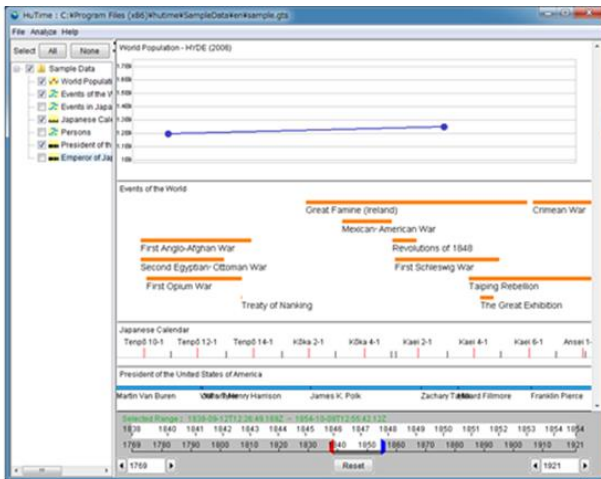


Linked data of time basic data

Tatsuki Sekino
(Research Institute for Humanity and Nature)

Overview: Time Information System - HuTime



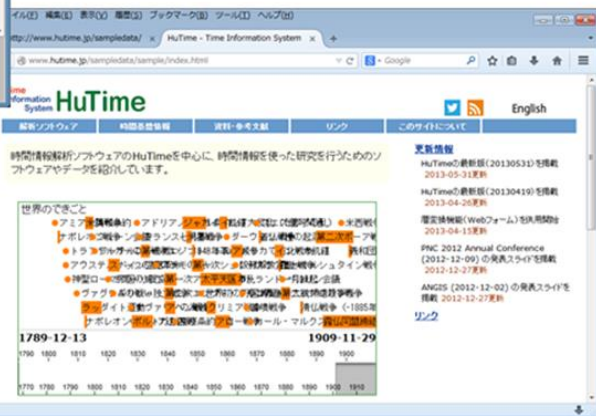
HuTime Stand Alone Version
for visualization and analysis

HuTime Web Version
(embedded in a webpage)
only for visualization

(Sample Data)

<http://www.hutime.org/sample/20141021/>

There are two versions of HuTime.



Time Basic Data

- Essential for temporal information analysis
- General and Common for various study

(1) Base Chronological Table

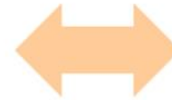
(2) Event Index

(3) Calendar Conversion

Base Maps

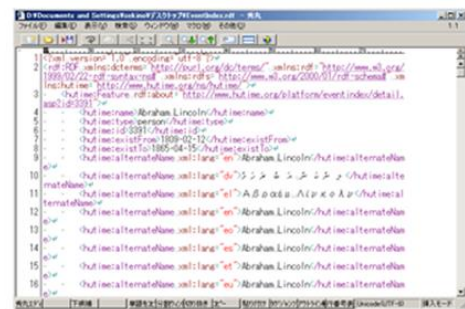
Gazetteers

Datum Conversion

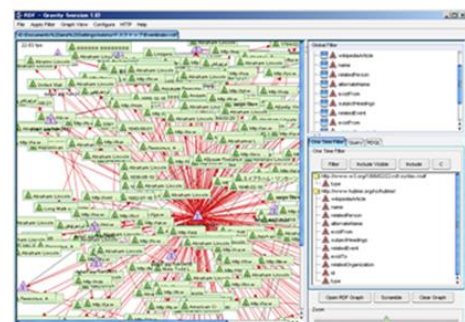


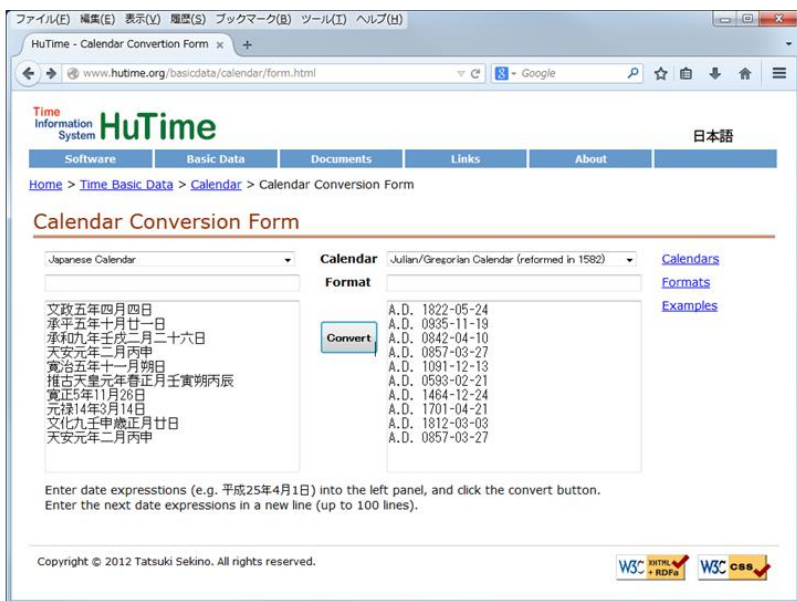
Trying to use in the linked data

RDF Output about Event Index



- Event Name
- Event Name (multi languages)
- Date
- Type of Event
- Subject in LCSH and other subject headings
- Related Location
- Related Events
- Link for Wikipedia





<http://www.hutime.org/basicdata/calendar/form.html>

Features

- Character strings expressing date are interpreted directly
- Chinese characters and expression in a specific calendar are allowed
- Multiple record are converted at once.
- Interpretation and output of the character strings according to user specified format

Basic Time Information - Calendar Conversion

Julian Date 2431980.5

owl:sameAs

- 9 June 1946
- 9 มิถุนายน 2489
- 昭和廿一年六月九日
- 民國35年6月9日
- 9 Tháng Sáu 1946
- 皇紀2604年皐月甲寅
- 단기4279년6월9일
- 1365/رجب/10
- 5706 תשרי 10

Julian Date as common temporal axis

The interval of time in days and fractions of a day since January 1, 4713 BC Greenwich noon.

1946-06-09
Date Time Format

ISO 8601 Format
YYYY-MM-DD
YYYY-MM-DDThh:mm:ss

<http://datetime.hutime.org/date/2456951.5>

┌──────────┐
Julian Date

rdf:type	xsd:date	-----	Type of URI
hutime:iso8601	2014-10-21	-----	Expression according to ISO 8601 format
owl:sameAs	URIs of expression according to various calendars		
	http://datetime.hutime.org/calendar/0001.001.001/date/2456951.5 http://datetime.hutime.org/calendar/1001.001.001/date/2456951.5		

303 Negotiation

<http://datetime.hutime.org/date/2456951.5> **URI**



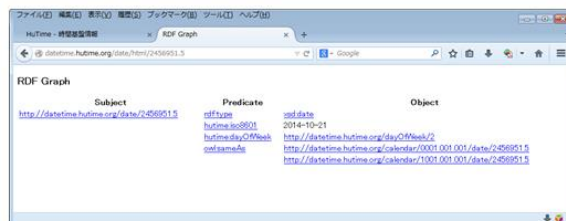
URL

<http://datetime.hutime.org/date/rdf/2456951.5>

URL

<http://datetime.hutime.org/date/html/2456951.5>

```
<rdf:RDF>
<xsd:date rdf:about="http://datetime.hutime.org/date/2456951.5">
  <hutime:dayOfWeek rdf:resource="http://datetime.hutime.org/dayOfWeek/2"/>
  <hutime:iso8601>2014-10-21</hutime:iso8601>
  <owl:sameAs
rdf:resource="http://datetime.hutime.org/calendar/0001.001.001/date/2456951.5"/>
  <owl:sameAs
rdf:resource="http://datetime.hutime.org/calendar/1001.001.001/date/2456951.5"/>
</xsd:date>
</rdf:RDF>
```



URI of a calendar date and major related triples (Julian / Gregorian Calendar)

<http://datetime.hutime.org/calendar/0001.001.001/date/2456951.5>

Calendar ID
Julian / Gregorian Calendar

Julian Date

rdf:type	xsd:date	-----	Type of URI
rdfs:label	2014-10-21	-----	Typical expression in the calendar
		- - - - -	Link to URI of Julian Date
owl:sameAs	http://datetime.hutime.org/date/2456951.5		
xsd:gYear	2014	-----	Partial expression in the calendar
xsd:gMonthDay	--10-21		
		- - - - -	Link to the DBpedia
dc:relation	http://dbpedia.org/resource/2014 http://dbpedia.org/resource/October_21		

URI of a calendar date and major related triples (Japanese Calendar)

<http://datetime.hutime.org/calendar/1001.001.001/date/2456951.5>

Calendar ID
Japanese Calendar

Julian Date

rdf:type	xsd:date	-----	Type of URI
rdfs:label	平成26年10月21日	-----	Typical expression in the calendar
		- - - - -	Link to URI of Julian Date
owl:sameAs	http://datetime.hutime.org/date/2456951.5		
xsd:gYear	0026	-----	Partial expression in the calendar
xsd:gMonthDay	--10-21		
		- - - - -	Link to the DBpedia
dc:relation	http://dbpedia.org/resource/2014 http://dbpedia.org/resource/October_21		

Various expressions in a calendar

<http://datetime.hutime.org/calendar/1001.001.001/date/平成26年10月21日>
<http://datetime.hutime.org/calendar/1001.001.001/date/平成貳拾陸年拾月貳拾壹日>

Calendar ID Expressions in the calendar



303 redirect

Standard URI in the calendar

<http://datetiume.hutime.org/calendar/1001.001.001/date/2456951.5>



Link
owl:sameAs

URI of the date (Julian Date)

<http://datetiume.hutime.org/date/2456951.5>



Link
owl:sameAs

URIs in the other calendars

<http://datetiume.hutime.org/calendar/0001.001.001/date/2456951.5>

Conclusion and Future Issues

Time basic data

- Basic Chronological Table
- Event Index
- Calendar Conversion

Event index for linked data

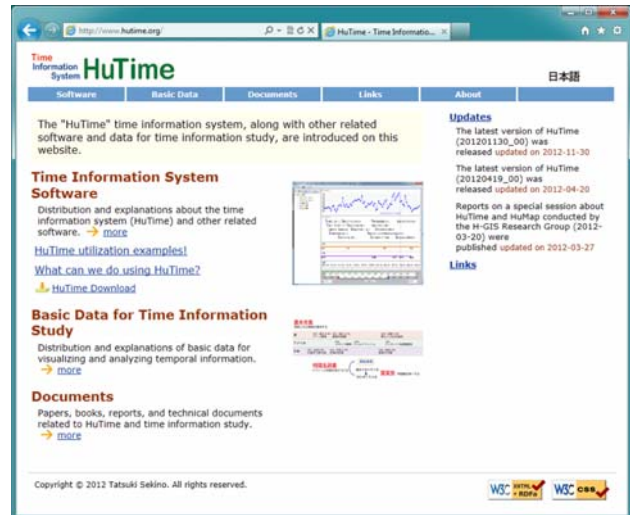
- Exporting RDF data of information about searched event

Calendar conversion for linked data

- URI of date according to Julian Date
- URI of date according to a specified calendar
- Interpretation of character string expressing date

Thank you
for your attention

Tatsuki Sekino



<http://www.hutime.org/>

HuTime and related documents are available

