

**KIELIPANKKI**  
The Language Bank of Finland

# The Mill Interactive FIN-CLARIN Web Services

Mietta Lennes

FIN-CLARIN

# Flood of language resources...



# How to find, access and use the available tools?

```
To see which node(s) your jobs in Taito-Shell are running on, run:  
squeue -M shell -l -u $USER
```

---

— Software —

Available modules can be listed with command: module avail | module spider

---

— News —

2015-05-25: Changed default slurm instance to Taito's. For example  
srun now submits jobs to Taito's partitions, like parallel  
instead of the oversubscribed.

```
[lennes@c305 ~]$ module load aaltoasr  
Loading application python-2.7.10 environment with needed modules  
Switching compiler gcc to gcc/4.9.3  
Switching MPI version intelmpi to intelmpi/5.1.1
```

The following have been reloaded with a version change:

- |                                     |                                          |
|-------------------------------------|------------------------------------------|
| 1) gcc/4.8.2 => gcc/4.9.3           | 3) python-env/3.4.0 => python-env/2.7.10 |
| 2) intelmpi/4.1.3 => intelmpi/5.1.1 | 4) python/3.4.0 => python/2.7.10         |

```
[lennes@c305 ~]$ aaltoasr-rec -s 300 -n 16 -o out.txt -T test_pohjantuuli.TextGrid /wrk/  
snd/pohjantuuli_F1_1.wav
```

To see which node(s) your jobs in Taito-Shell are running on, run:  
squeue -M shell -l -u \$USER

— Software —

Available modules can be listed with command: module avail | module spider

— News —

2015-05-25: Changed default slurm instance Taito's. For example  
srun now submits jobs to Taito's partitions, like parallel  
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[lennes@c305 ~]\$ module load aaltoasr

Loading application python-2.7.10 environment with needed modules

Switching compiler gcc to gcc/4.9.3

Switching MPI version intelmpi to intelmpi/5.1.1

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[lennes@c305 ~]\$ aaltoasr-rec -s 300 -n 16 -o out.txt -T test\_pohjantuuli.TextGrid /wrk/  
snd/pohjantuuli\_F1\_1.wav

# Chipster open source platform

<http://chipster.csc.fi/>

→ **Mylly – “The Mill”**

tailored for the Language Bank of Finland

<https://www.kielipankki.fi/support/mylly>



LANGUAGE BANK ACCESS CORPORA TOOLS FORUM ORGANIZATION SUPPORT

SUOMEKSI PÅ SVENSKA

## Myllý user guide

Myllý is a versatile data analysis platform with interactive visualizations and workflows. It can be used to build workflows with a variety of tools, including morphosyntactic parsing, character set conversion and speech recognition. Myllý is based on the [Chipster](#) technology developed at [CSC – IT Center for Science](#).

Launch Myllý: <http://chipster.csc.fi/mylly.jnlp>

Log in with your CSC username and password.

[Small examples of using Myllý \(PDF, examples prepared for Interspeech 2017\)](#)

## Instructions

The Chipster technology was originally developed for bioscientific use but the principles presented in the instruction videos also work in language research.

## Videos

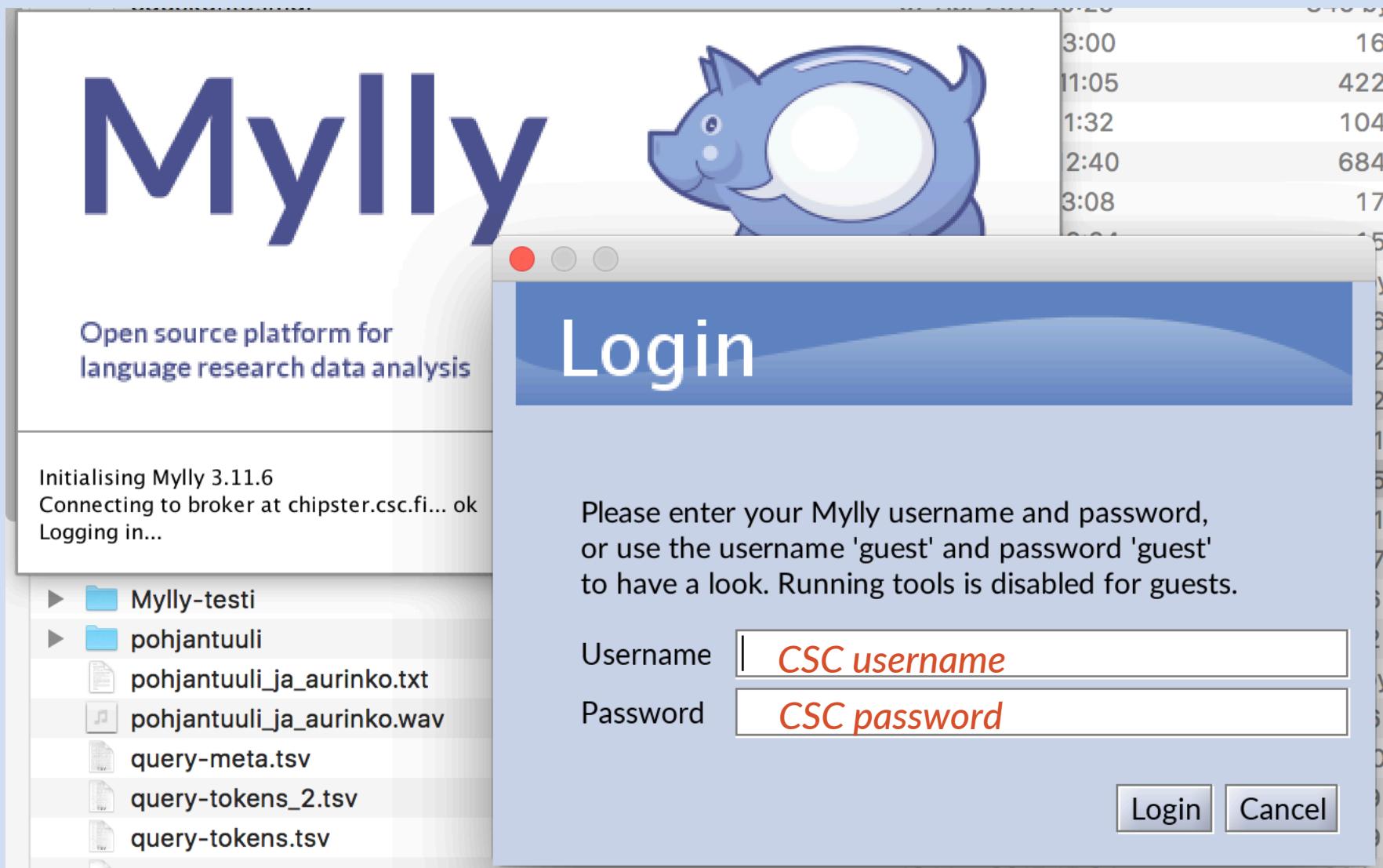


Researcher of the Month: Markus Juutinen

## News

- Researcher of the Month: Markus Juutinen (10.10.2017)
- Network maintenance

# Log in to Mylly



The image shows a screenshot of the Mylly application. On the left, there's a file browser window titled "Mylly" displaying various files like "Mylly-testi", "pohjantuuli", and "query-tokens.tsv". A status bar at the bottom of this window shows "Initialising Mylly 3.11.6", "Connecting to broker at chipster.csc.fi... ok", and "Logging in...". On the right, a separate "Login" dialog box is open. It features a blue header with the word "Login" and a cartoon blue piggy bank icon. The main body of the dialog contains the text: "Please enter your Mylly username and password, or use the username 'guest' and password 'guest' to have a look. Running tools is disabled for guests." Below this text are two input fields: "Username" with the placeholder "CSC username" and "Password" with the placeholder "CSC password". At the bottom right of the dialog are "Login" and "Cancel" buttons.

Initialising Mylly 3.11.6  
Connecting to broker at chipster.csc.fi... ok  
Logging in...

Mylly-testi  
pohjantuuli  
pohjantuuli\_ja\_aurinko.txt  
pohjantuuli\_ja\_aurinko.wav  
query-meta.tsv  
query-tokens\_2.tsv  
query-tokens.tsv

Please enter your Mylly username and password,  
or use the username 'guest' and password 'guest'  
to have a look. Running tools is disabled for guests.

Username

Password

Login Cancel

# Myllý interface

Myllý 3.11.8

File Edit View Workflow Help

Datasets

To start working with Myllý, you need to load in data first.

 Open local session to continue working on previous sessions. You can also [open cloud session](#) from the server.

 Import new data to Myllý:  
[Import files](#)  
[Import folder](#)  
[Import from URL to client](#)  
[Import from URL directly to server](#)

Analysis tools

Kielipankki

-  Korp search
-  Korp data
-  Relation algebra
-  Simple statistics
-  Advanced statistics
-  Export formats
-  Syntactic analysis
-  Morphological analysis
-  Speech recognition
-  Preprocessing
-  Finite-State Technology
-  Finite-State Transducers
-  Job management

Show parameters Run ▶

More help Show tool sourcecode

Workflow

 Fit

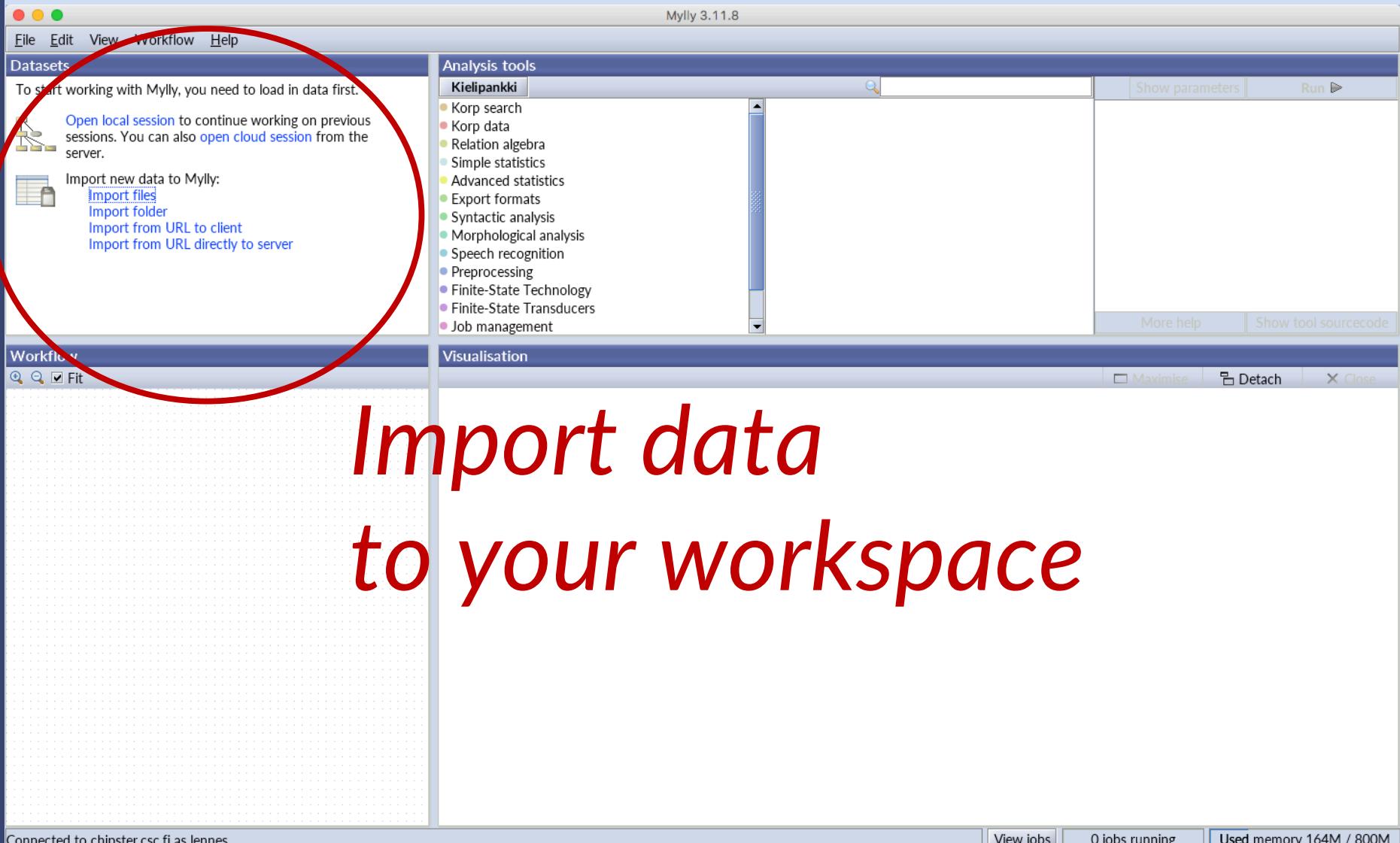
Maximise Detach Close

Connected to chipster.csc.fi as lennes

View jobs 0 jobs running Used memory 164M / 800M

Visualisation

# Mylly interface



To start working with Mylly, you need to load in data first.

Open local session to continue working on previous sessions. You can also open cloud session from the server.

Import new data to Mylly:

- [Import files](#)
- [Import folder](#)
- [Import from URL to client](#)
- [Import from URL directly to server](#)

**Analysis tools**

Kielipankki

- Korp search
- Korp data
- Relation algebra
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- Speech recognition
- Preprocessing
- Finite-State Technology
- Finite-State Transducers
- Job management

**Workflow**

Visualisation

*Import data  
to your workspace*

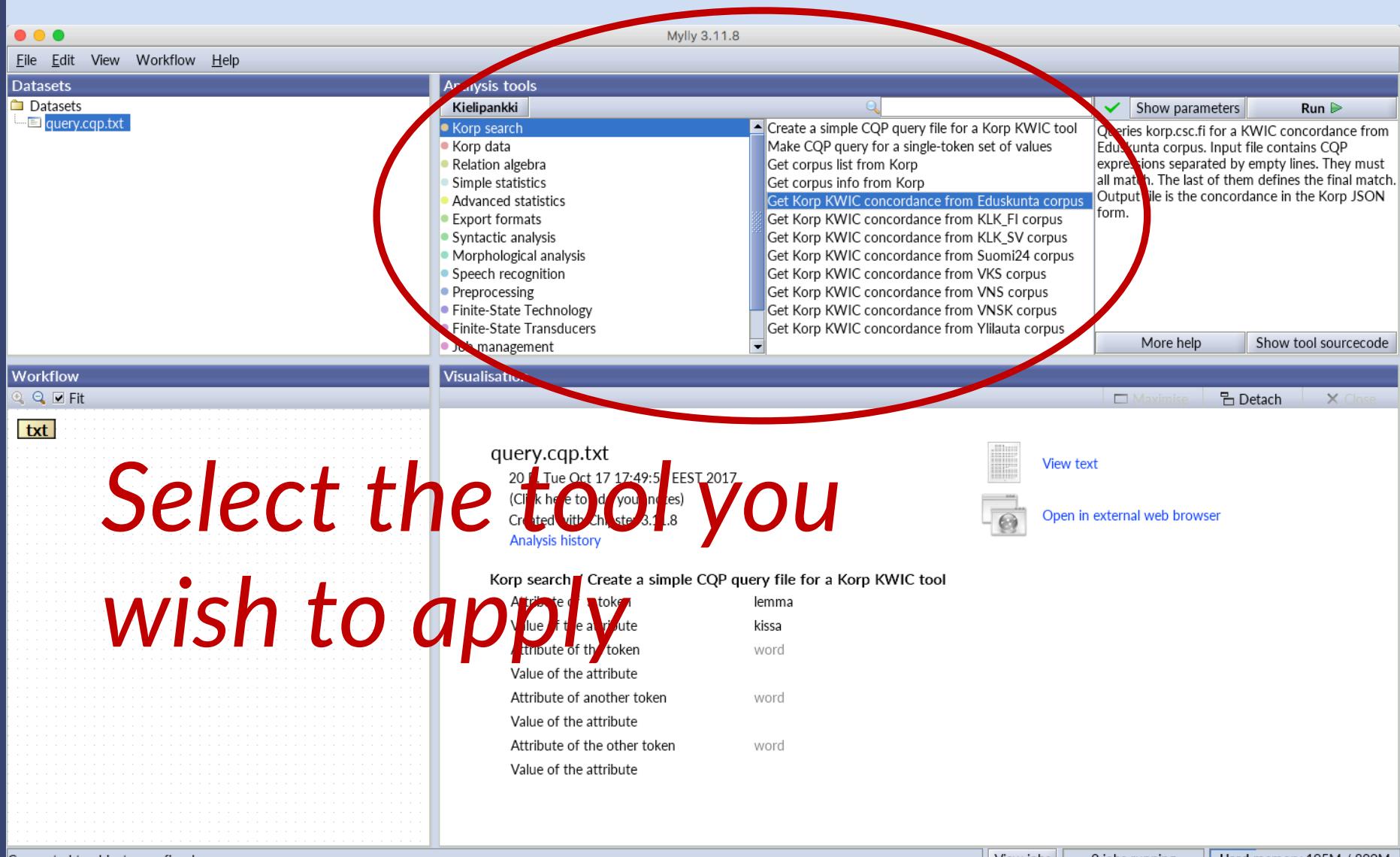
Connected to chipster.csc.fi as lennes

View jobs

0 jobs running

Used memory 164M / 800M

# Mylly interface



A screenshot of the Mylly 3.11.8 software interface. The window title is "Mylly 3.11.8". The menu bar includes File, Edit, View, Workflow, and Help. The left sidebar shows "Datasets" with "query.cqp.txt" selected. The main area is titled "Analysis tools" under "Kielipankki". A red circle highlights the "Korp search" option, which is currently selected. To the right of the list is a detailed description of the tool:

Create a simple CQP query file for a Korp KWIC tool  
 Make CQP query for a single-token set of values  
 Get corpus list from Korp  
 Get corpus info from Korp  
**Get Korp KWIC concordance from Eduskunta corpus**  
 Get Korp KWIC concordance from KLK\_FI corpus  
 Get Korp KWIC concordance from KLK\_SV corpus  
 Get Korp KWIC concordance from Suomi24 corpus  
 Get Korp KWIC concordance from VKS corpus  
 Get Korp KWIC concordance from VNS corpus  
 Get Korp KWIC concordance from VNSK corpus  
 Get Korp KWIC concordance from Yilialta corpus

Buttons for "Show parameters" and "Run" are at the top right. Below the description are "More help" and "Show tool sourcecode".

The central workspace shows a file named "query.cqp.txt" with a timestamp of 2017-10-17 17:49:51 EEST 2017. It includes links for "View text" and "Open in external web browser".

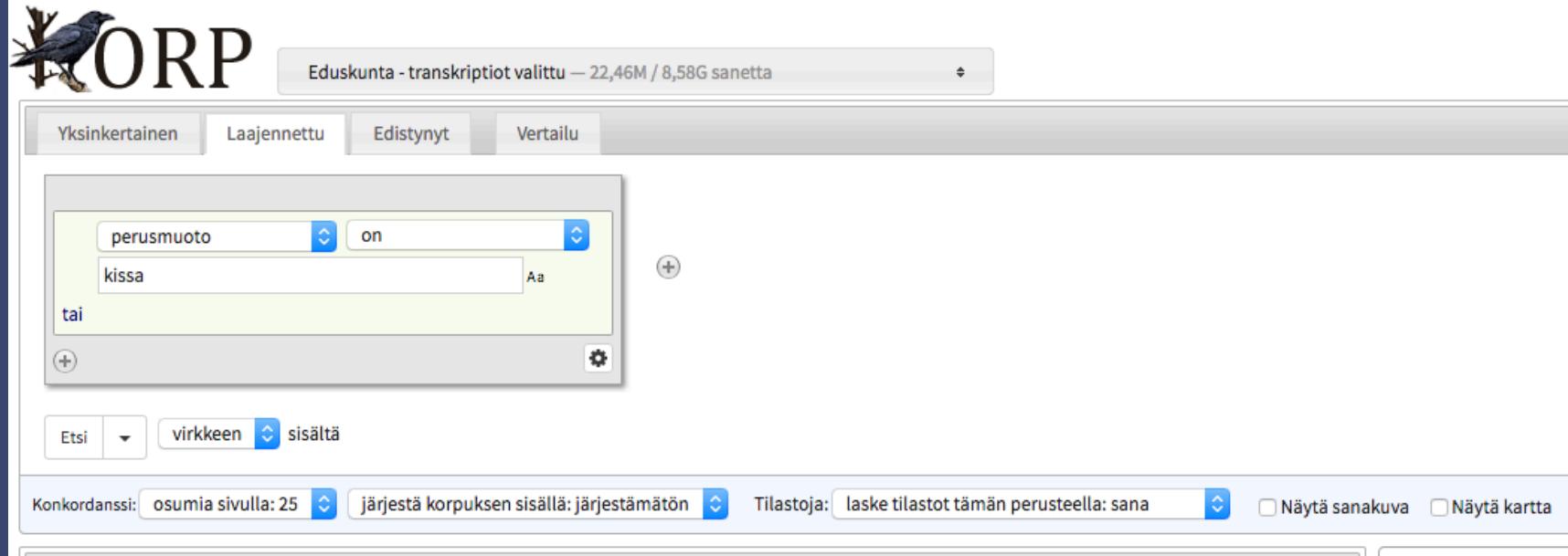
The "Analysis history" section lists the following entries:

- Korp search / Create a simple CQP query file for a Korp KWIC tool
  - Attribute of token
  - Value of the attribute
  - Attribute of the token
  - Value of the attribute
  - Attribute of another token
  - Value of the attribute
  - Attribute of the other token
  - Value of the attribute

At the bottom, status bars show "Connected to chipster.csc.fi as lennes", "View jobs", "0 jobs running", and "Used memory 195M / 800M".

*Select the tool you wish to apply*

# (Korp also has an API that can be used in Mylly!)



Eduskunta - transkriptiot valittu — 22,46M / 8,58G sanetta

Yksinkertainen Laajennettu Edistynyt Vertailu

perusmuoto on  
kissa Aa

tai

Etsi virkkeen sisältä

Konkordanssi: osumia sivulla: 25 järjestää korpuksen sisällä: järjestämätön Tilastoja: laske tilastot tämän perusteella: sana

Näytä sanakuva Näytä kartta

Tuloksia: 149

« < 1 2 3 4 5 6 > » Siirry sivulle  / 6 Näytä konteksti

EDUSKUNTA - TRANSKRIPTOIT (ei tue laajennettua kontekstia)

Se on ihan samantekevää onko se liikuntaa **kissan** kasvatussta tai postimerkkien keräilyä mutta kaikista näistä jotka nyt on laillisia ja jauho Totean että myös **kissat** ja koirat saavat tässä osansa koska kissan ja koiranruokienkin arvonlisäveroa nyt sitten tässä lakisetyksessämme tähän tulee myös koirien ruoka ja **kissojen** ruoka joka ei taas sisälly esimerkiksi Ruotsin alennettuun verokantaan. aan sisältyisi yksinomaan ihmisen tarkoitettu ruoka ja puhuin **kissojen** ja koirien ruuasta ja totesin että en tiedä toista maata missä **kissojen** ja koirien ruokaa o en ja koirien ruuasta ja totesin että en tiedä toista maata missä **kissojen** ja koirien ruokaa olisi verrattu ihmisen tarkoitettuun ruokaan ja niin että sillä olisi alem ryhtyisivät tulisivat mukaan näille linjoille nostaisivat tällaisen **kissan** pöydälle mikä liittyi tässä esitettyyn 300 plus 130 siis lähes 500 miljoonan harmaan talo jää niin siinä oli niin groteski ja irvokas kuva siitä miten metsän **kissa** oikein porukalla saadaan hengiltä. toimeenpanossa on kysymys rikoslain muuttamisesta niin että **kissan** ja koiran turkisten ja niitä sisältävien tuotteiden markkinoillepääsy aiotaan kielletä. isalaisten huoli lähinnä Kiinasta ja Kaakkoon Aasiasta tuoduista **kissan** ja koiran nahoista voitaisiin toteuttaa.

Tämä on nyt ainut tapa hoitaa tämä asia koska näitä **kissan** ja koiran nahkoja on yleensä pyritty eri tavoin piilottamaan värijäämällä tai muuten väär telyssä olevaa esitystä siitä että rikoslakia muutetaan siten että **kissan** ja koiran turkisten tai niitä sisältävien tuotteiden markkinoille saattaminen on rangaista a joskus joutuu näihin kunnallisiin luottamusliimii hakemaan **kissojen** ja koirien kanssa sopivaa naista joka todella haluaisi tehdä siellä työtä ja olisi siitä innos

**Korpus**

Eduskunta - transkriptiot

Kuvailutiedot

Viittaa korpukseen

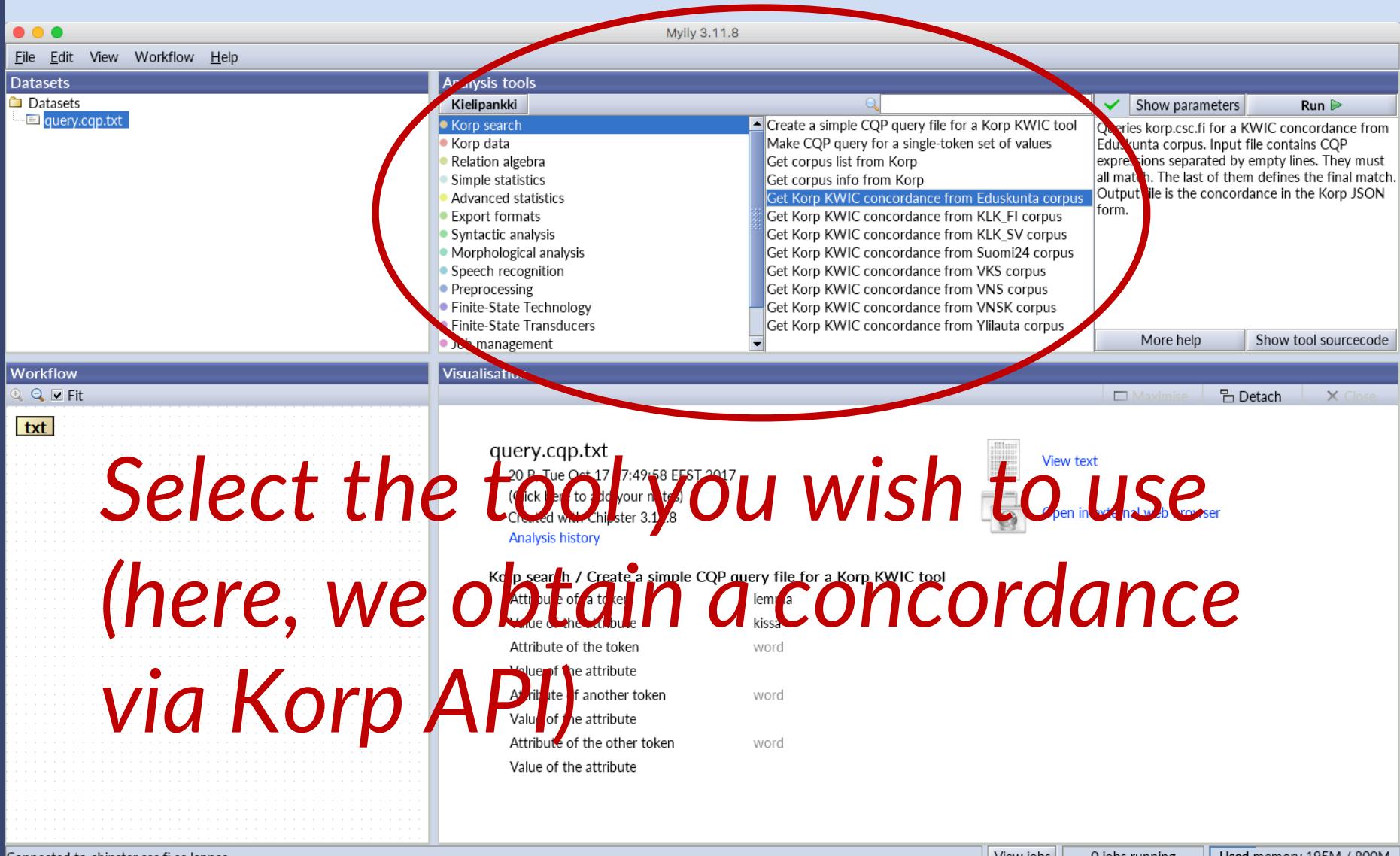
Tekstin ominaisuudet

tiedoston nimi: 2008\_073.eaf  
päiväys: 11.09.2008  
kellonaika: 19:15:09  
puhuja: Matti Saarinen /sd

Sanan ominaisuudet

perusmuoto: kissa  
sanaluokka: substantiivi  
morphologinen analyysi: NUM\_Sg|CASE\_Ge

# Mylly interface



A screenshot of the Mylly 3.11.8 software interface. The window title is "Mylly 3.11.8". The menu bar includes File, Edit, View, Workflow, and Help. The left sidebar shows "Datasets" with "query.cqp.txt" selected. The main area is titled "Analysis tools" under "Kielipankki". A red oval highlights the "Korp search" option, which is selected. To its right is a list of tools, with "Get Korp KWIC concordance from Eduskunta corpus" highlighted. The bottom section shows a workflow visualization for "query.cqp.txt", created on Tue Oct 17 07:49:58 EEST 2017, using Chipster 3.1.8. The visualization details the steps to generate a KWIC concordance using the Korp API.

*Select the tool you wish to use  
(here, we obtain a concordance  
via Korp API)*

Mylly 3.11.8

File Edit View Workflow Help

Datasets

query.cqp.txt

Analysis tools

Kielipankki

- Korp search
- Korp data
- Relation algebra
- Simple statistics
- Advanced statistics
- Export formats
- Syntactic analysis
- Morphological analysis
- Speech recognition
- Preprocessing
- Finite-State Technology
- Finite-State Transducers
- Job management

Create a simple CQP query file for a Korp KWIC tool  
Make CQP query for a single-token set of values  
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Get Korp KWIC concordance from VKS corpus  
Get Korp KWIC concordance from VNS corpus  
Get Korp KWIC concordance from VNSK corpus  
Get Korp KWIC concordance from Yilialta corpus

Show parameters Run ▶

Queries [korp.csc.fi](#) for a KWIC concordance from Eduskunta corpus. Input file contains CQP expressions separated by empty lines. They must all match. The last of them defines the final match. Output file is the concordance in the Korp JSON form.

More help Show tool sourcecode

Workflow

Visualisation

query.cqp.txt

20 P Tue Oct 17 07:49:58 EEST 2017  
(Click here to add your notes)  
Created with Chipster 3.1.8

Analysis history

Korp search / Create a simple CQP query file for a Korp KWIC tool

Attribute of the token	Value of the attribute
Attribute of the token	word
Value of the attribute	word
Attribute of another token	word
Value of the attribute	word
Attribute of the other token	word
Value of the attribute	word

View text 

Open in [xmind](#) and [web browser](#) 

Connected to chipster.csc.fi as lennes View jobs 0 jobs running Used memory 195M / 800M

# Mylly interface

MyLly 3.11.8

File Edit View Workflow Help

Datasets

- Datasets
  - query.cqp.txt

Analysis tools

Kielipankki

- Korp search
- Korp data
- Relation algebra
- Simple statistics
- Advanced statistics
- Export formats
- Syntactic analysis
- Morphological analysis
- Speech recognition
- Preprocessing
- Finite-State Technology
- Finite-State Transducers
- Job management

Get Korp KWIC concordance from Eduskunta corpus

Queries [korp.csc.fi](#) for a KWIC concordance from Eduskunta corpus. Input file contains CQP expressions separated by empty lines. They must all match. The last of them defines the final match. Output file is the concordance in the Korp JSON form.

Show parameters Run ▶

Workflow

Visualisation

query.cqp.txt

20 B Tue Oct 17 17:49:58 EEST 2017  
 (Click here to add your notes)  
 Created with Chipster 3.11.8  
[Analysis history](#)

View text

Open in external web browser

Run the selected tool!

Korp search / Create a simple CQP query file for a Korp KWIC tool

Attribute of a token	lemma
Value of the attribute	kissa
Attribute of the token	word
Value of the attribute	
Attribute of another token	word
Value of the attribute	
Attribute of the other token	word
Value of the attribute	

Connected to chipster.csc.fi as lennes

View jobs 0 jobs running Used memory 195M / 800M

# Mylly interface

Mylly 3.11.8

File Edit View Workflow Help

Datasets

- query.cqp.txt
- query.cqp-s3527p0.korp.json

Analysis tools

Kielipankki

- Korp search
- Korp data
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- Finite-State Transducers
- Job management

KWIC as TSV

- KWIC 2-grams in TSV
- KWIC 3-grams in TSV
- KWIC dependency triples in TSV

Show parameters Run ▶

More help Show tool sourcecode

Workflow

txt → json

Visualisation

query.cqp-s3527p0.korp.json  
 702 kB, Tue Oct 17 17:54:26 EEST 2017  
 (Click here to add your note)  
 Created with chipster 3.11.8  
[Analysis history](#)

Open in external web browser

Monitors the result in the workflow

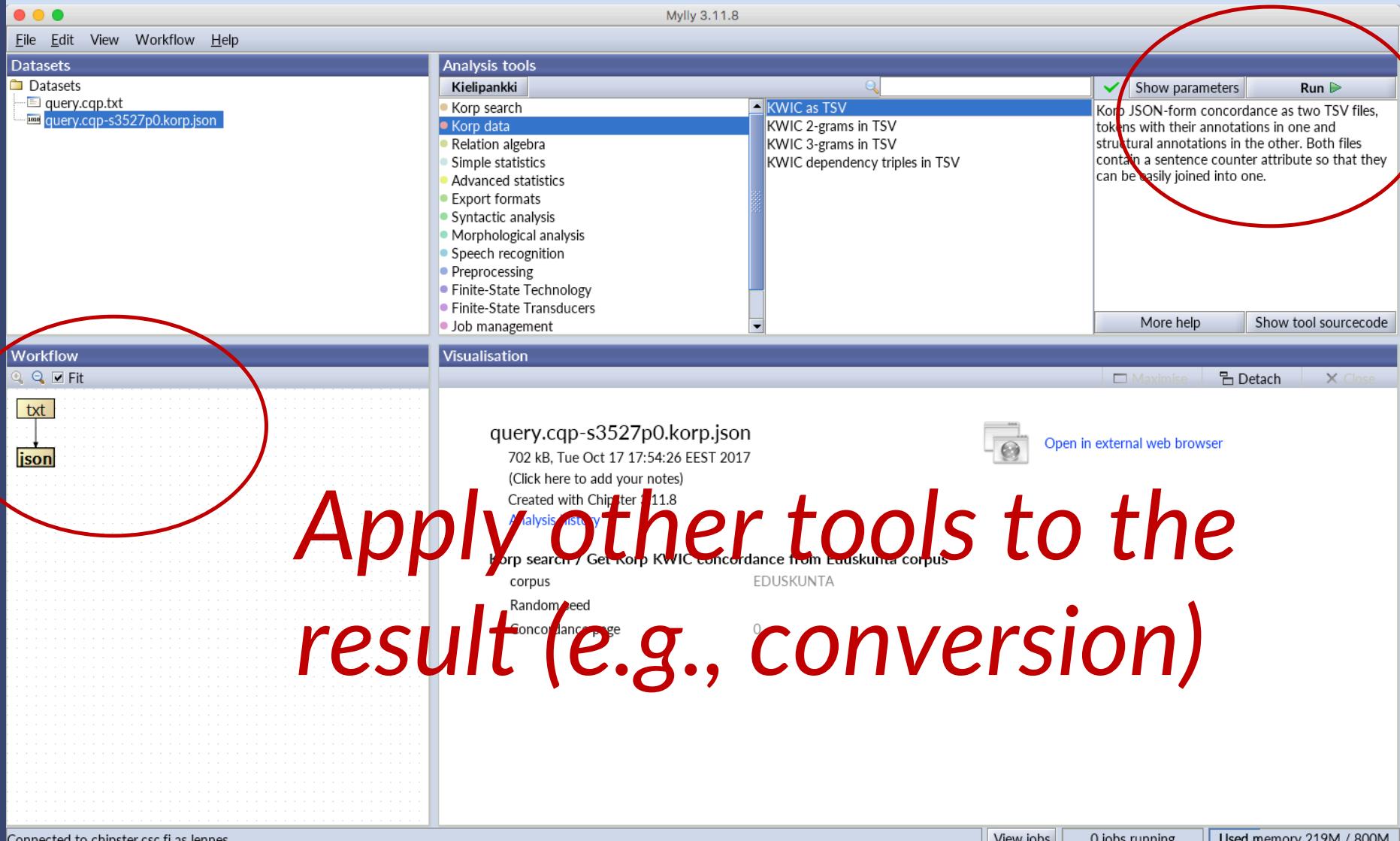
Korp search / Get Korp KWIC concordance from Eduskunta corpus

corpus  
 Random seed  
 Concordance page

EDUSKUNTA

View jobs 0 jobs running Used memory 219M / 800M

# Mylly interface



Mylly 3.11.8

File Edit View Workflow Help

Datasets

- query.cqp.txt
- query.cqp-s3527p0.korp.json

Analysis tools

Kielipankki

- Korp search
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- Job management

KWIC as TSV

- KWIC 2-grams in TSV
- KWIC 3-grams in TSV
- KWIC dependency triples in TSV

Show parameters Run

Workflow

txt → json

Visualisation

query.cqp-s3527p0.korp.json  
702 kB, Tue Oct 17 17:54:26 EEST 2017  
(Click here to add your notes)  
Created with Chipster 3.11.8  
Analysis history

Korp search / Get Korp KWIC concordance from EDUSKUNTA corpus  
corpus  
Random seed  
Concordance page

EDUSKUNTA

Open in external web browser

More help Show tool sourcecode

Maximise Detach Close

Connected to chipster.csc.fi as lennes

View jobs 0 jobs running Used memory 219M / 800M

*Apply other tools to the result (e.g., conversion)*

# Mylly interface

View the results as a spreadsheet

MyLly 3.11.8

File Edit View Workflow Help

Datasets

- query.cqp.txt
- query.cqp-s3527p0.korp.json
- query.cqp-s3527p0.korp-tokens.tsv
- query.cqp-s3527p0.korp-meta.tsv

Analysis tools

- Kielipankki
- Korp search
- Korp data
- Relation algebra
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- Job management

KWIC as TSV

KWIC 2-grams in TSV  
KWIC 3-grams in TSV  
KWIC dependency triples in TSV

Show parameters Run

Korp JSON-form concordance as two TSV files, tokens with their annotations in one and structural annotations in the other. Both files contain a sentence counter attribute so that they can be easily joined into one.

More help Show tool sourcecode

Workflow

```

graph TD
    txt[txt] --> json[json]
    json --> tsv1[tsv]
    json --> tsv2[tsv]
    
```

Visualisation

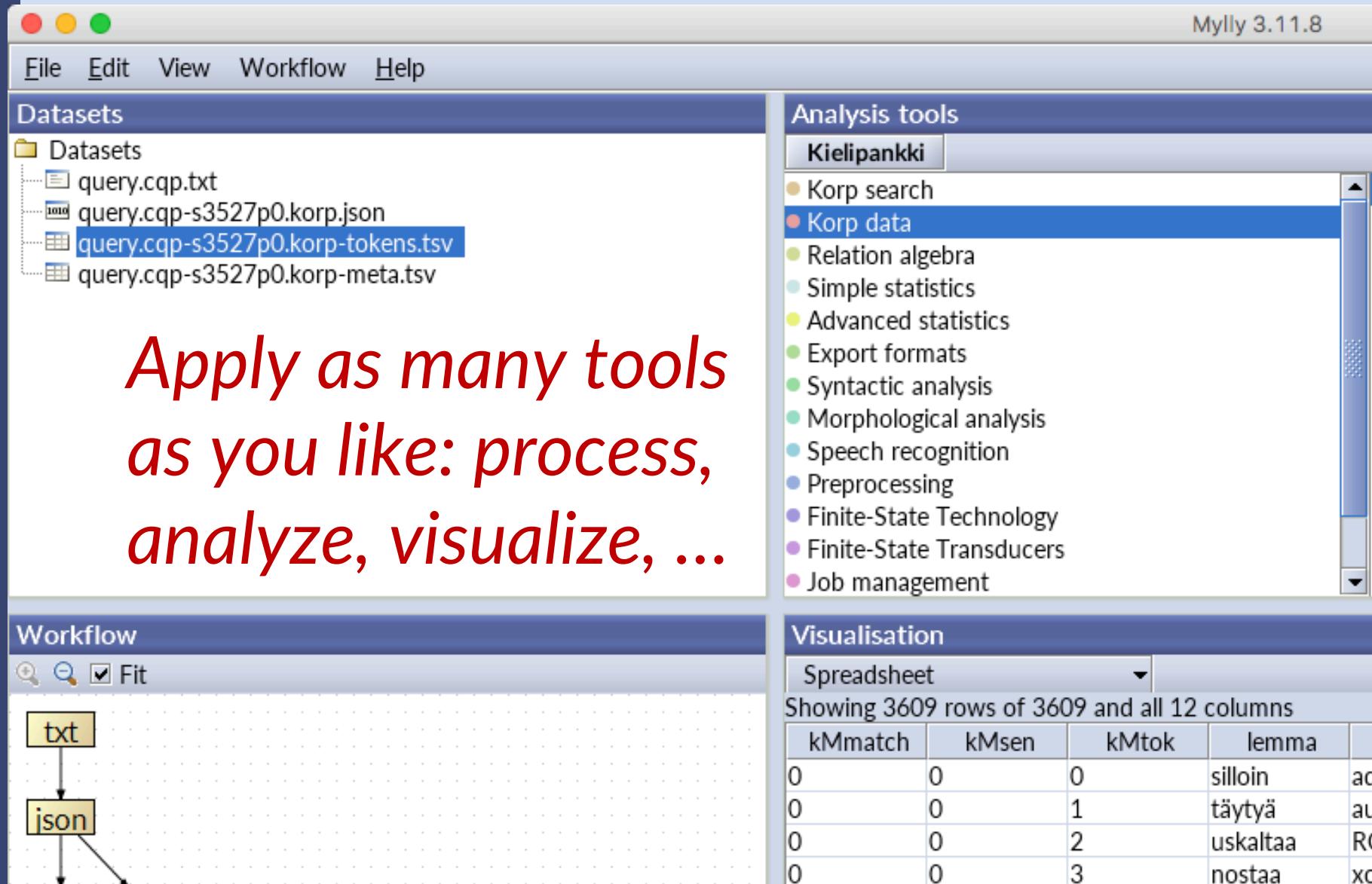
Spreadsheet

Showing 3609 rows of 3609 and all 12 columns

kMmatch	kMsen	kMtok	lemma	deprel	ref	aid	pos	nertag	word	msd	dephead
0	0	0	silloin	advmod	1	a12594	Adv	-	Silloin	CASECHA...	3
0	0	1	tätyä	aux	2	a12595	V	-	tätyy	PRS_Sg3 V...	3
0	0	2	uskaltaa	ROOT	3	a12596	V	-	uskaltaa	NUM_Sg C...	0
0	0	3	nostaa	xcomp	4	a12597	V	-	nostaa	NUM_Sg C...	3
1	0	4	kissa	dobj	5	a12598	N	-	kissa	NUM_Sg C...	4
0	0	5	pöytä	nommod	6	a12599	N	-	pöydälle	NUM_Sg C...	4
0	0	6	arvoisa	amod	7	a12600	A	-	arvoisa	NUM_Sg C...	8
0	0	7	puhejimes	dobj	8	a12601	N	-	puhemies	NUM_Sg C...	4
0	0	8	.	punct	9	a12602	Punct	-	.	-	3
0	1	0	ja	advmod	1	a17480	Adv	-	Ja	CASECHA...	5
0	1	1	sitten	advmod	2	a17481	Adv	-	sitten	-	3
0	1	2	vihonviime...	acomp	3	a17482	A	-	vihonviime...	NUM_Sg C...	5
0	1	3	lopuksi	advmod	4	a17483	Adv	-	lopuksi	-	5
0	1	4	haluta	ROOT	5	a17484	V	-	haluan	PRS_Sg1 V...	0
0	1	5	nostaa	xcomp	6	a17485	V	-	nostaa	NUM_Sg C...	5
0	1	6	se	dobj	7	a17486	Pron	-	sen	SUBCAT_D...	6
1	1	7	kissa	poss	8	a17487	N	-	kissan	NUM_Sg C...	9
0	1	8	pöytä	nommod	9	a17488	N	-	pöydälle	NUM_Sg C...	6
0	1	9	joka	rel	10	a17489	Pron	-	jota	SUBCAT_R...	12
0	1	10	tämä	nommod	11	a17490	Pron	-	tässä	SUBCAT_D...	12
0	1	11	kiertää	rcmod	12	a17491	V	-	kiertäään	PRS_Pe4 V...	9
0	1	12	kuin	comparator	13	a17492	C	-	kuin	SUBCAT_CS	14

Connected to chipster.csc.fi as lennes View jobs 0 jobs running Used memory 109M / 800M

# Mylly interface



The screenshot shows the Mylly 3.11.8 application window. At the top, there's a menu bar with File, Edit, View, Workflow, and Help. The title bar indicates "Mylly 3.11.8".

**Datasets:** A sidebar listing files under a Datasets folder:

- query.cqp.txt
- query.cqp-s3527p0.korp.json
- query.cqp-s3527p0.korp-tokens.tsv
- query.cqp-s3527p0.korp-meta.tsv

**Analysis tools:** A list of tools under the Kielipankki category:

- Korp search
- Korp data
- Relation algebra
- Simple statistics
- Advanced statistics
- Export formats
- Syntactic analysis
- Morphological analysis
- Speech recognition
- Preprocessing
- Finite-State Technology
- Finite-State Transducers
- Job management

**Workflow:** A diagram showing a flow from a "txt" file to a "json" file.

**Visualisation:** A spreadsheet view showing 3609 rows of data with 12 columns. The columns are labeled: kMmatch, kMsen, kMtak, lemma, and dep. The first few rows of data are:

kMmatch	kMsen	kMtak	lemma	dep
0	0	0	silloin	advmod
0	0	1	tätyä	aux
0	0	2	uskaltaa	ROOT
0	0	3	nostaa	xcomp

# Save the entire workflow or export any part of it to your local computer

Myly 3.11.8

**Datasets**

- query.cqp.txt
- query.cqp-s3527p0.korp.json
- query.cqp-s3527p0.korp-tokens.tsv
- query.cqp-s3527p0.ko

**Analysis tools**

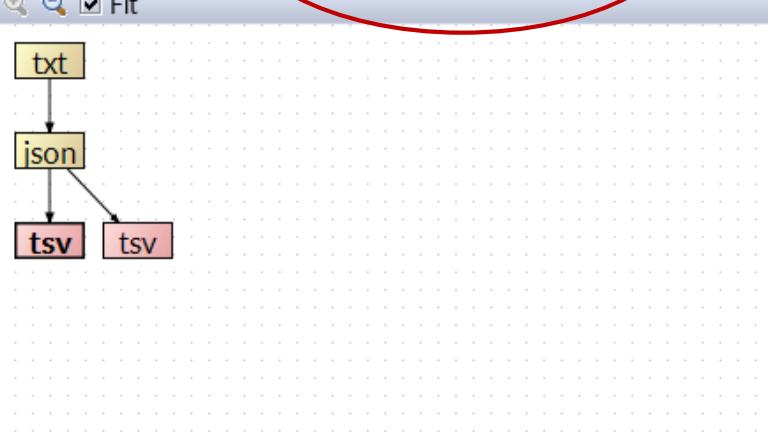
**Kielipankki**

- Korp search
- Korp data**
- Relation algebra
- Simple statistics
- Advanced statistics
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- Finite-State Technology
- Finite-State Transducers
- Job management

**Visualise**

- Link to phenodata
- Links between selected
- Rename
- Delete
- Save workflow**
- Export...**
- View history as text

**Workflow**



```

graph TD
    A[txt] --> B[json]
    B --> C[tsv]
    B --> D[tsv]
  
```

**Visualisation**

query.cqp-s3527p0.korp-tokens.tsv  
 236 kB, Tue Oct 17 18:00:03 EEST 2017  
 (Click here to add your notes)  
 Created with Chipster 3.11.8  
[Analysis history](#)

**Korp data / KWIC as TSV**

# Mylly already provides these tools:

- Automatic speech recognition
- Text parser
- HFST tools
- Direct import of search results from Kielipankki corpora via Korp API
- Statistical data analysis (R functions)
- Visualization
- File conversion, etc.

# And yes...

... the very same tools **can still be used from the command line, if you prefer!**

```
Switching compiler gcc to gcc/4.9.3
Switching MPI version intelmpi to intelmpi/5.1.1

The following have been reloaded with a version change:
 1) gcc/4.8.2 => gcc/4.9.3          3) python-env/3.4.0 => python-env/2.7.10
 2) intelmpi/4.1.3 => intelmpi/5.1.1  4) python/3.4.0 => python/2.7.10

[lennes@c305 ~]$ aaltoasr-rec -s 300 -n 16 -o out.txt -T test_pohjantuuli.TextGrid /wrk/lennes/
snd/pohjantuuli_F1_1.wav
```

# Mylly is under development

How would you like to use Mylly?

Suggest new tools:

*fin-clarin@helsinki.fi*



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# Thanks!

