lang, source)
|   |
|   |-- 4.2 var* (ATT == ID, xml:lang, source, name, ... )
|   |   |
|   |   |-- 4.2.1 location*    (ATT == ID, xml:lang, source, StartPos,
|   |   |                        EndPos, width, RecSegNo, fileid)
|   |   |-- 4.2.2 labl*        (ATT == ID, xml:lang, source, level, vendor)
|   |   |-- 4.2.3 imputation?  (ATT == ID, xml:lang, source)
|   |   |-- 4.2.6 respUnit?    (ATT == ID, xml:lang, source)
|   |   |-- 4.2.7 anlysUnit?   (ATT == ID, xml:lang, source)
|   |   |-- 4.2.9 valrng*      (ATT == ID, xml:lang, source)
|   |   |-- 4.2.10 invalrng*   (ATT == ID, xml:lang, source)
|   |   |-- 4.2.13 TotlResp?   (ATT == ID, xml:lang, source)
|   |   |-- 4.2.14 sumStat*    (ATT == ID, xml:lang, source, wgtd, weight, type)
|   |   |-- 4.2.15 txt*        (ATT == ID, xml:lang, source, level)
|   |   |-- 4.2.17 catgryGrp*  (ATT == ID, xml:lang, source, missing, missType,
|   |   |                        catgry, catGrp)
|   |   |-- 4.2.18 catgry*     (ATT == ID, xml:lang, source, missing, missType,
|   |   |                        country, sdatrefs)
|   |   |-- 4.2.23 varFormat?  (ATT == ID, xml:lang, source, type, formatname,
                                 schema, category, URI)
```

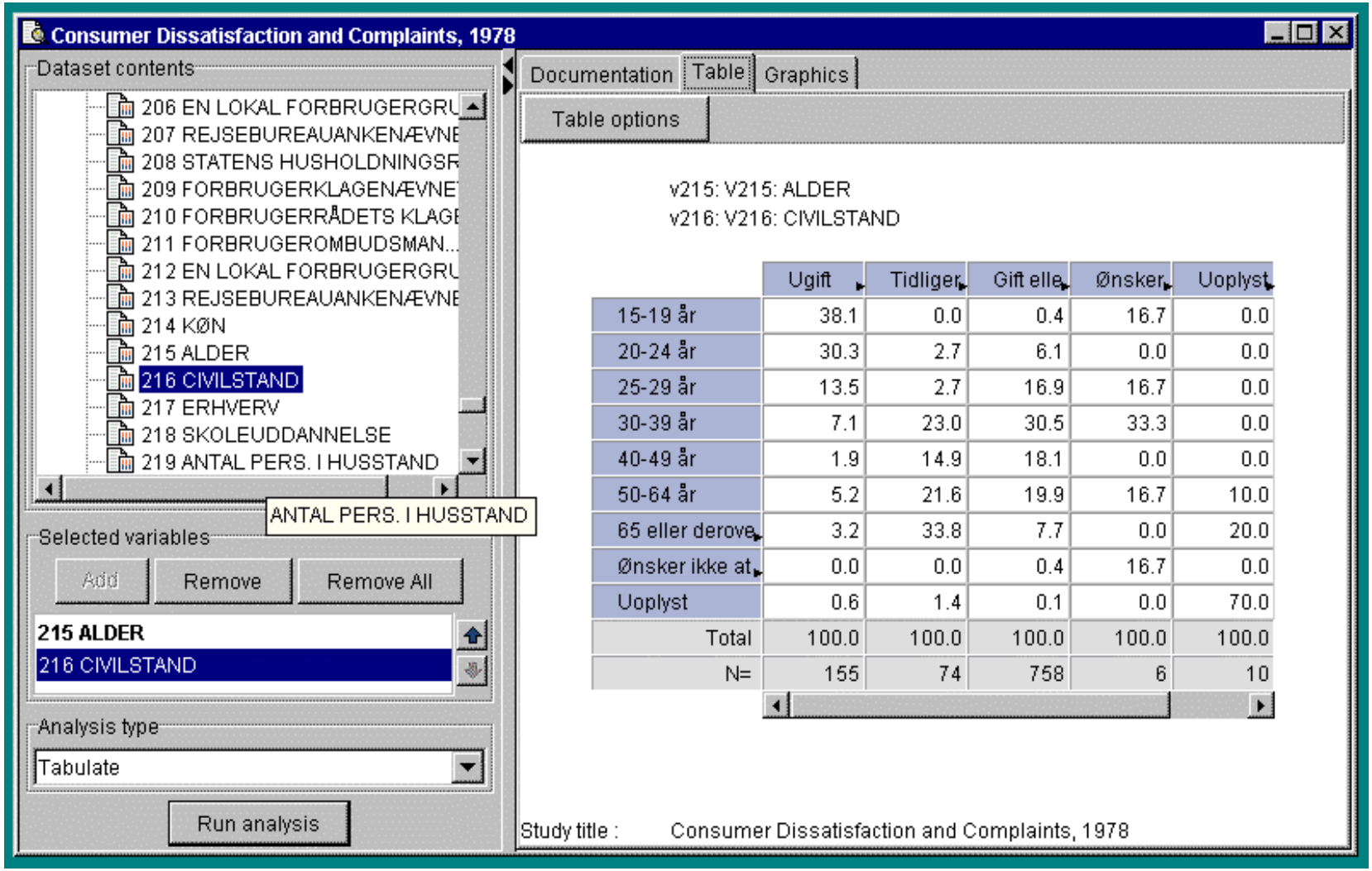
ddi - DTD: Application example

```
<fileName ID='Household'>Household file</fileName>

<var files='Household' name='hhinc' qstn='A-54' >

    <labl>Household Income</labl>

    <location StartPos='55' EndPos='57' width='3'></location>
    <imputation>Hotdesk imputation using size, hours worked, car owned</impuation>
    <respUnit>Head of household</respUnit>
    <anlysUnit>Household</anlysUnit>
    <qstn>What is your total household income [kUS$] after taxes and social security</qstn>
    <valrng>
          <range Units='INT' maxExclusive='250' min='5' max='240'</range>
           <key>250 250k and more</key>
    </valrng>
    <invalrng>
           <range Units='INT' minExclusive='0' min='998' max='999'</range>
           <key>0 Refused 998 Dont know 999 Not applicable</key>
    </invalrng>
    <TotlResp>450 valid responses</TotlResp>
    <sumStat> type='Min'>5</sumStat>
    <sumStat> type='Max'>220</sumStat>
    <sumStat> type='Min'>65</sumStat>

 </var>
```

Nesstar: Browsing

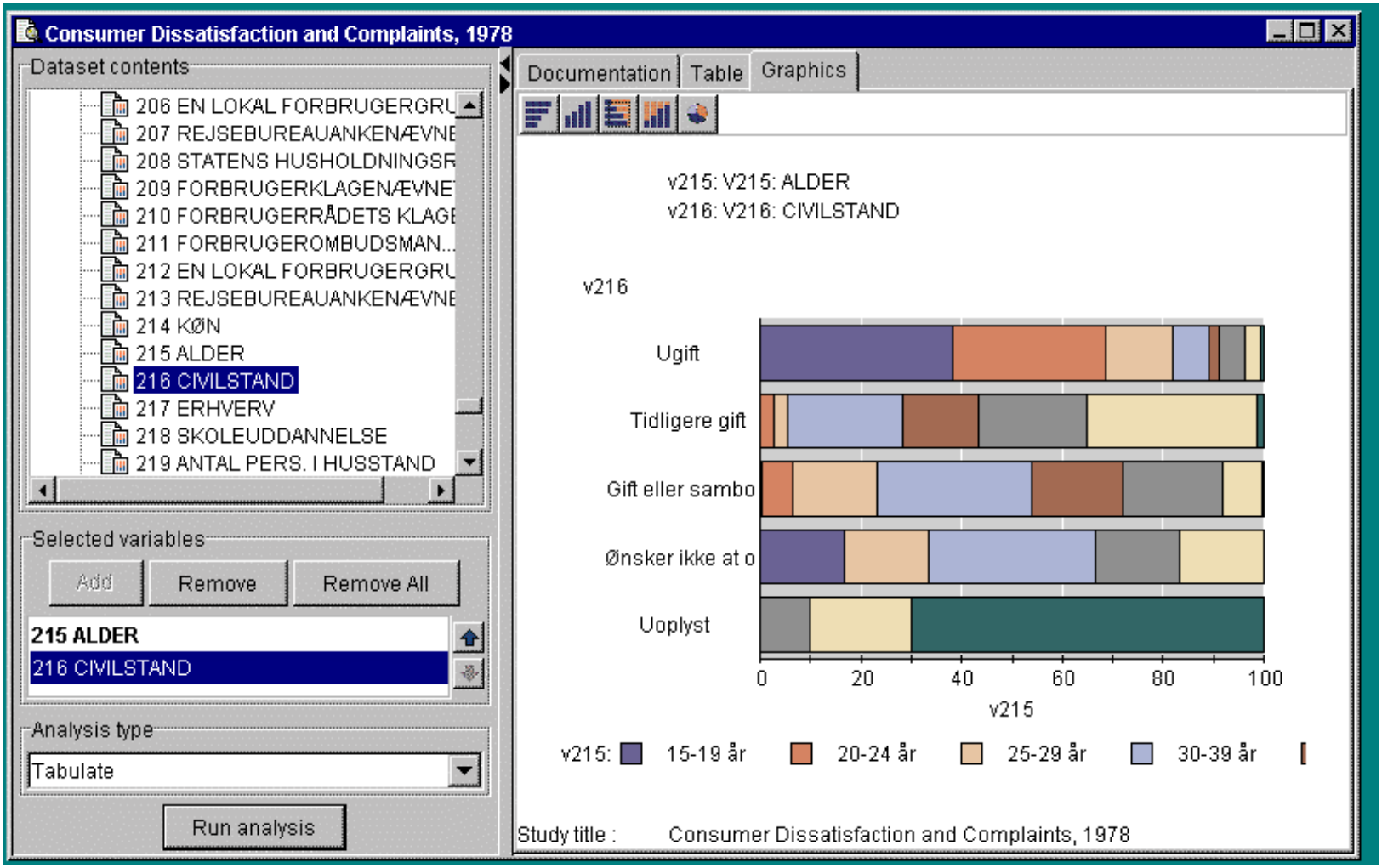


Nesstar: Tabulation



	Ugift	Tidliger	Gift elle	Ønsker	Uoplyst
15-19 år	38.1	0.0	0.4	16.7	0.0
20-24 år	30.3	2.7	6.1	0.0	0.0
25-29 år	13.5	2.7	16.9	16.7	0.0
30-39 år	7.1	23.0	30.5	33.3	0.0
40-49 år	1.9	14.9	18.1	0.0	0.0
50-64 år	5.2	21.6	19.9	16.7	10.0
65 eller derove	3.2	33.8	7.7	0.0	20.0
Ønsker ikke at	0.0	0.0	0.4	16.7	0.0
Uoplyst	0.6	1.4	0.1	0.0	70.0
Total	100.0	100.0	100.0	100.0	100.0
N=	155	74	758	6	10

Nesstar: Graphics



Summary and outlook

What has happened ?

- Too little within transport
- ddi - DTD is a substantial start
- Nesstar shows the possibilities of standard-based software

What should we do ?

- Organisation of a standardisation process
- Develop our domain - specific extensions
- Using the ddi - DTD to get going