# **CLARIN**

# Using language research infrastructure www.clarin.eu

Prof. Koenraad De Smedt

University of Bergen / CLARIN Board of Directors / Chair of the National Coordinators' Forum

Aberdeen, Digital Humanities Workshop, June 15-16, 2017



### **CLARIN MISSION**

"CLARIN is committed to establishing an integrated and interoperable research infrastructure of language resources and its technology. It aims at lifting the current fragmentation, offering a stable, persistent, accessible and extendable infrastructure and therefore enabling eHumanities."

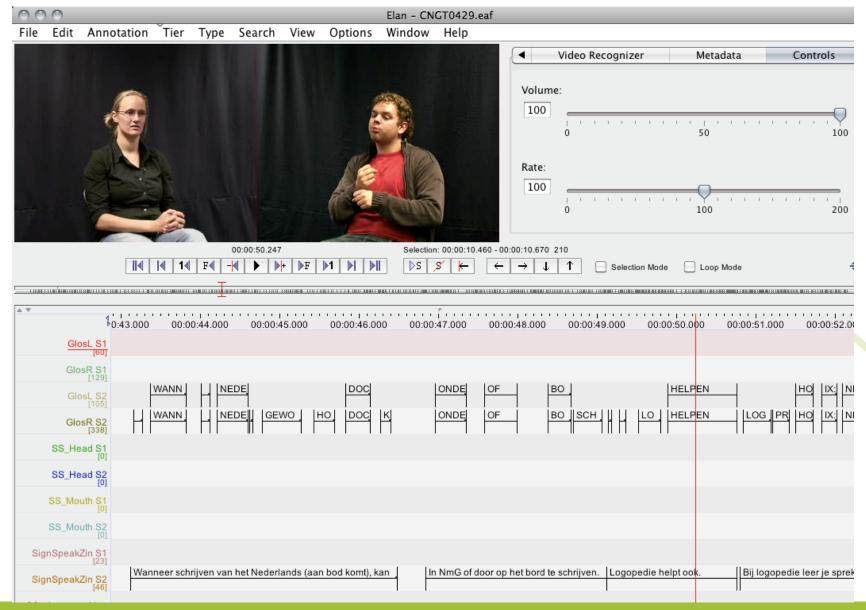
Making it easier to use digital language data in your research.

# Digital language data, tools and services

- Textual editions and historical archives
- Linguistically annotated corpora
- Lexical and terminological resources
- Grammars and parsers
- Sociolinguistic survey data
- Psycholinguistic experimental data
- etc.

Not a simple digital library, but language data coming from research or enriched by and for research

# **Example of language data for research**



# **Example of language research data**

[Facs] [ms: fol. 1r] her hærr bær þætt fem magnus k<del>n</del>gr fende till alra nozegs mana vm ipan loghbókr oc um græinir hennaz fua vattande fem her fægir nu **AGnVS** mEð guðs mifkun nozegs kngr fun hakonar kngs funar funar fuærris kngs fænder Jone ærkibpi oc allum aðzum guðs vínum oc finu i nozegs kn $\overline{g}$ s rikí Q · Gf oc fína · þer vituð at hinir skilrikasto men j nozeghe hara iðulegha geteð r

off at her haret fpurt at ver harum lutt i att at bo-

[Dipl]

[ms: fol. 1r]

- her hærr bær þætt fem magnus konongr fende till alra
- nozegs manna vm fkipan loghbókr oc um græinir hennaz
- 3 fua vattande sem her sægir nu
- 3 M<sub>-</sub>
- 4 AGnVS
- 7 mEð guðs mifkunn nozegs konongr
- 8 fun hakonar k*ono*ngs funar funar
- 9 fuærris konongs fænder Jone ærkib*isku*pi
- 10 oc allum aðzum guðs vínum oc finum
- i nozegs konongs rikí Q · Gf oc fina · þer vituð at hi-
- nir skilrikasto menn j nozeghe hara iðulegha geteð ririr
- off at ber haret spurt at ver harum lutt i att at bo-

# Some common challenges for language data (and other data)

- Not always available for reuse (not accessible to all researchers or unclear licensing conditions)
- Not easy to find because not sufficiently catalogued
- Not sufficiently documented in terms of structured metadata
- Coded and annotated in a multitude of formats
- Not compatible with analysis tools or services
- Not long-time archived and curated (i.e. may disappear)
- Not properly citable

No trust relation between researchers and repositories

# User communities working with language data and tools

- Digital humanities
- All branches of linguistics and philology
- Political and Social Sciences
- Culture and Folklore, Anthropology, Archaeology
- Literature
- History
- Translation and Lexicography
- Speech therapy
- Information science and media studies
- Teachers and general public

# **CLARIN** value proposition

- Coordination at European level of national efforts
- Long term solutions for deploying, connecting and sustaining digital language data and technology services
- Lower the barriers to entry into cutting edge research
- Address the needs of researchers producing data and those wanting to use data
- Towards a connected and multilingual European Research Area for digital research in the humanities and social sciences.

# **Emerging multidisciplinary research agendas**

Europe's multilinguality as a basis for comparative research of societal and cultural phenomena, as reflected in language use, for instance:

- Migration patterns
- Spreading of ideas and terminology
- Intellectual history
- Linguistic and cultural heritage
- Language variation across periods and regions
- Discourse in social, political, legal etc. spheres

# **Example: Networks of texts and people** (NTAP)

Go to:



**Corpuscle** :: NTAP :: Concordance

Previous

Basic search | switch to Advanced search

Hit 1 - 30 of 142372 |

Corpuscle Home Getting started Documentation FAQ **Publications** Links

green

Corpus list

Query

Concordance

Collocations Distribution Word List Text Metadata Overview

Upload corpus

Corpus doc.

Localization

age industries to reduce their levels of pollution and develop v conventional and alternative technologies, public transport, green n countries – particularly the theses that relate to the role of green yday travel behaviour is insignificant. • Thesis 9: People with er harm. It would be for those communities already having a sport from roads to rail to ports. The goal would be to reduce group nanges, and politicians everywhere are eager to accrue some gro Boris Johnson's electric cars will not be as gr wable transport through electric vehicles and smart grids will gr apacity of the electric vehicles. This technology is part of the great apacity of the electric vehicles. clists, and swore to put every resident in walking distance of great gre ecades, aggressive steps must be taken to increase access to great I all around the world. It is a symbol of advanced, civic and a great one I did on Disney theme parks a couple of weeks ago. It is great es cash and a few environmental initiatives, while WWF gives great ne hard questions asked about this relationship among other great olade with Ikea, for services rendered. • Do you know of any green

Download (☐ Excel mode) | Type: kwic Show line filter | A technologies. This is encouraging news ahead of next month' areen attitudes, and land-use planning. The theses are related to v attitudes. Some of the fourteen theses are well known within green attitudes cast aside those attitudes in their leisure-time trave green vision, but lacking the means to carry out critical funding.... Show context lacksquarediust to new tra caution. The ter word: green just hop on a bu blog-post-id: 50f7399a8f3fbe43aef14643 cities will only i is developed to blog-url: newmobilityagenda.blogspot.com k is expanding e aroup-id: 7 health, preserv date: 2009-01-11 ing rapidly acrro sc-class: a ersuading people path: //text/s// anda logo is all ncy, for instance corpus: NTAP claims that deserve closer examination? Email your examples

eng | nob | Sign out (Koenraad De Smedt (koenraad))

Run Query | Saved queries ... | Save Query | 3

Done. Running time: 0.81 sec. (0.22 CPU sec

| Context size: 400px \$

Next



	,	
of word	† ignore case, Δ: 0	filter:
relative to sc-class	† ignore case, Δ: 0	filter:
group by -	† ignore case, Δ: 0	filter:
and [-	† ignore case, Δ: 0	filter:

Relative numbers are matches per 100000000 corpus positions matching the vertical value(s).

Page 1/1 of 1×1. | Download

	(sum)	green alternative	green alternatives
(sum)	490	73	417
	490	73	417
Not Classified (125723779)	35 (27,8)	16 (12,7)	19 (15,1)
a (267899110)	414 (154,5)	38 (14,2)	376 (140,4)
n (73250966)	10 (13,7)	3 (4,1)	7 (9,6)
<b>s</b> (177385206)	28 (15,8)	15 (8,5)	13 (7,3)
u (15267439)	3 (19,6)	1 (6,5)	<b>2</b> (13,1)

### What is CLARIN?

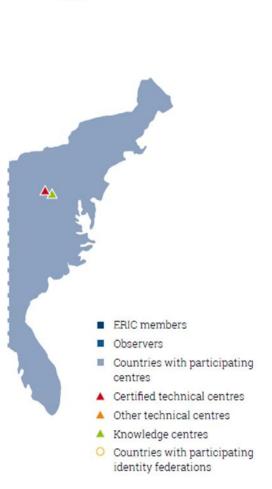
European Research Infrastructure Consortium (ERIC)

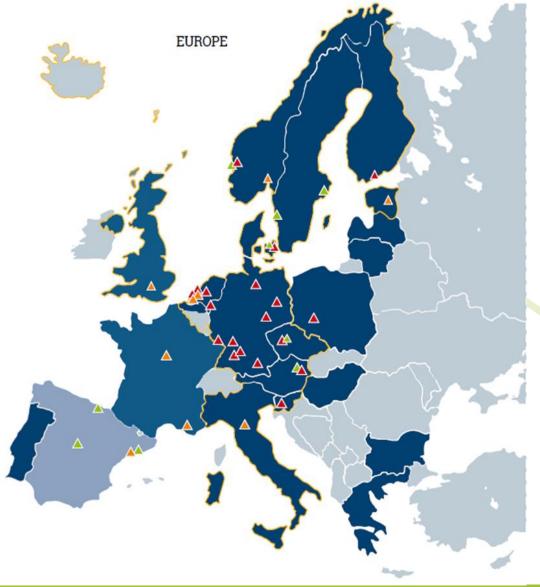
- Created by European Law
- Statutes approved by the EC
- CLARIN ERIC was the second ERIC created in 2012

- Members are countries (not institutions)
- Countries can be observers (pre-membership)
- Third party agreements

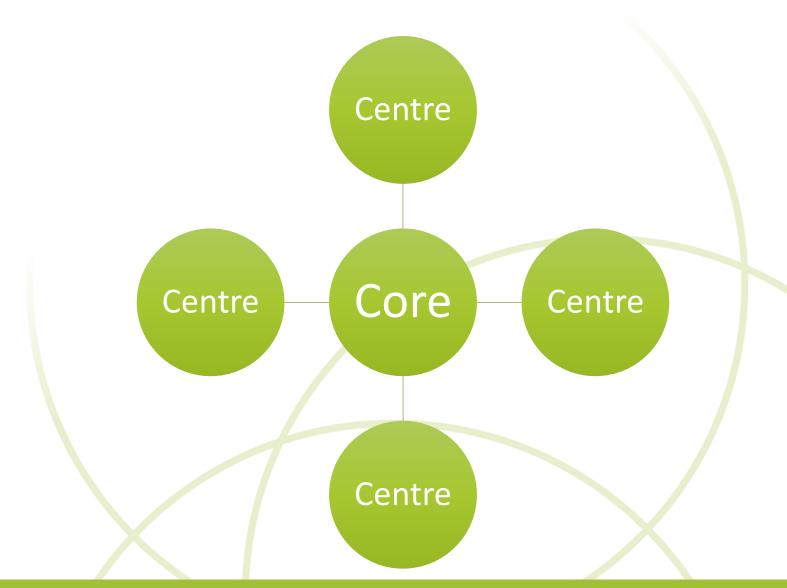
**CLARIN ERIC: 19 members, 2 observers, 1** 

third party





## **Network of centres and core services**



# **CLARIN ERIC** activities and financing

- Coordination, core services, technical standards and certifications, legal framework, etc.
- Events: Workshops, CLARIN annual conference, user involvement and training events

### Financing:

- Annual membership fees
- Fee dependent on GNP
- Observers pay smaller fee

# **CLARIN** national activities and financing

- Network of centres providing specific language data, tools and services
- National support activities and events

### Financing:

- Mostly through national funding mechanisms
- Normal mode: national consortium applies for national funding

# **CLARIN** data, tools and services

- VLO catalog: almost 900000 metadata records pointing at data sets and tools
- Federated authentication and authorization
- Many specialized services to search in data (corpora, archives etc) including Federated Content Search
- Tools and workflows for language processing
- CLARIN licenses and license categories

## **Certified CLARIN Data Centres**

- Metadata (CMDI, an ISO standard)
- PID (Handle/DOI),
- Federated single sign-on (eduGAIN)
- Quality of data handling policies (DSA)
- Licensing policies (based on Creative Commons)

## **OTA:** a **CLARIN** centre in the UK



### **University of Oxford Text Archive**

Oxford Text Archive: Home | Search | Catalogue | TCP | Deposit | Oxonly | Advice | FAQ | About

TEI Texts Corpora Legacy formats							
Search:			Show 10 0 entries		F	First Previous 1 2 3 4 5 Next Last	
ID 🔻	Title	÷	Author \$	Date \$	Language \$	Availability \$	Genre \$
3193	The Lampeter Corpus of Early Modern English Tracts  2563 A Spoken Corpus of Cameroon Pidgin English: pilot study  The Nottingham Corpus of Early Modern German Midwifery and Women's Medicine (ca. 1500-1700)		Josef Schmied, Claudia Claridge, Rainer Siemund (ed.)	1800	English	CC BY-SA	Linguistic corpora
2563			Dr. Melanie Green, University of Sussex; Dr. Miriam Ayafor, University of Yaoundé I; Dr. Gabriel Ozon, University of Sheffield	2016-09- 14	Cameroon Pidgin	CC BY-NC-ND 4.0	Linguistic corpora
<u>2562</u>			Richard J Whitt	2016-09- 09	German	CC BY-NC-ND 4.0	Linguistic corpora
<u>2561</u>	Arabic Speech Corpus		Nawar Halabi	2016-06- 09	Arabic	CC BY-NC-ND 4.0	Linguistic corpora
<u>2555</u>	2555 French Oral Narrative Corpus		Janice Carruthers	2013-08	French	Free for non- commercial use	Linguistic corpora
<u>2554</u>	British National Corpus, XML edition		BNC Consortium	2007-03- 06	English	BNC User Licence	Linguistic corpora

# **Example resource at OTA**



**Title** 

### **University of Oxford Text Archive**

Oxford Text Archive: Home | Search | Catalogue | TCP | Deposit | Oxonly | Advice | FAQ | About

The Lampeter Corpus of Early Modern English Tracts

**Editor** Josef Schmied, Claudia Claridge, Rainer Siemund (ed.)

**Availability** <u>Distributed by the University of Oxford under a Creative Commons Attribution-ShareAlike 3.0</u>

**Unported License** 

Download: zip

**Languages** English

OTA

keywords Linguistic corpora

LC <u>Tracts</u>

keywords Anthologies -- England

<u>Linguistic analysis (Linguistics)</u>

**Source**Description

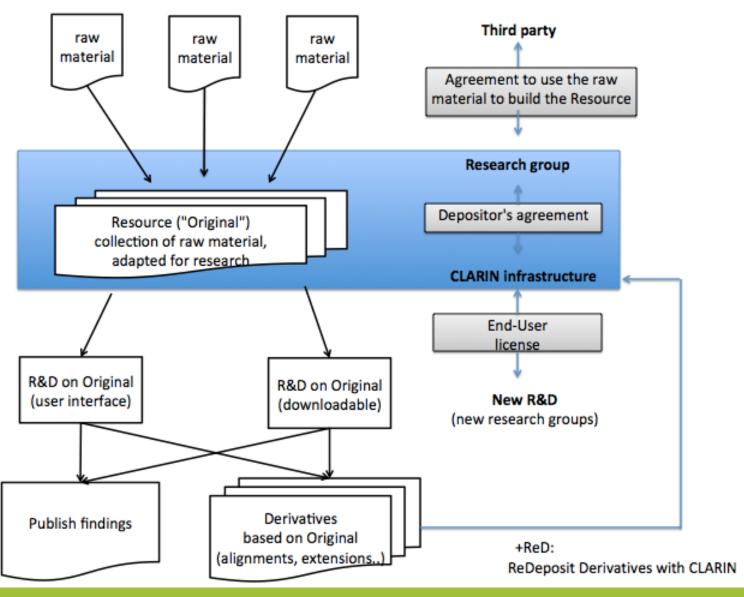
17th- and 18th-century collections of the Founders' Library, University of Wales, Lampeter (formerly Saint David's College), especially the Tract Collection, cf. Saint David's University College. 1975. A catalogue of the tract collection of Saint David's University College, Lampeter.

London: Mansell Information Publishing.

Revised version of http://ota.ox.ac.uk/id/2400

Permanent http://purl.ox.ac.uk/ota/3193

# **Depositor's Licence Agreements**





# CLARINO

### Corpuscle :: Talk Of Norway :: Metadata

Corpuscle Home
Getting started
Documentation
FAQ
Publications

Corpus list

Links

Query Concordance

Collocations

Distribution

Word List

Diagram

Text

Metadata

Overview

Corpus doc.

Upload corpus

Localization

#### **Talk Of Norway**

#### Full metadata record:

hdl:11495/DBCC-90CB-570D-9

#### Persistent identifier for the resource:

hdl:11495/DBCC-915D-C2D9-0

#### Links:

http://clarino.uib.no/korpuskel/landing-page?identifier=ton&view=short (landing page @ Corpuscle)

**Contact Person:**,

#### This resource is licensed under the following terms:

Norwegian Licence for Open Government Data (NLOD)





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### **Corpuscle** :: Talk Of Norway :: Collocations



Saved queries ... |

Download

show freq. | v show rel. freq.

Done. Running time: 0.01 sec. (0.01

Run Query

CPU sec.)

Save Query as

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```
Query history ...
Advanced search | switch to Basic search
[lemma = "grønn"]
                   lemma ○, left context: 1 ○, right context: 1 ○, sorted by MI*log(Freq)
 Show collocations
                by
 846 collocations calculated; page 1 of 17.
                                         Previous
                                                           Show concordance for selection
                                                   Next
  | 🗸 show MI | 🗸 show LL
                                  Delta
                                                  Collocate
Freq. Rel. freq.
                 ΜI
                           LL
                                          grønn sertifikat
 975
        0.7101 13.2130 25697.6070
                                          grønn skatteskifte
 146
        0.7487 13.2894 32136.8520
                                          grønn sertifikat-marked
  91
        0.9891 13.6911 39047.7300
  85
        0.9551 13.6405 39245.2700
                                          grønn utviklingsmekanisme
                                      1 grønn sertifikatmarked
 158
        0.4463 12.5431 25773.2230
 389
                                      1 grønn skifte
        0.1250 10.7069 6560.9062
  63
                                      1 grønn skattekommisjon
        0.4145 12.4362 33162.9920
                                      1 qrønn klimafond
  42
        0.3750 12.2919 35962.6680
  17
        1.0000 13.7069 54437.7800
                                      1 grønn sertifikat-ordning
  37
                                          grønn datasenter
        0.3426 12.1615 36258.9400
  29
        0.3258 12.0891 38089.4840
                                      1 grønn lunge
                                          grønn skatteveksling
  17
        0.5484 12.8402 48480.7100
  51
        0.1496 10.9657 24320.4530
                                      1 grønn karbon
                                      1 grønn sertifikat-system
   8
        1.0000 13.7069 61593.3830
  24
                                      1 grønn gren
        0.2727 11.8324 38128.3120
  23
                                          grønn sertifikatordning
        0.2190 11.5162 36306.3300
  33
        0.1447 10.9184 28368.7910
                                          pliktig grønn
   6
                                          grønn sertifikat-marknad
        0.7500 13.2919 61550.3750
  13
        0.2766 11.8527 44274.9960
                                      1 grønn sertifikatsystem
```

24



### **Corpuscle** :: ICAME - COLT :: Metadata



Corpuscle Home Getting started Documentation FAQ Publications

Corpus list

Links

Query
Concordance
Collocations
Distribution
Word List
Diagram
Text

Metadata

Overview Corpus doc.

Upload corpus

Localization

### OI puscie .. ICAME - COLT .. Metadata

#### **COLT - The Bergen Corpus of London Teenage Language (with sound)**

#### Full metadata record:

hdl:11495/D9B6-1393-7E6D-1

#### Persistent identifier for the resource:

hdl:11495/D9B6-13F8-41BB-1

#### Links:

http://clarino.uib.no/korpuskel/landing-page?identifier=colt&view=short (landing page @ Corpuscle)

http://clu.uni.no/icame/colt/ (project page)

Contact Person: Jørgensen, Annette Myre

#### This resource is licensed under the following terms:

CLARIN\_RES-PLAN-INF-PRIV-ND-DEP-\*















PRIV

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#### **Attribution:**

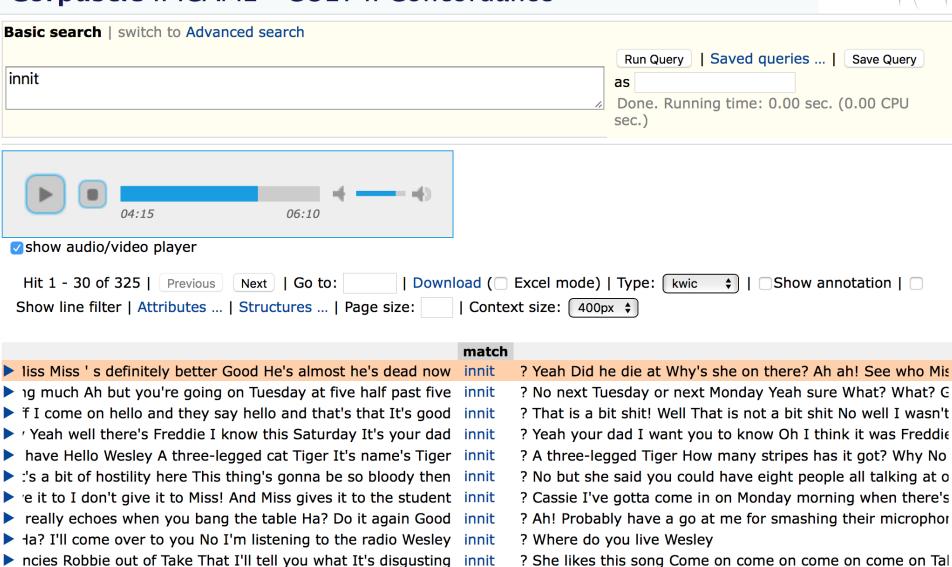
Please use the following text to cite this resource:

COLT - The Bergen Corpus of London Teenage Language (with sound). Created by *Språkkontakt og ungdomsspråk i Norden*. Distributed by the CLARINO UiB Portal: hdl:11495/D9B6-13F8-41BB-1



### **Corpuscle :: ICAME - COLT :: Concordance**

rn turn That's was my indicator impression Oh right It's good innit



CLARIN 26

? Yeah I suppose so What d'va mean you suppose If you say

News

**INESS** 

COMEDI

Corpuscle

Menota

Clarin

**Metashare NB** 



### The CLARINO Bergen Centre offers:

A repository to search and deposit language data
Online services for treebanks and other corpora
Online editing of CMDI metadata



### Welcome to CLARINO Bergen Centre

CLARINO is a Norwegian infrastructure project jointly funded by the Research Council of Norway and a consortium of Norwegian universities and research institutions. Its goal is to implement the Norwegian part of CLARIN. The ultimate aim is to make existing and future language resources easily accessible for researchers and to bring eScience to humanities disciplines.



#### **Advanced Search**

Author	Subject	Language (ISO)	
Giellatekno - Saami(22)	Bilingual Lexicon (9)	Norwegian Bokmål (15)	
The Divvun group at(17)	Termbase (9)	Northern Sami (7)	
Parra Escartín, Carla (3)	South Saami (8)	Southern Sami (7)	
Kristiansen, Marita (2)	Terminological (8)	English (6)	
Olstad, Vemund (2)	Terminology (8)	Norwegian Nynorsk (6)	
View More	View More	View More	



BIBTEX

CMDI

Hareide, Lidun, 2013, The Norwegian-Spanish Parallel Corpus, Common Language Resources and Technology Infrastructure Norway (CLARINO) Bergen Repository, http://hdl.handle.net/11509/73.









Clarino

Authors	Hareide, Lidun					
∰ Date issued	2013					
<b>Ъ</b> Туре	corpus					
<b>⊠</b> Size	32000000 bytes					
<b>►</b> Language(s)	Spanish , Norwegian					
<b>■</b> Description	The Norwegian Spanish Parallel Corpus (NSPC) was created at the University of Bergen, Norway. The corpus is primarily constructed for research in Translation Studies, and is built to be roughly comparable to the Spanish-English P-ACTRES corpus. The NSPC is a parallel, unidirectional translation corpus of contemporary Norwegian written texts translated into Spanish, published between 2000 and 2009. It contains fiction and non-fiction, and each text is classified according to genre, the author's gender and the gender and mother tongue of the translator.					
අ Publisher	University of Bergen					
Subject(s)	Annotation Bilingual Lexicon Induction Document Classification Intra - Document Coreference Resolution  Language Identification Language Modelling Lexicon Access Lexicon Acquisition From Corpora  Lexicon Enhancement Lexicon Extraction From Lexica Linguistic Research Machine Translation  Named Entity Recognition Natural Language Generation Natural Language Understanding Parsing					

® Files in this item Name Size

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nspc-aligned.tar.gz

10.54 MB

**Format** application/gzip

Description Unknown



**⊘** Download file

Name nspc-meta.xls

25.5 KB Size

Microsoft Excel **Format** 

Description Unknown



nspc-meta2.xls Name

43 KB Size

Microsoft Excel **Format** 

Description Unknown



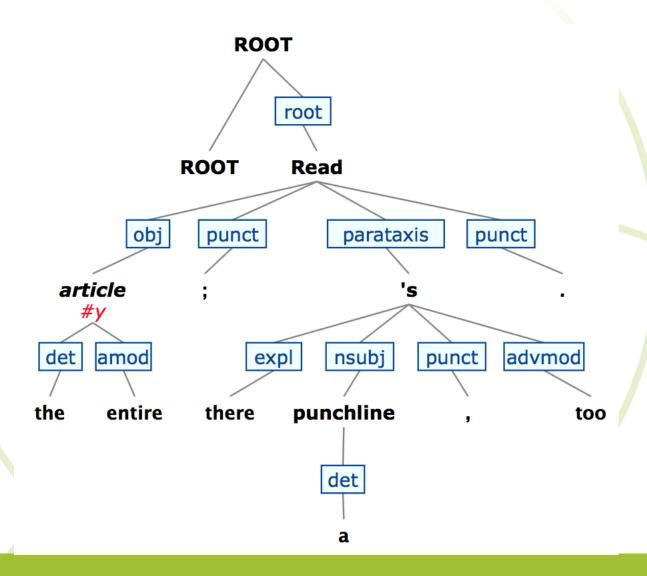
O Download file

Name nspc-pos-tag.tar.gz

Size 9.45 MB



# **Treebank exploration**



# Matches of syntactic relations, frequencies

Click on a row to see the matching sentences.

Count	#y: word	
4	it	
4	letter	
4	this	
4	some	
3	reviews	
3	what	
3	article	
2	which	
2	chapter	
2	something	
2	book	

٦	Click on a row to go to the sentence.				
	Treebank	Document	Id	Sentence	
	eng-ud-2.0-dep	train	2500	I 've read the book - it 's a first person memoir with the ring of truth, especially since so much of the wider context has confirmed the allegations of Contra drug connections that led to Terrell becoming a target for discrediting by the TWIG counterintelligence group that ran interference for the Contra effort, staffed by covert ops types including Ollie North, Robert Owen, Vince Cannistaro and Buck Revell.	
	eng-ud-2.0-dep	train	9981	Keep his cage open and go on your computer, or read a book, etc and maybe he will come out to you.	

News

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Kristiansen, Marita (2)	Terminological (8)	English (6)	
Olstad, Vemund (2)	Terminology (8)	Norwegian Nynorsk (6)	
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# Medieval Nordic Text Archive

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Home

Documentation

Catalogue
Query
Concordance
Collocations
Word List

Text

Overview

Localization

## AM 162 B α fol - A fragment of Njáls saga v. 1.0.2

Previous page Dipl | [ms: fol. 1r] fem bezt fiban ★ un hann fara j fio2du uestur ok figmundzoo...oo hann flytia allt feit uestan b*at*000...000 ba0 0 fi02dum <mark>uestur</mark> ok uera 1 burt leingi oo...oo þa er menn rida til Features: oo...oo ooda ætla fk*alt*tu r norm: vestr oo...oo oerdar med ber fa dipl: ueft{ur} oo...oo *til* huilu þínar facs: ueft oo...oo þo fk*al*t nefna uot document: AM-162-B-alfa-fol oo...oo feigia fkilit uid hai reference: 1r 3 10 00...00 at Alþingif mali Langue Miles notto Ozalttu hafa frage

### **Characteristics of RI in SSH**

- Multitude of pre-existing centres with data, tools and expertise
- Relatively cheap to build and operate (compare 123 M GBP to CERN)
- Gradual construction, open-ended
- Cost-free open access
- Some restrictions due to copyright and privacy considerations
- No panacea for all research needs
- Obvious European dimension: bridging the language and culture barriers, towards inclusive societies.

### **Final remarks**

- Coordinated CLARIN activities in 21 countries
- High number of institutions and centres involved
- Wide span of targeted researchers, multidisciplinary research agendas
- Increasing amount of data and services offered
- Targeted mostly at researchers; also potentially useful for technology and education
- Participation in H2020 infrastructure projects: PARTHENOS, CLARIN-PLUS
- Towards sustainability: technology basis, long-term national commitments, synergy with other initiatives

### **CLARIN** in the UK



### Get in touch

http://clarin.ac.uk

http://clarin.eu

http://clarino.uib.no