

The Linked Legal Data Landscape



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European Legal Data Landscape

- Legal databases
 - For different jurisdictions
 - Have different access policies
 - Run by governments and non-governmental organizations
- Automated data processing is challenging
 - Missing/ incomplete and heterogeneous metadata
 - Access policies, file formats, etc.



European Legal Data Landscape

Interlinked legal data across Europe

- European Law Identifier (ELI), European Case Law Identifier (ECLI)
 - Proposed by the Council of the European Union ~10 years ago
 - Standardized identifiers for legislative (ELI) and judiciary (ECLI) documents

<http://data.europa.eu/eli/dir/2014/92/oj>

<https://www.ris.bka.gv.at/eli/bqbl/I/2016/35/20160608>

 - Minimum set of metadata for legal documents (publication date, title,...)
 - Metadata is published in a semantic web format to be reused
- Additional data
 - Named Authority Lists (language, country codes,...)
 - Thesauri



Austria's contribution to The European Legal Data Landscape



Legal Data in Austria

The Starting Point

- Central point for legal information
 - Federal/ state law (law gazettes, consolidated versions)
 - Judicial branch
 - All documents publicly available
- ELI and ECLI partially implemented
- Documents only partially interlinked
- Keyword based search process with additional filters
- RIS API

RECHTSINFORMATIONSSYSTEM DES BUNDES RIS

[Bundesrecht] Landesrecht Bezirke Gemeinden Judikatur Kundmachungen, Erlässe Gesamtanfrage

Bundesrecht konsolidiert

Suchworte
Titel, Abkürzung
Paragraf von bis
Artikel von bis
Anlage von bis
Kundmachungsorgan
Typ
Index
Unterzeichnungsdatum

Suche nach Fassung
Fassung vom 26-01-2022
Suche nach zeitlichem Geltungsbereich
Inkrafttretensdatum von bis
Außerkrafttretensdatum von bis
Neu/geändert im RIS seit

Suche starten Zurücksetzen

Webseiten
Bundeskanzleramt
Bundesministerium für Digitalisierung und Wirtschaftsstandort
Oesterreich.gv.at
Parlamentarische Materialien
Fundstellennachweis zu den Materialien
SozDok – Dokumentation des SV-Rechts
EU-Recht

Informationen
Coronavirus - Rechtliches BMSGPK
COVID-19 - Ausgewählte Rechtsnormen
Index des Bundesrechts
Stand der Aktualität
Abkürzungsverzeichnis

Enhancements: Modelling The AustroVoc Thesaurus

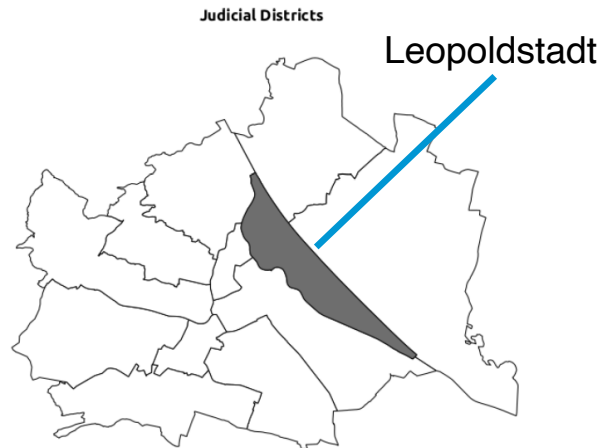
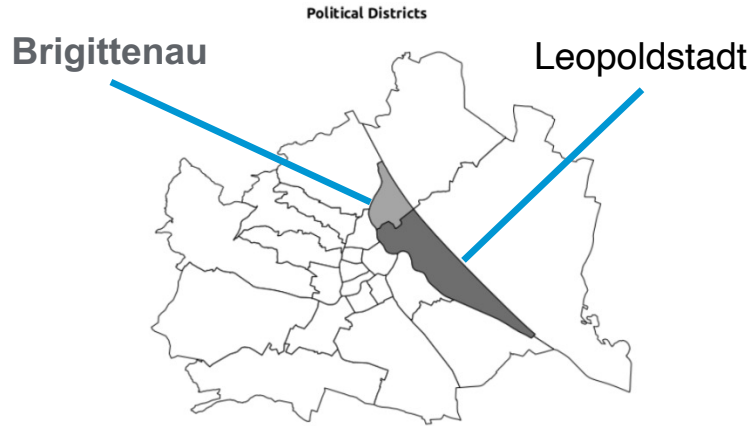
Bundesrechtindex

- - Bundesrechtindex
 - - Verfassungs- und Organisationsrecht, Medienrecht, allgemeine international Angelegenheiten
 - + Verfassungsrecht
 - + Hoheitsgebiet, Grenzen
 - + Internationale Angelegenheiten
 - + Staatsvertragsdurchführung, Kriegsfolgen
 - + Organisationsrecht
 - Unabhängigkeitserklärung, Rechtsüberleitung, Übergangsrecht, Rechtsbereinigung
 - + Medienrecht
 - Vereinbarungen gemäß Art. 15a B-VG
 - Kundmachungswesen
 - + Völkerrechtliche Verträge
 - - Zivil- und Strafrecht
 - - Privatrecht allgemein
 - Allgemeines bürgerliches Gesetzbuch (ABGB)
 - Familienrecht
 - Erwachsenenschutz
 - Erbrecht einschließlich Anerbenrecht
 - Wohn- und Mietrecht
 - Konsumentenschutz
 - Schadenersatz, Haftpflicht
 - Urheberrecht
 - Internationales Privatrecht
 - Priester, Ordensleute
 - Grundbuch
 - Urkunden
 - Sonstiges
 - + Handels- und Wertpapierrecht
 - + Zivilprozess, Außerstreitiges Verfahren
 - + Insolvenzrecht, Exekutionsrecht
 - - Strafrecht
 - Strafgesetzbuch
 - Jugendgerichtsbarkeit

➤ AustroVoc thesaurus

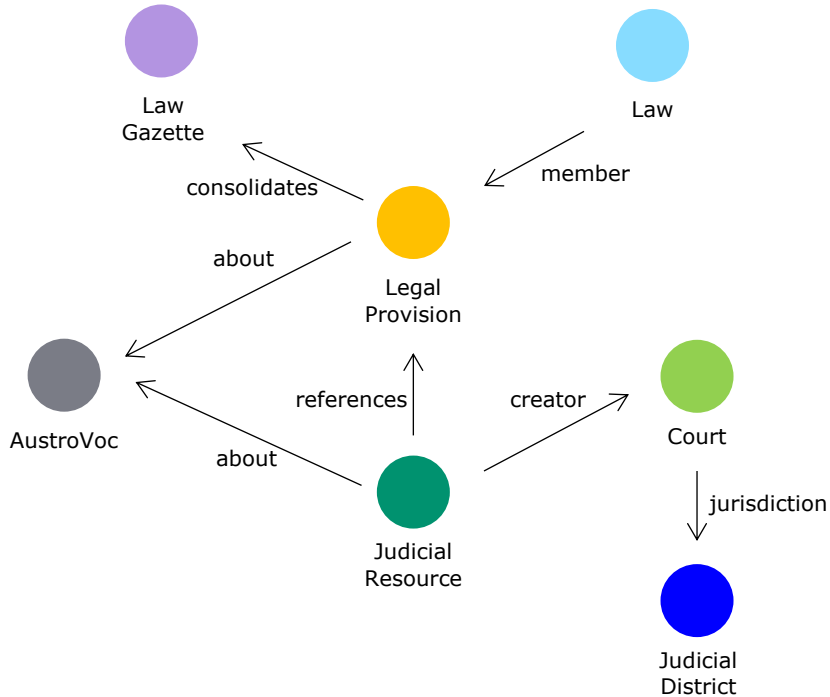
- Austrian specific legal terms and entities
- Law index turned into a thesaurus
- Laws and court decisions reference law index
- Resource types
- Court types

Enhancements: Modelling The AustroVoc Thesaurus



- Courts and Judicial Districts
 - Court hierarchy
 - Spatial information

Enhancements: Modelling A Legal Knowledge Graph



➤ Legal Knowledge Graph

- Model to represent Austrian legal information

➤ New classes

- Law Gazette
- Law
- Legal Provision
- Judicial Resource
- Court
- Judicial District

Enhancements: Population Legal Entity Extraction



1. Gemäß [§ 18 Abs 1 erster Satz BStG 1971](#) gebührt dem Enteigneten für alle durch die Enteignung verursachten vermögensrechtlichen Nachteile Schadloshaltung ([§ 1323 ABGB](#)). Die dem Enteigneten gebührende Entschädigung muss alle durch die Enteignung verursachten vermögensrechtlichen Nachteile erfassen, wobei der Verkehrswert der entzogenen Liegenschaft den wichtigsten Faktor für dessen Bemessung darstellt ([6 Ob 161/10k mwN](#)). Auch eine nachträgliche Entwicklung der tatsächlichen Verhältnisse, die im Zeitpunkt der Enteignung als wahrscheinlich vorausgesehen werden konnte, kann die Höhe des zu ersetzenden Verkehrswerts (hier: nach [§ 18 BStG](#)) beeinflussen (RIS-Justiz [RS0053483](#)). Für die Bewertung eines Grundstücks sind nach ständiger Rechtsprechung des [Obersten Gerichtshofs](#) daher neben der bestehenden Widmung auch realistisch beurteilte künftige Verwendungsmöglichkeiten samt ihrer Auswirkung auf den Marktwert entscheidend, sofern die reale Möglichkeit einer solchen Verwendung bereits im Zeitpunkt der Enteignung gegeben war und nicht bloß für eine noch unbestimmte Zukunft erhofft worden ist (RIS Justiz [RS0058043](#) [T3]; [RS0057977](#); [RS0057981](#); zuletzt [3 Ob 46/11b](#); [1 Ob 201/13k](#) je mwN [krit zur Einstufung als Bauerwartungsland bei bloßer Möglichkeit der Umwidmung: Kerschner, Bauerwartungsland, [ZfB 2013/38](#)]).

- Corpus of 50 Austrian Supreme Court decision texts
 - Manually annotated
 - 7 different entities
 - Reference
 - Person
 - Court

- Comparative analysis of entity extraction approaches
 - Rules
 - Conditional Random Fields (CRF)
 - Flair
 - BERT
 - DistilBERT

Enhancements: Population Legal Entity Extraction

„[...] zugunsten des obsiegenden Klägers (RIS-Justiz **RS0079624** [T14]). Ein berechtigtes Interesse des obsiegenden Beklagten an der Urteilsveröffentlichung ist dann gegeben, wenn der Rechtsstreit eine gewisse Publizität erlangt hat (RIS-Justiz **RS0079511**), etwa wenn [...]“

RS [0-9] * → **LegalRule**

„[...] vgl. **Mayrhofer/Tangl in Fenyves/Kerschner/Vonkilch, Klang3 § 6 Abs 1 Z 2 KSchG Rz 1** [...]“

- Rules
 - Different rules for all entities
 - Mainly regular expression based
- CRF
 - Features of a token,
 - For instance position and casing, are used to calculate the probabilities of tokens following each other
- Machine Learning
 - Flair
 - Contextualized character level embeddings
 - BERT
 - Transformer based architecture
 - DistilBERT
 - A teacher-student setting

Enhancements: Population

Legal Entity Extraction

- 50 Austrian Supreme Court decisions

„[...] zugunsten des obsiegenden Klägers (RIS-Justiz **RS0079624** [T14]). Ein berechtigtes Interesse des obsiegenden Beklagten an der Urteilsveröffentlichung ist dann gegeben, wenn der Rechtsstreit eine gewisse Publizität erlangt hat (RIS-Justiz **RS0079511**), etwa wenn [...]“

„[...] vgl. **Mayrhofer/Tangl in Fenyves/Kerschner/Vonkilch, Klang3 § 6 Abs 1 Z 2 KSchG Rz 1 [...]**“

	Approach	Case Reference	Contributor	Court	Legal Provision	Law Gazette	Legal Rule	Literature	
F-Scores	Rules	Rules (lenient)	0.9824	0.8426	0.9801	0.9090	0.9460	1	0.8674
	ML / DL	CRF	0.9787	0.9328	0.9616	0.9459	0.9473	0.9997	0.8866
		BERT	0.9712	0.9583	0.9616	0.9489	0.9396	0.9986	0.8448
		DistilBERT	0.9772	0.9551	0.9586	0.9521	0.9437	0.9989	0.8626
Δ			0.0112	0.1157	0.0215	0.0431	0.0077	0.0014	0.0418

Enhancements: Population Legal Event Extraction

THE FACTS

I. THE CIRCUMSTANCES OF THE CASE

5. The applicant was born in 1965 and lives in Szajol.

6. On 6 October 1990 he married Ms N.R. The couple had one daughter, R.Ó, born on 23 March 1994.

7. On 24 March 2006 the couple divorced and agreed on custody of the child and other parental rights. Their agreement, which was approved by the Szolnok District Court, placed the daughter with her mother and granted the applicant contact every other weekend, during the school holidays, Easter Sunday, Whit Monday, the first holiday following Christmas Eve and three weeks during the summer holidays. The applicant was also to pay child allowance, amounting to 20% of his salary, but at least 20,000 Hungarian forints (HUF approximately 66 euros (EUR)) per month.

8. Ms N.R. moved out of the former family home and took up residence in Budapest.

9. The applicant could exercise contact on 25 and 26 June and 24 July 2006. However, his daughter was reluctant to stay with him during the summer holidays and preferred to spend her holidays with her grandparents.

10. The applicant's further attempts to exercise contact failed, seemingly because in the mother's view it was up to the child to decide whether she wanted to see her father. The applicant applied to the Szolnok County Guardianship Authority to have the contact agreement enforced. In a decision of 11 September 2006 it ordered Ms N.R. to comply with the agreement, warning her that failure to do so could result in her being fined and ordered to reimburse the applicant's travel costs. Given the strained relationship between the parents, a notary initiated child protection proceedings (védelembe vétel) on 27 December 2006. Subsequently, on a number of occasions Ms N.R. was fined for not complying with the agreement. It appears from the case file that the applicant could exercise contact between 10 July 2007 and 10 November 2008.

11. In 2007 Ms N.R. brought an action seeking to change the applicant's contact rights and an increase in the amount of child allowance. In a counterclaim the applicant requested that the child be placed in his custody.

12. The applicant also filed a criminal complaint against Ms N.R. alleging child endangerment. The parties' attempt to stabilise the relationship between the applicant and his daughter during the suspension of the custody proceedings were unsuccessful and the Szolnok District Court ordered that any meetings between them take place at a child protection centre.

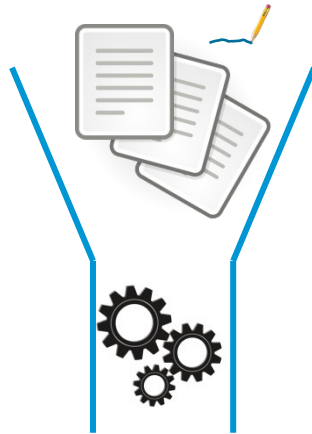
13. In a judgment of 10 June 2008 the Szolnok District Court reduced the applicant's contact with his daughter to every first and third Saturday of the month from 9 a.m. to 6 p.m. It held that the previously agreed form of contact was unlikely to be implemented and would only lead to further proceedings before the guardianship authority, which would be to the detriment of the child. The court based its judgment on an expert opinion finding that the child should have had an adaptation period to re-establish her relationship with her father. The court dismissed the applicant's claim concerning custody, stating that the child's wishes had to be taken into account, given that she was now fourteen years of age.

14. On 19 November 2008 the Jász-Nagykun-Szolnok County Regional Court upheld the first-instance judgment in essence but amended the applicant's contact rights to every other Saturday between 9 a.m. and 4 p.m. until 31 May 2009, and all weekend-long visits every other weekend as of 1 June 2009.

15. In 2009 the applicant failed to turn up at numerous scheduled meetings for months, for which he was fined HUF 10,000 (approximately EUR 35).]

- Court decisions are long
- „What happened when?“
- Quick overview over case
- Components
 - Dates („when“)
 - Subjects („who“)
 - Core („what“)

Enhancements: Population Legal Event Extraction



- 1) Comparative analysis of temporal taggers
 - TempCourt corpus
 - 30 documents of ECHR, ECJ and USSC
- 2) Comparative analysis of event extraction approaches
 - EventsMatter corpus
 - 30 documents of ECHR

1965	The applicant was born.
June 1999	The applicant refused to see his son.
15 January 2000	The District Court upheld the judgment.

Enhancements: Population Legal Event Extraction

5. The applicant was born in 1955 and lives in Marusino, Moscow Region.
- A. The applicant's arrest and detention with a view to extradition
6. On 1 August 2000 the Ministry of the Interior of Belarus ordered the applicant's arrest on suspicion of her having committed several criminal offences. On an unspecified date her name was put on the international wanted persons list.
7. On 18 February 2014 the applicant was arrested in Lyubertsy, Moscow Region.
8. On 20 February 2014 the Lyubertsy Town Court of the Moscow Region authorised the applicant's detention for forty days pending her extradition to Belarus.
9. On 28 March 2014 the Town Court extended the applicant's detention until 18 August 2014.
10. On 18 August 2014 the Town Court extended the applicant's detention until 18 February 2015. On 18 September 2014 the Moscow Regional Court upheld the decision of 18 August 2014 on appeal. The applicant did not attend the hearing. The applicant's lawyers were present and made submissions to the court.
11. On 10 February 2015 the Town Prosecutor ordered the applicant's release on an undertaking not to leave town.
12. On 20 August and 21 September 2015 the investigative committee of the Republic of Belarus discontinued the criminal proceedings against the applicant.
13. On 4 February 2016 the Town Prosecutor discontinued the extradition proceedings against the applicant.
- B. Conditions of the applicant's detention and transfers
14. From 21 February 2014 to 10 February 2015 the applicant was detained in remand prison SIZO-6 in the Moscow Region. According to the Government, she was held in the following cells:

23. On 21 January 2015 the Tverskoy District Court of Moscow dismissed a complaint by the applicant against the prosecutor's decision of 10 October 2014, without considering the merits.
24. On 11 March 2015 the Moscow City Court quashed the decision of 21 January 2015 and remitted the matter to the District Court for fresh consideration.
25. On 6 May 2015 the District Court dismissed the applicant's complaint against the decision of 10 October 2014.
26. On 17 August 2015 the City Court upheld the decision of 6 May 2015 on appeal.
- D. Annulment of the applicant's Russian passport
27. On 24 January 2001 the applicant was issued with a Russian passport by the Russian Embassy in Minsk, Belarus. On an unspecified date she moved to Moscow, Russia.
28. On 20 August 2004 a district police department in Moscow issued an internal passport in the applicant's name.
29. On 16 February 2012 the Moscow City Department of the Federal Migration Service decided, on the basis of an earlier inquiry, that the applicant had been wrongly issued with a Russian passport. They based their findings, inter alia, on information received from the Russian Embassy in Minsk indicating that there was no information in the relevant database confirming the issuance of a Russian passport in the applicant's name in 2001.
30. On 5 February 2015 the Lyublinskiy District Court of Moscow dismissed a complaint by the applicant against the decision of 16 February 2012. On 26 June 2015 the City Court upheld the decision of 5 February 2015.
31. On an unspecified date the applicant, being a Belorussian citizen, applied for a residency permit in Russia. On 17 April 2017 the Federal Migration Service issued a residency permit.

➤ Annotation

- Event types
- Event components

➤ Comparative analysis

- Rules
- Conditional Random Fields (CRF)
- Flair
- BERT
- DistilBERT

Enhancements: Population

Legal Event Extraction

- EventsMatter corpus: 30 court decisions of ECHR

„The applicant **refused to see his son** in June 1999.“

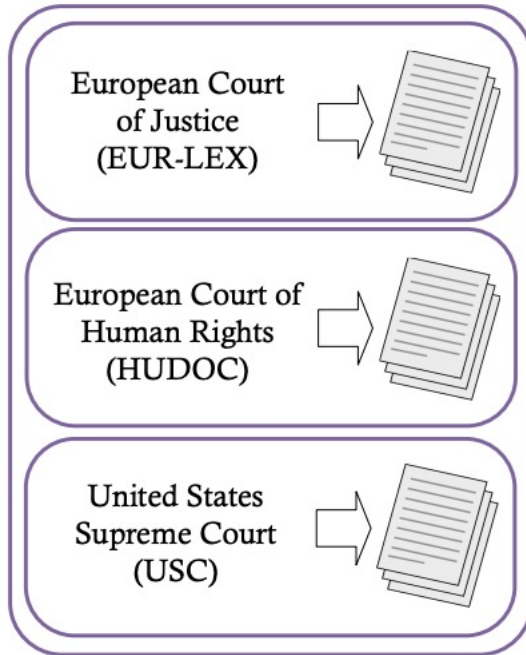
„On 15 January 2000 the District Court **upheld the Judgment.** “

		Approach	What	When	Who
F-Scores	Rules	Rules (lenient)	0.2195	0.6977	0.6857
	ML/DL	CRF	0.8050	0.8658	0.7834
		BERT	0.6583	0.9022	0.9044
		DistilBERT	0.6237	0.8823	0.8998
	Δ		0.5855	0.2045	0.2187

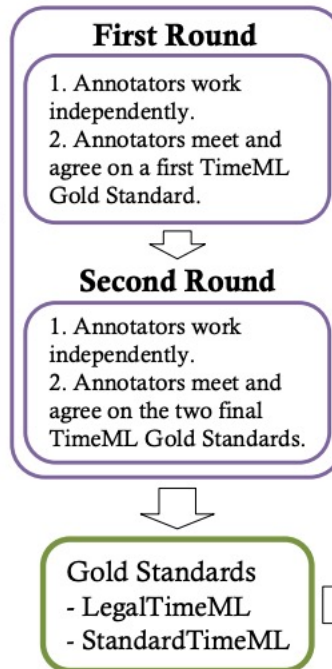
Enhancements: Population

Legal Temporal Entity Extraction

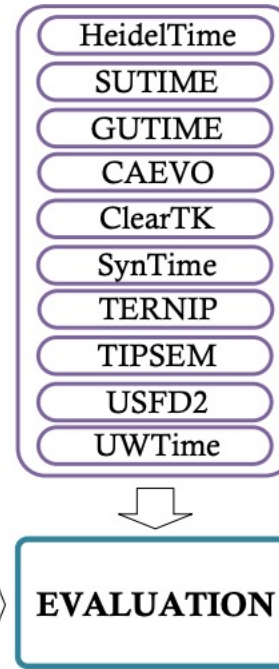
DOCUMENT COLLECTION



ANNOTATION



TAGGING



Enhancements: Population

Legal Temporal Entity Extraction

Table 1 Structure of ECJ, ECHR and USC decisions.

Section	ECJ	ECHR	USC
A	Involved parties	Involved parties	Involved parties
B	Case summary	Procedure	Syllabus
C	Legal framework	Circumstances of the case	Main Opinion
D	Circumstances of the case	Legal framework	Concurring and dissenting opinions
E	Court assessment	Court assessment	
F	Judgment	Judgment	

Table 5 Overview of temporal taggers. (*) Not all the types are covered.

Temporal Tagger	Approach	Identification	Normalization	Events	Relations
HeidelTime (HE)	rule-based	✓	✓	-	-
SUTime (SU)	rule-based	✓	✓	-	-
GUTime (GU)	hybrid	✓	✓	✓	✓
CAEVO (CA)	hybrid	✓	✓	✓	✓
ClearTK (CL)	machine-learning	✓	-	✓	✓
SynTime (SY)	rule-based	✓	-	-	-
TERNIP (TE)	rule-based	✓	✓	-	-
TIPSem (TI)	hybrid	✓	✓	✓	✓
USFD2 (US)	hybrid	*	*	-	*
UWTime (UW)	hybrid	✓	✓	-	-

Enhancements: Population

Legal Temporal Entity Extraction

Table 3 Corpus statistics

Corpus	# Doc.	# Tokens	Doc. Size (Avg. KB)	Doc. Size (Avg. Tokens)	Sentence length (Avg. Tokens)
ECHR	10	7,252	4	725	13
ECJ	10	53,044	32	5,304	32
USC	10	50,874	25	5,087	18
Total	30	111,170	20	3,705	21

Table 4 Statistics of corpora annotated with TimeML in literature.

Corpus	# Doc.	# Tokens	Doc. Size (Avg. Tokens)
TimeBank ²⁰	183	78,444 (61,000 ²¹)	428.7
AQUAINT ²²	73	34,154	467.9
TempEval-3 Eval. (<i>Platinum</i>) (47)	20	~6,000 ²³	~300
WikiWars (42)	22	119,468	5,430.4
Time4SMS (42)	1,000	20,176	20.2
Time4SCI (42)	50	19,194	383.9

Enhancements: Population

Legal Temporal Entity Extraction

Table 7 Evaluation results for the ECHR corpus for each temporal tagger, both for identification (two first columns, *lenient* and *strict*) and normalization (two last columns, *lenient* and *strict*). The first row (in white) corresponds to results against the *StandardTimeML* gold standard, while the second (in gray) corresponds to the *LegalTimeML* gold standard.

A	lenient			strict			lenient+ value			strict+ value		
	P	R	F1	P	R	F1	P	R	F1	P	R	F1
HE	0.99	0.99	0.99	0.84	0.84	0.84	0.78	0.78	0.78	0.78	0.78	0.78
	0.88	0.99	0.93	0.71	0.80	0.75	0.67	0.75	0.71	0.64	0.72	0.68
SU	0.88	0.87	0.88	0.85	0.84	0.84	0.78	0.78	0.78	0.76	0.75	0.75
	0.76	0.85	0.80	0.71	0.80	0.76	0.66	0.74	0.79	0.64	0.72	0.68
GU	0.96	0.93	0.94	0.95	0.92	0.93	0.86	0.84	0.85	0.86	0.84	0.85
	0.84	0.92	0.88	0.83	0.92	0.87	0.74	0.82	0.78	0.74	0.82	0.78
CA	0.88	0.87	0.87	0.83	0.82	0.82	0.78	0.78	0.78	0.75	0.75	0.75
	0.75	0.85	0.80	0.70	0.79	0.74	0.65	0.74	0.69	0.64	0.72	0.67
CL	0.92	0.78	0.85	0.34	0.32	0.35	-	-	-	-	-	-
	0.80	0.77	0.78	0.33	0.32	0.33	-	-	-	-	-	-
SY	0.98	0.93	0.96	0.83	0.79	0.81	0	0	0	0	0	0
	0.86	0.93	0.90	0.70	0.76	0.73	0	0	0	0	0	0
TE	0.94	0.95	0.95	0.92	0.93	0.92	0.86	0.88	0.87	0.85	0.86	0.85
	0.83	0.95	0.89	0.80	0.92	0.85	0.75	0.86	0.80	0.72	0.83	0.77
TI	0.78	0.85	0.81	0.64	0.70	0.67	0.64	0.71	0.67	0.63	0.69	0.66
	0.69	0.86	0.76	0.62	0.77	0.69	0.64	0.79	0.71	0.61	0.76	0.68
US	0.73	0.61	0.67	0.69	0.58	0.63	0	0	0	0	0	0
	0.65	0.62	0.64	0.61	0.58	0.60	0	0	0	0	0	0
UW	0.90	0.53	0.67	0.51	0.30	0.38	0.55	0.33	0.41	0.51	0.30	0.38
	0.86	0.58	0.69	0.48	0.32	0.38	0.51	0.34	0.41	0.48	0.32	0.38

Temporal Tagger

HeidelTime (HE)
SUTime (SU)
GUTime (GU)
CAEVO (CA)
ClearTK (CL)
SynTime (SY)
TERNIP (TE)
TIPSem (TI)
USFD2 (US)
UWTime (UW)

Enhancements: Population

Legal Temporal Entity Extraction

Table 8 Evaluation results for the ECJ corpus for each temporal tagger, both for identification (two first columns, *lenient* and *strict*) and normalization (two last columns, *lenient* and *strict*). The first row (in white) corresponds to results against the *StandardTimeML* gold standard, while the second (in gray) corresponds to the *LegalTimeML* gold standard.

A	lenient			strict			lenient+ value			strict+ value		
	P	R	F1	P	R	F1	P	R	F1	P	R	F1
HE	0.48	0.95	0.64	0.47	0.94	0.63	0.47	0.94	0.62	0.47	0.93	0.62
	0.27	0.97	0.42	0.26	0.96	0.41	0.26	0.94	0.40	0.26	0.93	0.40
SU	0.81	0.97	0.88	0.79	0.95	0.86	0.78	0.93	0.85	0.77	0.92	0.84
	0.44	0.95	0.60	0.43	0.93	0.58	0.41	0.90	0.57	0.41	0.89	0.56
GU	0.97	0.87	0.91	0.97	0.86	0.91	0.94	0.84	0.89	0.94	0.84	0.88
	0.51	0.82	0.63	0.50	0.82	0.62	0.48	0.78	0.60	0.48	0.78	0.60
CA	0.89	0.74	0.81	0.85	0.70	0.77	0.86	0.71	0.77	0.85	0.70	0.77
	0.49	0.74	0.59	0.46	0.70	0.56	0.46	0.70	0.56	0.46	0.69	0.55
CL	0.77	0.88	0.82	0.32	0.36	0.34	-	-	-	-	-	-
	0.42	0.88	0.57	0.18	0.37	0.24	-	-	-	-	-	-
SY	0.89	0.99	0.93	0.81	0.90	0.85	0	0	0	0	0	0
	0.49	0.98	0.65	0.46	0.92	0.61	0	0	0	0	0	0
TE	0.97	0.88	0.92	0.96	0.88	0.91	0.96	0.87	0.91	0.95	0.87	0.91
	0.54	0.89	0.67	0.53	0.88	0.66	0.53	0.88	0.65	0.52	0.87	0.65
TI	0.72	0.81	0.76	0.64	0.72	0.68	0.62	0.70	0.65	0.61	0.69	0.65
	0.41	0.83	0.54	0.37	0.75	0.49	0.35	0.71	0.47	0.34	0.70	0.46
US	0.31	0.54	0.39	0.29	0.51	0.37	0.02	0.04	0.03	0.02	0.03	0.02
	0.20	0.65	0.31	0.19	0.61	0.29	0.02	0.06	0.03	0.02	0.05	0.02
UW	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-

Temporal Tagger

HeidelTime (HE)
SUTime (SU)
GUTime (GU)
CAEVO (CA)
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SynTime (SY)
TERNIP (TE)
TIPSem (TI)
USFD2 (US)
UWTime (UW)

Enhancements: Population Legal Temporal Entity Extraction

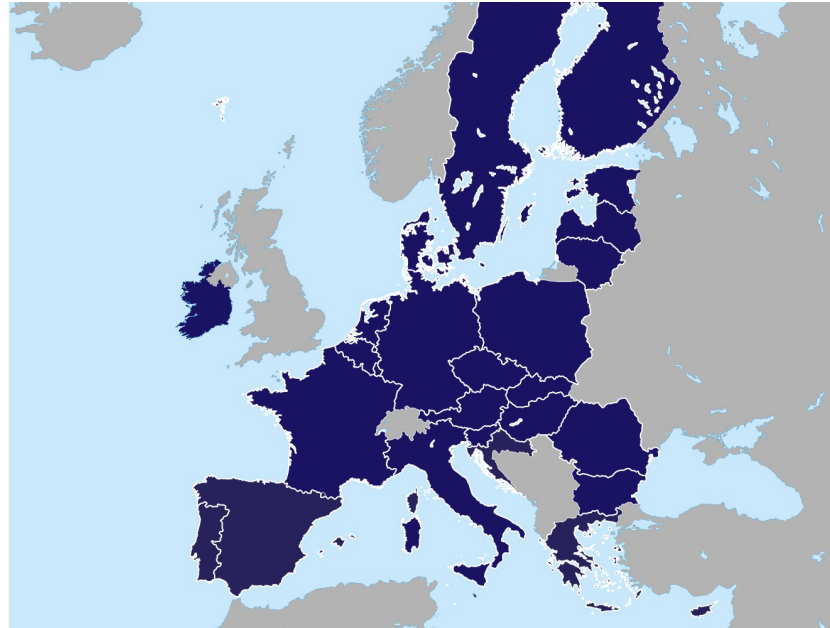
Table 9 Evaluation results for the USC corpus for each temporal tagger, both for identification (two first columns, *lenient* and *strict*) and normalization (two last columns, *lenient* and *strict*). The first row (in white) corresponds to results against the *StandardTimeML* gold standard, while the second (in gray) corresponds to the *LegalTimeML* gold standard.

A	lenient			strict			lenient+ value			strict+ value		
	P	R	F1	P	R	F1	P	R	F1	P	R	F1
HE	0.83	0.94	0.88	0.81	0.92	0.86	0.79	0.90	0.84	0.79	0.89	0.83
	0.29	0.97	0.44	0.26	0.88	0.40	0.20	0.67	0.31	0.19	0.64	0.29
SU	0.75	0.99	0.85	0.72	0.95	0.82	0.67	0.88	0.76	0.66	0.86	0.75
	0.25	0.98	0.40	0.23	0.90	0.36	0.18	0.72	0.29	0.17	0.69	0.28
GU	0.84	0.78	0.81	0.71	0.66	0.69	0.67	0.62	0.65	0.65	0.60	0.62
	0.25	0.69	0.36	0.16	0.45	0.23	0.12	0.34	0.18	0.10	0.27	0.14
CA	0.77	0.90	0.82	0.72	0.84	0.77	0.73	0.85	0.78	0.71	0.83	0.76
	0.23	0.82	0.36	0.21	0.72	0.32	0.21	0.73	0.33	0.20	0.69	0.30
CL	0.85	0.84	0.84	0.81	0.79	0.80	-	-	-	-	-	-
	0.30	0.89	0.45	0.26	0.78	0.39	-	-	-	-	-	-
SY	0.85	0.98	0.91	0.78	0.91	0.84	0	0	0	0	0	0
	0.28	0.98	0.44	0.24	0.84	0.37	0	0	0	0	0	0
TE	0.93	0.86	0.90	0.90	0.83	0.86	0.86	0.79	0.83	0.85	0.78	0.81
	0.32	0.90	0.48	0.29	0.81	0.43	0.25	0.69	0.37	0.23	0.64	0.34
TI	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-
US	0.50	0.30	0.37	0.39	0.23	0.29	0.08	0.02	0.08	0.02	0.01	0.02
	0.16	0.28	0.21	0.07	0.13	0.09	0.08	0.14	0.10	0.03	0.05	0.04
UW	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-

Temporal Tagger

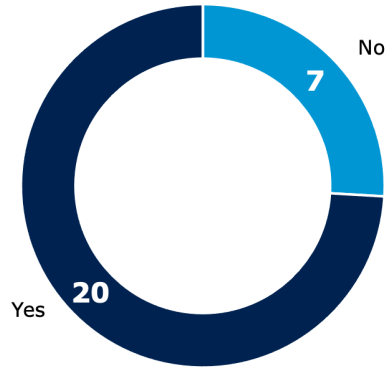
HeidelTime (HE)
SUTime (SU)
GUTime (GU)
CAEVO (CA)
ClearTK (CL)
SynTime (SY)
TERNIP (TE)
TIPSem (TI)
USFD2 (US)
UWTime (UW)

EU member state contribution to The European Legal Data Landscape

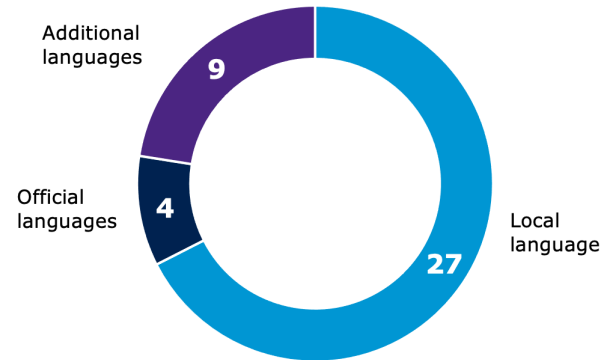


Legal data in Europe

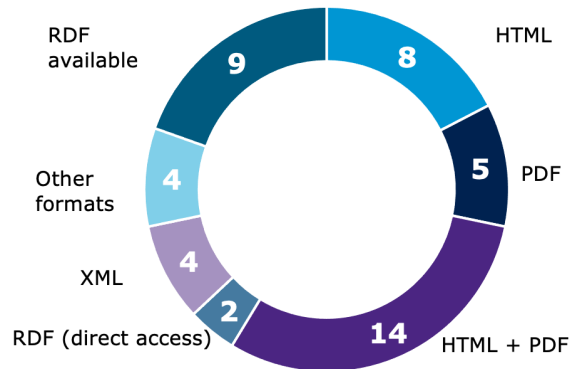
Central Search Interface



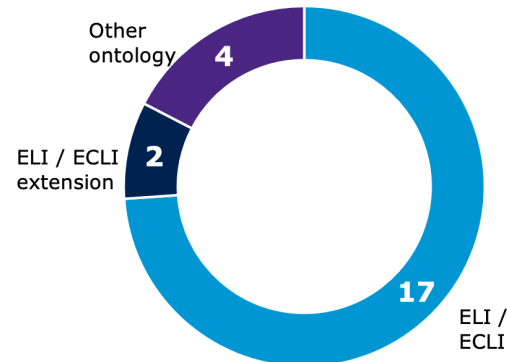
Documents available in language



Document formats



Used ontologies



Legal data in Europe

Country	Central Interface	ECLI Search	Search Interface	Document Format	Languages
Austria	✓	-	Keyword	HTML, PDF, RTF, XML	DE, EN*
Belgium	-	✓	Keyword	HTML	FR, NL, DE
Bulgaria	-	✓	Keyword	HTML, PDF	BG
Croatia	-	✓	Keyword	HTML	HR
Cyprus	✓	-	Keyword	PDF	EL
Czech Republic	-	✓	Keyword	PDF	CZ
Denmark	-	-	Faceted	HTML, PDF	DK
Estonia	✓	✓	Keyword	HTML, PDF, TXT, XML	EE, EN*
Finland	✓	✓	Keyword, SPARQL	HTML	FI, SE
France	✓	✓	Keyword	HTML, PDF	FR, EN*, DE*, IT*, ES*
Germany	-	✓	Keyword	HTML	DE, EN*
Greece	-	✓	Keyword	PDF	EL
Hungary	-	-	Keyword	HTML	HU, EN*
Ireland	-	-	Keyword	HTML, PDF	EN
Italy	-	✓	Keyword	HTML	IT
Latvia	-	✓	Keyword	HTML, PDF	LV, EN*, RU*
Lithuania	-	-	Faceted	HTML, PDF	LT
Luxembourg	-	-	Faceted, SPARQL	HTML, PDF, XML, RDF	FR
Malta	-	-	Keyword	PDF	MT, EN
Netherlands	-	✓	Both	HTML, PDF, RDF	NL, FR, EN*
Poland	-	-	Keyword	PDF	PL
Portugal	✓	✓	Faceted	HTML, PDF	PT, EN*
Romania	-	-	Keyword	HTML	RO
Slovakia	✓	-	Keyword	HTML, PDF	SK
Slovenia	-	✓	Keyword	HTML, PDF, DOCX	SI, EN*
Spain	-	✓	Both	HTML, PDF, XML, EPUB	ES
Sweden	-	-	Keyword	HTML	SE

Legal data in Europe

Country	Implementation ELI	Implementation ECLI	Data Availability	Information ELI / ECLI / NAL	Thesaurus
Austria	Identifier	Identifier	-	✓/ - / -	✓
Belgium	Identifier	Identifier	-	✓/ ✓/ -	-
Bulgaria	-	Identifier	-	- / ✓/ -	-
Croatia	Identifier	Identifier	-	✓/ - / -	-
Cyprus	-	-	-	- / ✓/ -	-
Czech Republic	-	Identifier	-	- / ✓/ -	-
Denmark	Identifier/Metadata	-	RDF	✓/ ✓/ ✓	-
Estonia	-	Identifier	-	- / ✓/ -	✓
Finland	Identifier/Metadata (+)	Identifier/Metadata (+)	RDF	✓/ ✓/ ✓	✓
France	Identifier/Metadata	Identifier	RDFa	✓/ ✓/ -	-
Germany	-	Identifier/Metadata	-	- / ✓/ -	-
Greece	-	Identifier	-	-	-
Hungary	-	-	-	✓/ - / -	-
Ireland	Identifier/Metadata	-	RDFa, RDF	✓/ ✓/ -	-
Italy	Identifier/Metadata	Identifier	RDFa, RDF	✓/ ✓/ ✓	-
Latvia	- (+)	Identifier	-	- / ✓/ -	-
Lithuania	-	-	-	- / ✓/ -	✓
Luxembourg	Identifier/Metadata (+)	-	RDFa	✓/ - / ✓	-
Malta	-	Identifier	-	✓/ - / -	-
Netherlands	- (+)	Identifier/Metadata	RDFa, RDF	- / ✓/ -	-
Poland	-	-	-	-	-
Portugal	Identifier/Metadata	Identifier (+)	RDFa	✓/ - / -	-
Romania	-	Identifier	-	- / ✓/ -	-
Slovakia	-	Identifier	-	- / ✓/ -	✓
Slovenia	- (+)	Identifier	-	- / ✓/ -	-
Spain	Identifier/Metadata	Identifier	RDFa	✓/ - / ✓	-
Sweden	-	-	-	-	-

Legal data in Europe

Project	Type	Using ELI / ECLI	Extension ELI / ECLI	Data Availability	Thesaurus	Open Data Linking	SPARQL
Legal Knowledge Graph	Linking	✓/✓	LKG / LKG	RDF	EuroVoc, Other	✓	✓
Semantic Finlex	Linking	✓/✓	SFL / SFCL	RDF	EuroVoc, Other	✓	✓
Nomothesia	Linking	✓/ -	Nomothesia / -	RDF	-	✓	✓
EUCases	Linking	✓/✓	-	-	EuroVoc, Other	-	-
Lynx	Linking	✓/ -	Lynx-LKG	RDF	EuroVoc, Other	✓	✓
GDPRtEXT	Linking	✓/ -	GDPRtEXT	RDF	-	-	✓
Linkoln	Extraction	✓/ -	-	-	-	-	-
BO-ECLI	Extraction	- / ✓	-	-	-	-	-

Putting it all together!

How has the European Directive 2014/92/EU been implemented in EU member states?



35. Bundesgesetz, mit dem ein Bundesgesetz über die Vergleichbarkeit von Entgelten für Verbraucherzahlungskonten, den Wechsel von Verbraucherzahlungskonten und den Zugang zu Verbraucherzahlungskonten mit grundlegenden Funktionen (Verbraucherzahlungskontogesetz – VZKG) erlassen wird und das Konsumentenschutzgesetz und das Finanzmarktaufsichtsbehördengesetz geändert werden

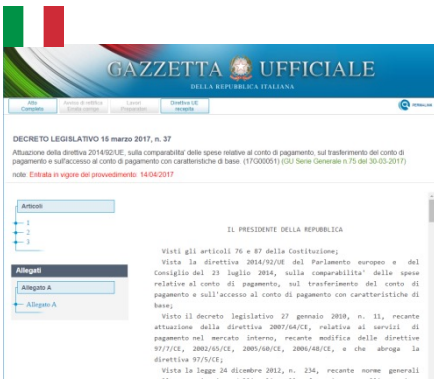
Der Nationalrat hat beschlossen:

Inhaltsverzeichnis

Artikel 1 – Bundesgesetz über die Vergleichbarkeit von Entgelten für Verbraucherzahlungskonten, den Wechsel von Verbraucherzahlungskonten und den Zugang zu Verbraucherzahlungskonten mit grundlegenden Funktionen (Verbraucherzahlungskontogesetz – VZKG)

Artikel 2 – Änderung des Konsumentenschutzgesetzes

Artikel 3 – Änderung des Finanzmarktaufsichtsbehördengesetzes



DECRETO LEGISLATIVO 15 marzo 2017, n. 37
Attuazione della direttiva 2014/92/UE, sulla comparabilità delle spese relative al conto di pagamento, sul trasferimento del conto di pagamento e sull'accesso al conto di pagamento con caratteristiche di base (11300051) (GU Serie Generale n.75 del 30-03-2017)

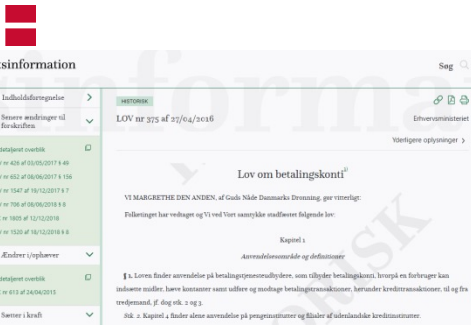
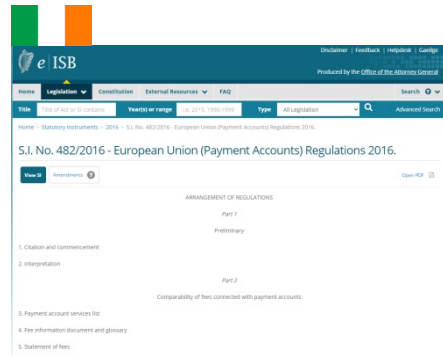
IL PRESIDENTE DELLA REPUBBLICA

Visti gli articoli 76 e 87 della Costituzione;

Vista la direttiva 2014/92/UE del Parlamento europeo e del Consiglio del 23 luglio 2014, sulla comparabilità delle spese relative al conto di pagamento, sul trasferimento del conto di pagamento e sull'accesso al conto di pagamento con caratteristiche di base;

Visto il decreto legislativo 27 gennaio 2018, n. 11, recante attuazione della direttiva 2007/64/CE, relativa ai servizi di pagamento nel mercato interno, recante modifica delle direttive 97/7/CE, 2002/65/CE, 2005/60/CE, 2006/46/CE, e che abroga la direttiva 97/5/CE;

Vista la legge 24 dicembre 2012, n. 234, recante norme generali



- Interlinked documents across borders
- Possible when all countries use the same framework
- Easier access to legal information

The linked legal data landscape: linking legal data across different countries. Artificial Intelligence and Law, 2021.

How has the European Directive 2014/92/EU been implemented in EU member states?

```
PREFIX eli: <http://data.europa.eu/eli/ontology#>
PREFIX skos: <http://www.w3.org/2004/02/skos/core#>
select ?title ?document where {
  VALUES ?format {
    <http://www.iana.org/assignments/media-types/text/html>
    <http://www.iana.org/assignments/media-types/application/html> }
  ?n ?p <http://data.europa.eu/eli/dir/2014/92/oj> ;
    eli:is_realized_by ?r .
  ?r eli:is_embodied_by ?document ;
    eli:title ?title .
  ?document eli:format ?format .
}
```

Title	Document
Bundesgesetz, mit dem ein Bundesgesetz über die Vergleichbarkeit von Entgelten für Verbraucherzahlungskonten, ...	https://www.ris.bka.gv.at/Dokumente/BgblAuth/BGBLA_2016_I_35/BGBLA_2016_I_35.html
European Union (Payment Accounts) Regulations 2016.	http://www.irishstatutebook.ie/eli/2016/si/482/made/en/html
Lov om betalingskonti	http://www.retsinformation.dk/eli/lta/2016/375/dan/html
Attuazione della direttiva 2014/92/UE, sulla comparabilità delle spese relative al conto di pagamento, ...	http://www.gazzettaufficiale.it/eli/id/2017/03/30/17G00051/sg/ita/html

A Roadmap for European Lined Legal Data

Challenges

- Slow uptake of ELI and ECLI
- Availability of legal documents in databases
- ELI / ECLI implementation information
- Deviation from ELI and ECLI
- Non-machine readable / proprietary data formats
- Search interfaces / data accessibility

Opportunities

- Involve governments
- Funding possibilities
- Licensing and access policies
- Provide implementation information
- Involve stakeholders for changes
- Provide data also using ELI and ECLI
- Use open / structured data formats
- Provide application programming interfaces (API)

Thank you / contact details



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