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Naples, September 30, 2011
Semantic publication: concept and implementations


Semantic layers

• terms and concepts that are linked with terminological vocabularies
• “facts about the texts” (metadata) that are represented in the form of triplets (subject-predicate-object)
• formalized representations of scholarly discourse
The advantages of semantic publications

- semantic publications provide better facilities for searching for information
- semantic publications can be used as knowledge bases in order to generate new knowledge and/or hypotheses for further research
Charter corpus “Moscowitica – Ruthenica”

Collection of documents that reflect relations of Old Russian and Byelorussian lands and towns – Smolensk, Novgorod, Pskov, Polotsk, etc., as well as Lithuania (later – Poland-Lithuania) with Riga, Livonia, Hanseatic League and German towns in the late 12th – early 17th centuries

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Latvian National Archives – Latvian State Historical Archives (Riga), record group no. 673, inventory no. 4; record group no. 8, inventories nos. 3 & 4; record group no. 214
Charter no. 6
Missive of archbishop of Riga Johann II. von Vechten (?) to Fedor Rostislavich, prince of Smolensk, blaming inhabitants of Vitebsk for unjustified complaint against Rigans
Riga. [1284-1297, presumably 1285-1287]

Duplicate (draft document?). Parchment, 16.5 × 23.3 cm
Latvian National Archives – Latvian State Historical Archives, Riga. Record group No. 673. Inventory No. 4. Kasten No. 18. File No. 8. Page 3 recto
Charter no. 4

Missive of Fedor, prince of Smolensk, to the authorities of Riga granting German merchants free passage to Rus and confirming the treaty concluded in 1229

Smolensk. [May 18], 1284

Original. Parchment, 20,0 × 24,5 cm
Latvian National Archives – Latvian State Historical Archives, Riga. Record group No. 8. Inventory No. 3. Capsula A. No. 72. Page 1
Charter No. 3a
*Treaty between Smolensk, Riga and Gotland, version A*

[Gotland]. 1229

*Original. Parchment, 53,5 × 77,8 cm*

*Latvian National Archives – Latvian State Historical Archives, Riga. Record group No. 8. Inventory No. 3. Capsula A. No.14.*

Page 1
Дiplomatic transcription
(Charter no. 6, fragment)

<tenor>
† блѣвлъне · ѳ мнтрошолта рнзъкого · ко <lb n="1"/>
своєму мнлому · сѣвн кназю велкому <lb n="2"/>
фёдору · н къ ёго дѣтомъ · н ко влдкъ н къ <lb n="3"/>
намѣстникъ · н ко всѣмъ болромъ · то бу <lb n="4"/>
дн тобѣ вѣдомо · про тую жалобу · уто внятибл<sup>Â</sup> </sup> <lb n="5"/>
не жалобился нъ рнжаны · унмь то
Semantics of symbols
and modes of its representation

• TEI:

```xml
<charDecl>
  <glyph xml:id="n1">
    <glyphName>SMALL CAPITAL CIRILLIC N LIKE LATIN N</glyphName>
    <mapping type="standardized">Н</mapping>
  </glyph>
</charDecl>
```

• Rules for automatic substitution of symbols:
  IF “N” THEN “Н”

• Development of a special Web-font (e.g. SVG-font, in which small capital letter “N” is used instead of Cyrillic “Н”)
Markup of the Charter no. 6 that reveals historical data

<chart id="6">
<chDesc> ... </chDesc>
</chart>

†<issuer><roleName id="archbishop"> Metropolitan's </roleName> of Riga </issuer>
beneficent over <lb n="1"/> our beloved sun, <addressee><persName id="Fedor
Rostislavich prince of Smolensk"/></addressee>, and over his children, and over the bishop
<supplied>of Smolensk</supplied>, and over <lb n="3"/> <recipient><roleName id="
governor of Smolensk"> the governor </roleName><supplied>of Smolensk</supplied>
</recipient>, and over all boyars. You <lb n="4"/> should know about that complaint,
which the inhabitants of <placeName>Vitebsk</placeName> <lb n="5"/> lodged against
Rigans in order <lb n="6"/> to set themselves right with <persName id="Helmich merchant
from Munster"> Helmich</persName>. And their words were as follows - <lb n="7"/> they
wanted to justify themselves with those words - and <supplied>they</supplied> said <lb n="8"/>
to <roleName id="prince of Briansk"> prince of </roleName>Briansk</placeName>
</roleName> that <lb n="9"/> 50 men had ridden out of <placeName>Riga</placeName>, and
killed a man, <lb n="10"/> and taken 10 <term>berkovets</term> of wax. <lb n="11"/> And
now I, metropolitan, say that those <lb n="12"/> inhabitants of <placeName>Vitebsk
</placeName> unjustly complained on Rigans. <lb n="13"/> And now I know that Rigans <lb n="14"/>
are not guilty of that. And now I am surprised <lb n="15"/> that thy governor
listen to <lb n="16"/> anyone. But there is <reference_to_other_document> an agreement <lb
n="17"/> between you and us: If a controversy arouses, it should be settled <supplied>
between you and us </supplied> <reference_to_other_document> an agreement and oath:
<reference_to_other_document> <lb n="20"/> if anyone complains to you <lb n="21"/>
about Rigans, or <persName id="Helmich merchant from Munster"> Helmich</persName>, or
somebody else, <lb n="22"/> you should send <supplied> a missive </supplied> to us, but
we will render justice <lb n="23"/> in accordance with divine justice. <lb n="24"/>
</tenor>
Specialized historical ontologies

- CIDOC CRM (le Comité International pour la Documentation – Conceptual Reference Model)
- Nancy Ide and David Woolner (Franklin D. Roosevelt Presidential Library, Pearl Harbor project, USA)
- Eero Hyvönen et al. (CultureSampo, Finland)
Semantic networks technologies

• RDF (Resource Descriptive Framework), OWL (Ontological Web Language)

versus

• Semantic Wiki-systems
Chart 6

Missive of archbishop of Riga Johann II von Vechten (?) to Fedor Rostislavich, prince of Smolensk, blaming inhabitants of Vitebsk for unjustified complaint against Rigans


Metropolitan’s of Riga benediction over our beloved sun, Grand Prince Fedor, and over his children, and over the bishop of Smolensk, and over the governor of Smolensk, and over all boyars. You should know about that complaint, which the inhabitants of lodged against Rigans in order to set themselves right with Helmich. And their words were as follows - they wanted to justify themselves with those words - and they said to prince of Briansk that 50 men had ridden out of Riga, and killed a man, and taken 10 berkovets of wax. And now I, metropolitan, say that those inhabitants of Vytebsk unjustly complained on Rigans. And now I know that Rigans are not guilty of that. And now I am surprised that the governor listen to anyone. But there is an agreement between you and us: if a controversy arouses, it should be settled between you and us. And now I pray that you would observe that agreement and oath: if anyone complains to you about Rigans, or Helmich, or somebody else, you should send a missive to us, but we will render justice in accordance with divine justice.

Facts about Chart 6

- Mentions: Helmich and Prince of Briansk
- Probably refers to: Charter 4
- Refers to: Charter 3a
- Sent to: Fedor Rostislavich, prince of Smolensk, and Governor of Smolensk
- Written by: Archbishop of Riga
benediction over our beloved sun, [[sent_to::Fedor Rostislavich, prince of Smolensk|Grand Prince Fedor]], and over his children, and over [[sent_to::bishop of Smolensk|the bishop of Smolensk]], and over [[sent_to::governor of Smolensk|the governor of Smolensk]], and over all boyars. You should know about that complaint, which the inhabitants of lodged against Rigans in order to set themselves right with [[mentions::Helmich]]. And their words were as follows - they wanted to justify themselves with those words - and they said to [[mentions::prince of Briansk]] that 50 men had ridden out of Riga, and killed a man, and taken 10 berkovets of wax. And now I, metropolitan, say that those inhabitants of Vytebsk unjustly complained on Rigans. And now I know that Rigans are not guilty of that. And now I am surprised that the governor listen to anyone. But there is [[refers_to::Charter 3a|an agreement between you and us]]: if a controversy arouses, it should be settled between you and us. And now I pray that you would [[probably_refers_to::Charter 4|observe that agreement and oath]]: if anyone complains to you about Rigans, or [[Helmich]], or somebody else, you should send a missive to us, but we will render justice in accordance with divine justice.
Helmich is a merchant from Münster. He is mentioned in Charter 6 and Charter 4.

Facts about Helmich

Is a Merchant +
Is from Münster +
Is mentioned in Charter 6 + and Charter 4 +

Chapter 4

This charter confirms Charter 3a. It mentions Helmich and Artemii. It is probably referred in Charter 6.

Facts about Charter 4

Confirms Charter 3a +
Is probably referred in Charter 6 +
Mentions Helmich + and Artemii +
Markup of the Charter no. 6

for the purposes of pattern analysis
†</invocatio> Metropolitan’s of Riga </intitulatio> benediction over </salutatio> our beloved sun, Grand Prince Fedor, and over his children, and over the bishop of Smolensk, and over the governor of Smolensk, and over all boyars. </inscriptio>

</protocol>

<context>

<publicatio> You should know about that complaint, which the inhabitants of Vitebsk lodged against Rigans in order to set themselves right with Helmich. And their words were as follows - they wanted to justify themselves with those words - and said that 50 men had ridden out of Riga, and killed a man, and taken 10 berkovets of wax. And now I, metropolitan, say that those inhabitants of Vitebsk unjustly complained on Rigans. And now I know that Rigans are not guilty of that. And now I am surprised that thy governor listen to anyone. But there is an agreement between you and us: if a controversy arouses, it should be settled between you and us. And now I pray that you would observe that agreement and oath: if anyone complains to you about Rigans, or Helmich, or somebody else, you should send a missive to us, but we will render justice in accordance with divine justice.

</context>

</tenor>
<table>
<thead>
<tr>
<th>pg002</th>
<th>pg005</th>
<th>pg007</th>
<th>pg008</th>
<th>pg010</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. И ваша мисьть просили беспред нашего освященного великого короля.</td>
<td>3. а також памятатель ваша мисьть сами.</td>
<td>1. також даем вашей мисьти вдяти.</td>
<td>2. что їйсьдрь наші освящений великий короп' його мисьть вказали нам дядяти товары которые бы лишены бу рижан.</td>
<td>3. так же здесь жаловал нам тот полочанин на именах ко ймьтон чинь на вашей родьмаинна на гартьмана зоундира як дей ёмоу вьликую щодоў й кривду и судькап а безправно</td>
</tr>
<tr>
<td>2. й беспред наші його мисьть казал нам товары ваши вбронять вам до тых часов докуп нам і ваші мисьти право переходит как его мисьть указали.</td>
<td>4. некоторые рьчи были полночені нашим с вами перед паном нашим освященным королем й і кривдах межи вами.</td>
<td>2. что наш пан надснейший и освящений корол' його мисьть приказал нам паном мънь а брату моему пану николо немировичому а брату моему пану богдану андреевичу моршальному своєму снисился с вами на мякки й всё днём после днє на индыри.</td>
<td>3. йно боуримистры й радци й ратманы рижшаго мяста прислали по ты товары сюгу своего ратушскаго на имя ольбраха.</td>
<td>4. про то бы ваша мисьть тому виманьке рачили спрачённость суйдькап подеу у обчыку мира</td>
</tr>
<tr>
<td>5. й ваша мисьть прислали до нас.</td>
<td>2. и пан наш' його мисьть освященный корол' оумовила с вашей мис'тью. й положил рок' тому йипящий днём а казал было йго мисьть там съехати к тому року мънь а пану николо немировичу воеводе етебскому й мяцкому а пану богдану андреевичу моршальному своєму.</td>
<td>8. йно мы на тот рок' конечно там' боудем'.</td>
<td>3. йно колко было их товарою забавлино й положено въ црк' вито все дано им.</td>
<td>5. а што на доп' жниках было йно виноваты сам в своєму йстью шол' й ему платили' а пак'</td>
</tr>
</tbody>
</table>
Controlled English

- CELT (Controlled English to Logic Translation)
- PENG (Processable English)
- Common Logic Controlled English
- Computer-Processable Language (CPL)
- Formalized English
- Attempto Controlled English (ACE)

Workshop on Controlled Natural Language, Marettimo Island, Italy, September 13-15, 2010
Attempto Controlled English

- University of Zurich, Norbert Fuchs et al.
- ACE => DRS (Discourse Representation Structures) = the variant of FOL (First Order Logics) language
- DRS => OWL, RuleML, SWRL
- ACE Tools: parser, reasoner, editor, AceWiki, OWL verbalizer, etc.
- Users’ vocabularies
Clauses from the Charter no. 6 and their rendering into ACE

- And now I, metropolitan, say that those inhabitants of Vitebsk unjustly complained on Rigans.

- And now I know that Rigans are not guilty of that.

- The metropolitan says that the inhabitants of Vitebsk complain on the Rigans unjustly.

- He knows now that the Rigans are not guilty.
Capturing “facts about the text” in ACE

- The Charter_6 is written by the archbishop of Riga
- The Charter_6 probably refers to the Charter_4
- The Charter_6 mentions Helmich and Prince of Briansk
Thank you for attention