



A BIG MULTILINGUAL TERMINOLOGICAL DATA SPACE

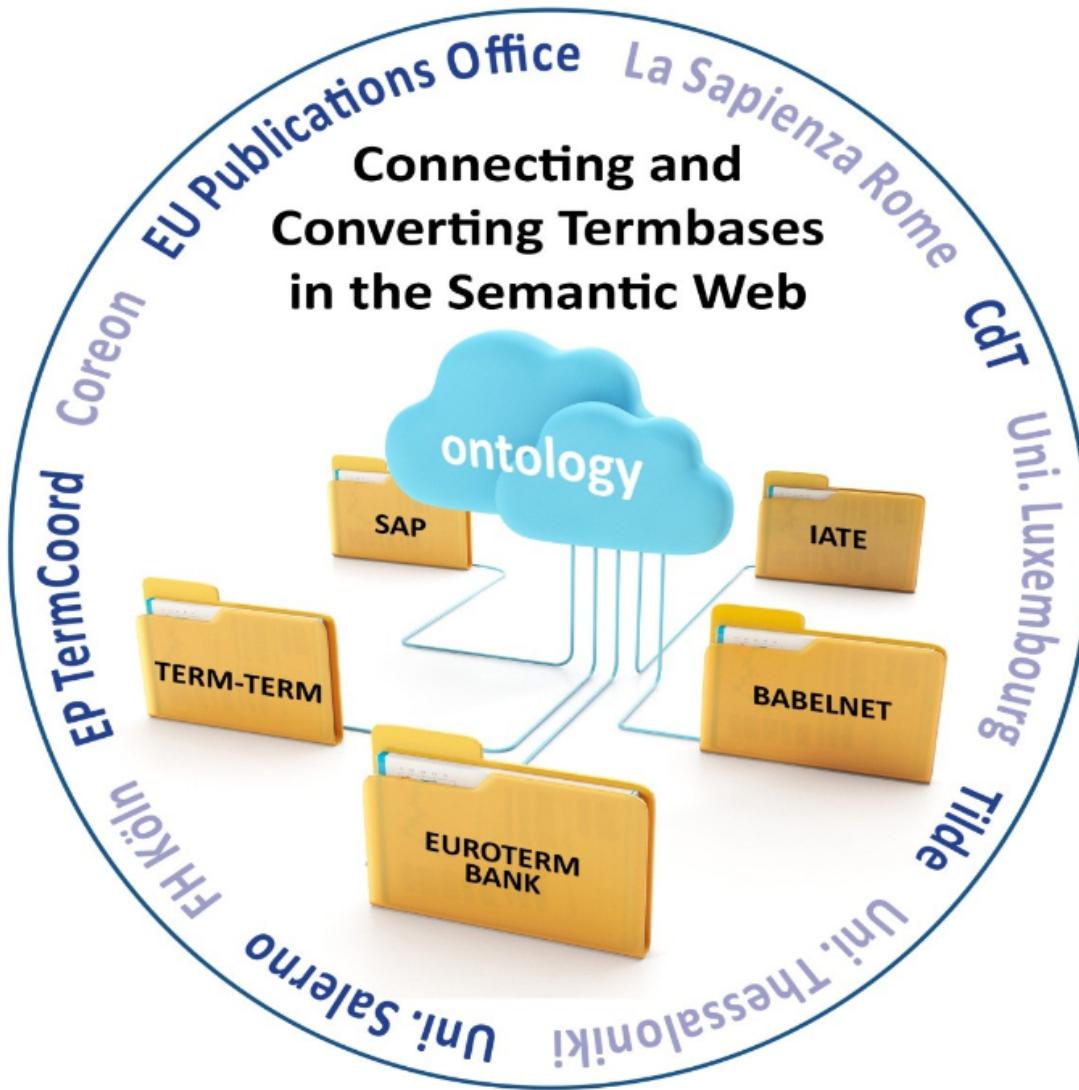
Rodolfo Maslias (EU TermCoord) and

Roberto Navigli (Sapienza University of Rome)

MultilingualWeb Workshop – Riga Summit 29 April 2015

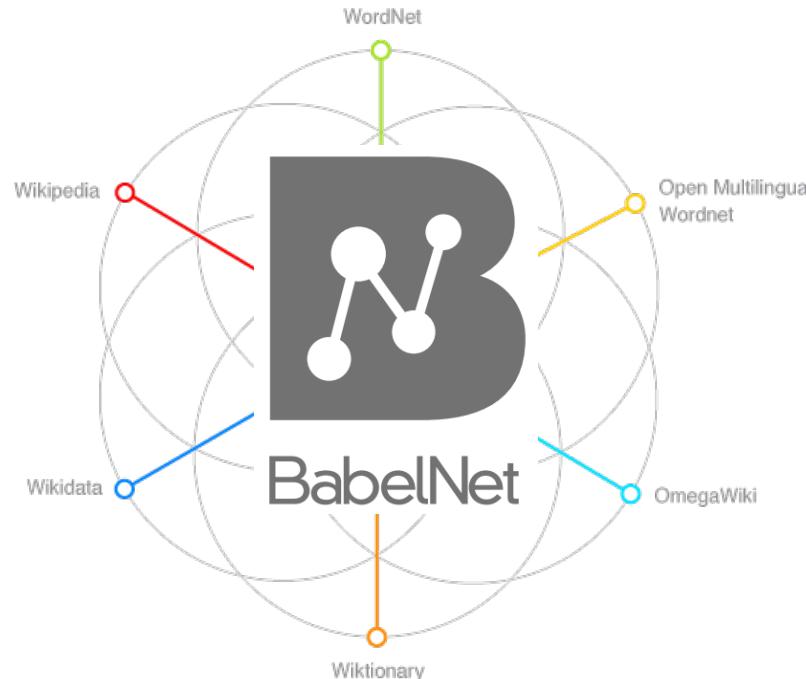


Partners of the project Big Multilingual Terminological Data Space



A common ontology

- A key objective is the creation of a **common ontology** which contains concepts ranging from **general-purpose** to **domain-specific**
- **Key idea:** creating the ontology using **BabelNet** as a pivot and **enriching** it with semantic information

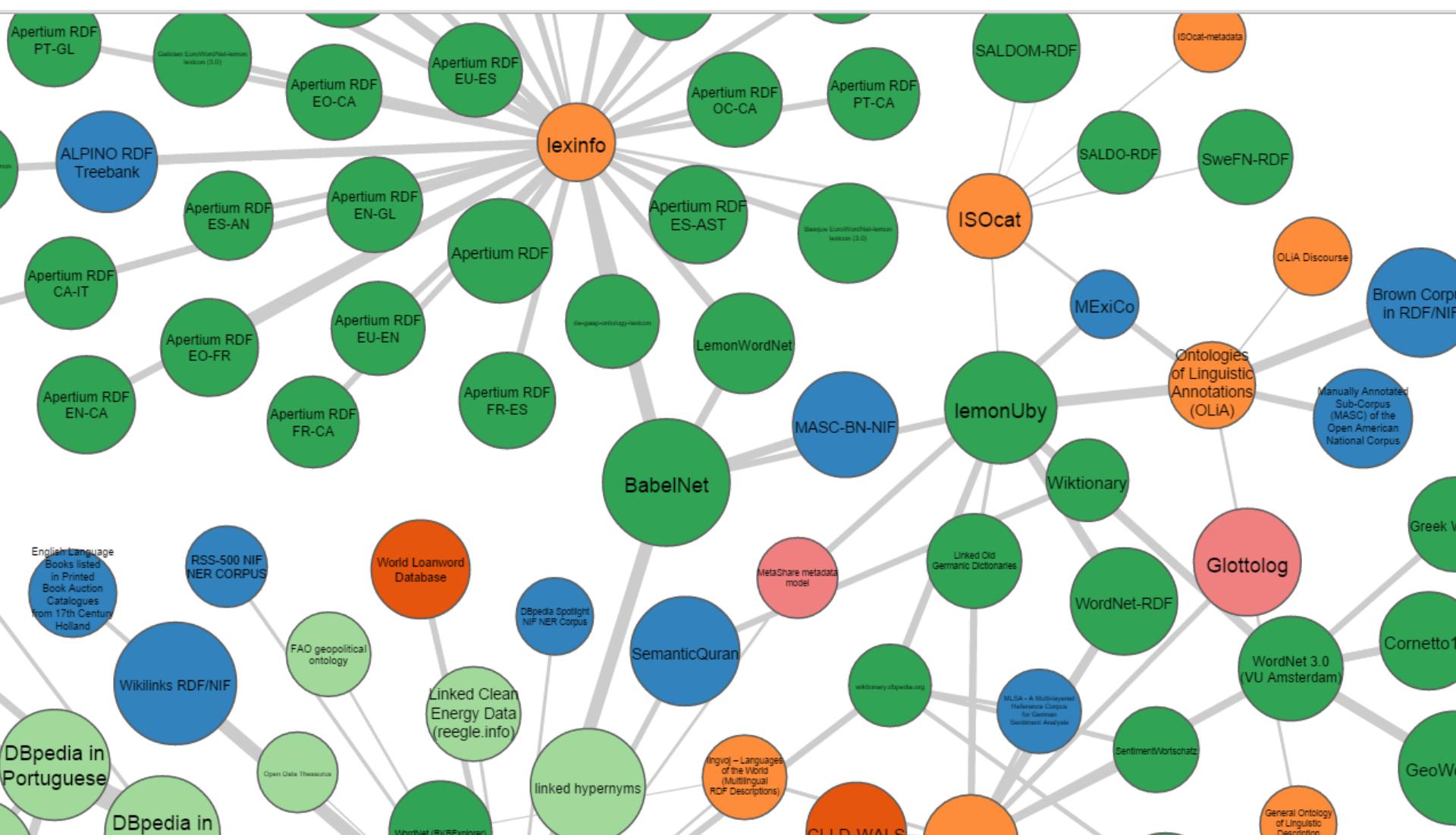


BabelNet 3.0

no



The Linguistic Linked Open Data cloud

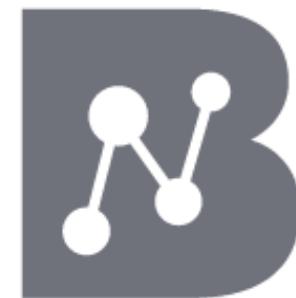


A case in point: IATE

- **IATE** (Inter-Active Terminology for Europe) is the EU's inter-institutional terminology database.
- Legacy databases imported into IATE:
 - ✧ Eurodicautom
 - ✧ TIS
 - ✧ Euterpe
 - ✧ Euroterms
 - ✧ CDCTERM
- Since 2002 it is **enriched** by all EU translators
- A public version contains 8.5M validated terms from EU legislation in 110 domains in **24 languages**

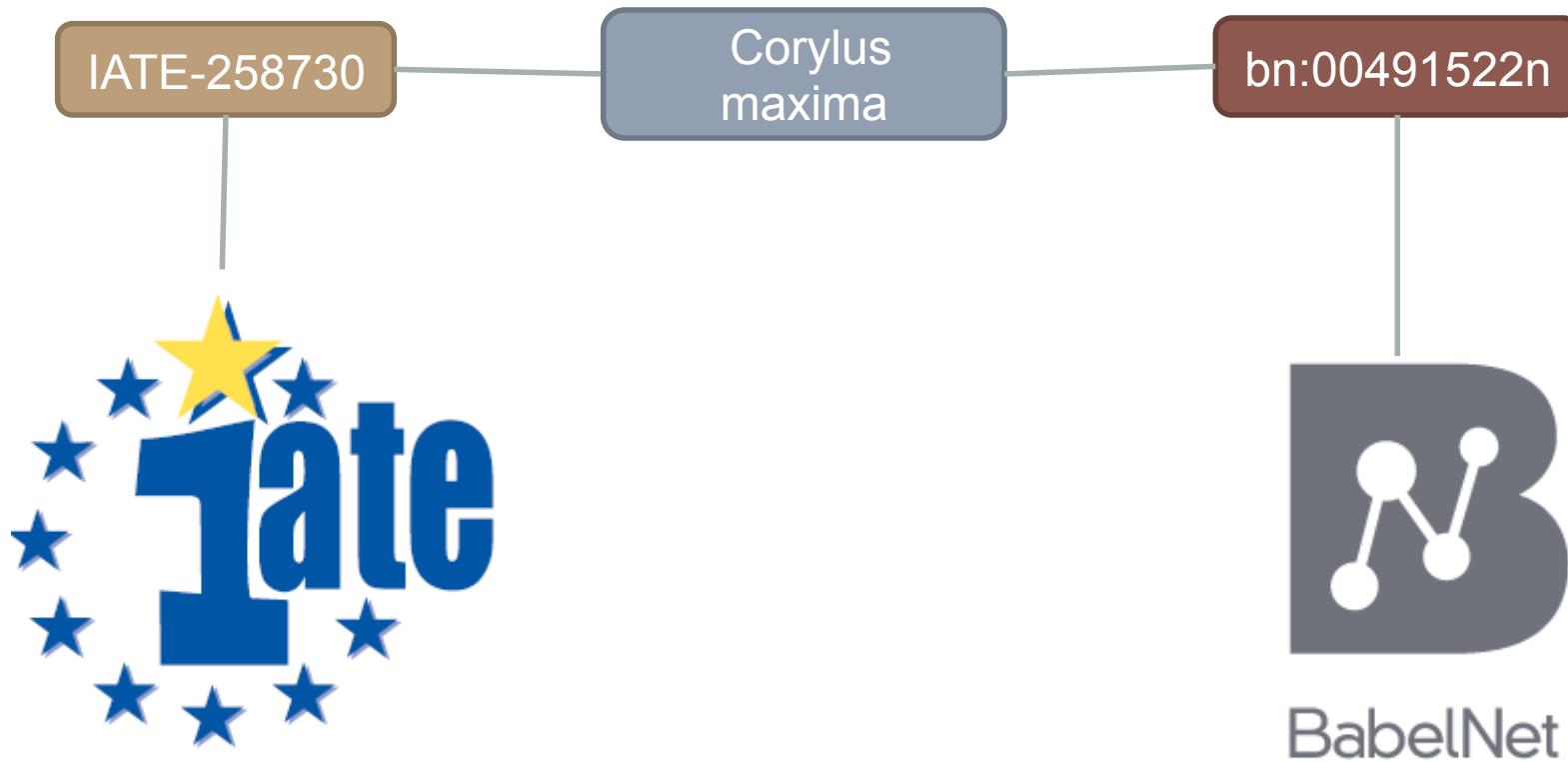
Early achievement: linking IATE to BabelNet

- **Goal:** To automatically (and semantically) link IATE to BabelNet using a **language- and resource-agnostic approach**



BabelNet

Early achievement: linking IATE to BabelNet



How to link IATE to BabelNet?

- We are leveraging **Babelfy**, a joint graph-based approach to **multilingual Entity Linking** and **Word Sense Disambiguation**



Linking pomodoro di serra to BabelNet

- Babelfy features **language-agnostic** disambiguation!

The screenshot shows the IATE search interface. The search bar contains "pomodoro di serra". The results are displayed under the heading "Result 1- 3 of 3 for pomodoro di serra".

AGRICULTURE, FORESTRY AND FISHERIES, Natural and applied sciences [COM] [Full entry](#)

IT pomodoro di serra	★★★★ *
EN tomatoe grown under glass	★★★★ *
ES tomate de invernadero	★★★★
FR tomate de serre	★★★★ *

LAW [Com Swiss Data] [Full entry](#)

IT Ordinanza dell'UFCP concernente i prezzi di ritiro dei pomodori di serra del raccolto 1985	★★★★ *
FR Ordonnance de l'OFCP concernant les prix de prise en charge pour les tomates de serre de la récolte 1985	★★★★ *

Linking "pomodoro di serra" to BabelNet



Babelfy

pomodoro di serra . tomatoe grown under glass. tomate de invernadero tomate de serre. prezzi di ritiro dei pomodori di serra del raccolto.
Ordonnance de l'OFCP concernant les prix de prise en charge pour les tomates de serre de la récolte.

Enable partial matches:

AGNOSTIC

BABELFY!

[expanded view](#) | [compact view](#)

pomodoro

di serra .

tomatoe

grown

under

glass

. tomat



pomodoro

Native to South America; widely cultivated in many varieties



tomatoe

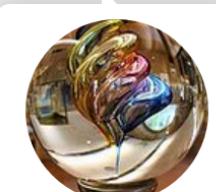
Native to South America; widely cultivated in many varieties

grown

Cultivate by growing, often involving improvements by means of agricultural

under

In or to a place that is lower



glass

A brittle transparent solid with irregular atomic structure



tomate

Native to South America; widely cultivated in many varieties

A metasearch engine

- The main outcome of the project will be the creation of a **metasearch engine** for the resulting **multilingual terminological space**
- Retrieving the **semantic connections** between the various **terminological resources** and the **matching entries**
- **New resources in any format** can be added at any time



A metasearch engine: example

- Search for: pomodoro polposo
- Exact matches:

AGRICULTURE, FORESTRY AND FISHERIES [COM]

IT pomodoro polposo

DA bøfttomat

DE Fleischtomate

EN beef tomato

FR tomate charnue

NL vleestomaat



- Near matches:

AGROVOC

English ▾ tomato

Search

7 results for 'tomato'

tomato (plant) → [Lycopersicon esculentum](#)

↳ Lycopersicon

↳ [Lycopersicon lycopersicum](#), [Solanum lycopersicum](#), [tomato \(plant\)](#)

↳ مفت بندوري (ar), بندوره لیکوپریسکون (ar), 番茄(植物) (zh), 洋柿子 (zh), 番柿 (zh),

[Lycopersicon esculentum](#) (cs), [Lycopersicon lycopersicum](#) (cs), [rajče jedlé](#) (cs), [Solanum](#)

[lycopersicum](#) (cs), [Lycopersicon esculentum](#) (fr), [Lycopersicon lycopersicum](#) (fr), [Solanum](#)

[lycopersicum](#) (fr), [Lycopersicon esculentum](#) (de), [Lycopersicon lycopersicum](#) (de), [Solanum](#)

[lycopersicum](#) (de), [লাইকোপের্সিকন এস্কুলেন্টম](#) (hi), [লাইকোপের্সিকন লাইকোপের্সিকম](#) (hi), [সোলেনম লাইকোপের্সিকম](#) (hi), [Lycopersicon esculentum](#) (hu), [Lycopersicon lycopersicum](#) (hu), [Solanum lycopersicum](#) (hu)

Categories: Hybrid tomato cultivars

国旗 Beefsteak tomato

牛排番茄

A beef tomato or beefsteak tomato is any of the largest varieties of cultivated tomatoes, some weighing or more.

+ More definitions

IS-A: [vegetable](#)

■ No definition available

IS-A: [蔬菜](#)

国旗 Pomodoro cuore di bue · bistecca

Il pomodoro cuore di bue è un pomodoro da insalata, grosso ed irregolare, con buccia liscia e sottile.

IS-A: [Verdura](#)



EXPLORE NETWORK



BabelNet



APPLICATION SCENARIOS

Application scenarios of the multilingual search Engine

Cross-language search

A **cross-language search service** could be an effective means for accessing in the unstructured big data, information in an unconventional but logical way:

Enter a query X in one official EU language and get results in one of the other 23 official EU languages.

Domain-based cross-lingual search engine

- **Goal:** use multilingual terminological data to locate services for EU citizens
- Example 1 (**labour market**): finding jobs online independently of the source language
- Example 2 (**health**): cross-lingual search of specialized medical treatments

Example: job market query

2lingual

cameriere lavoro

Search pages written in: Italian ▾ and Greek ▾

176000 Italian results for cameriere lavoro

[Lavoro - Cameriere, Offerte lavoro | Indeed.com](#)

Trova lavoro: Cameriere su Indeed.com. una ricerca. tutti i lavori. Cerca il tuo lavoro ideale tra più di 300.000 offerte di lavoro pubblicate da portali lavoro, ...
it.indeed.com/offerte-lavoro-Cameriere



[Cameriere - Lavoro - Kijiji: Annunci di eBay](#)

4751 offerte di lavoro e richieste di impiego: trova lavoro su Kijiji. Trovi anche cameriere.
www.kijiji.it/offerte-di-lavoro/cameriere/

[Lavoro - Cameriere Di Sala, Offerte lavoro | Indeed.com](#)

Trova lavoro: Cameriere Di Sala su Indeed.com. una ricerca. tutti i lavori. Cerca il tuo lavoro ideale tra più di 300.000 offerte di lavoro pubblicate da portali lavoro ...
it.indeed.com/offerte-lavoro-Cameriere-Di-Sala

[Offerte di lavoro cameriere con vitto e alloggio - Italia | careerjet.it](#)

Trova sul motore di ricerca Careerjet tutte le offerte di lavoro per cameriere con vitto e alloggio in Italia pubblicate su tutti i siti di annunci di lavoro.
www.careerjet.it/lavoro-cameriere-con-vitto-e-alloggio.html

[Lavoro - Cameriere - Roma, Lazio, Offerte lavoro | Indeed.com](#)

Trova lavoro: Cameriere - Roma, Lazio su Indeed.com. una ricerca. tutti i lavori. Cerca il tuo lavoro ideale tra più di 300.000 offerte di lavoro pubblicate da portali lavoro ...
it.indeed.com/Roma,-Lazio-offerte-lavoro-Cameriere



[Cameriere - Offerte di lavoro a Milano - Kijiji: Annunci di eBay](#)

1 giorno fa ... Sai che a Milano cercano 320 esperti lavoratori? Su Kijiji trovi tanti posti di lavoro , anche subito, con ogni forma contrattuale. Trovi anche ...
www.kijiji.it/offerte-di-lavoro/offerta/annunci-milano/cameriere/

[Lavoro - Camerieri, Offerte lavoro | Indeed.com](#)

Trova lavoro: Camerieri su Indeed.com. una ricerca. tutti i lavori. Cerca il tuo lavoro ideale tra più di 300.000 offerte di lavoro pubblicate da portali lavoro, giornali ...
it.indeed.com/offerte-lavoro-Camerieri



[Offerta di lavoro Cameriere Annuncia di reclutamento in](#)

2lingual Google Search

powered by Google™

17800 Greek results for σερβιτόρος θέσεις εργασίας - [Translated cameriere lavoro from Italian to Greek] - [Deactivate automatic query translation](#)



[Μπάρμαν-Σερβιτόροι-DJ - Διάφορες Ειδικότητες - Αγγελίες για εργασία](#)

Αγγελίες για εργασία Μπάρμαν-Σερβιτόροι-D.J. - Διάφορες Ειδικότητες - Αναζητώντων εργαζόμενους. Βρέθηκαν 720 αποτελέσματα. Ταξινόμηση κατά: προεπιλεγμένα ...
www.xe.gr/jobs/evresi_mpberman-servitoroi-d.j.,34511.html

[Θέσεις εργασίας - εργασία σερβιτόρος - Ελλάδα | careerjet.gr](#)

Όλες οι θέσεις εργασίας σερβιτόρος στην περιοχή Ελλάδα.
www.careerjet.gr/θέσεις-εργασία-σερβιτόρος.html

[εργασία - Σερβιτόροι | Indeed.com](#)

Σερβιτόροι Διαθέσιμες δουλειές στο στο Indeed. ένα κλικ. όλες οι θέσεις εργασίας.
gr.indeed.com/Σερβιτόροι-jobs

[Σερβιτόρος/Μπάρμαν | proson.gr - Εύρεση εργασίας](#)

-Σερβιτόρος/Μπάρμαν -Τεχνολόγις Τραφίμων ... Θέσεις εργασίας για το κατάστημα Mikel στον Κολωνό. Τελευταία ενημέρωση: ... Jooble. Εργασία, δουλεια ...
www.proson.gr/κατηγορία/σερβιτόρος

[Θέσεις εργασίας - εργασία σερβιτόροι - Ελλάδα | careerjet.gr](#)

Όλες οι θέσεις εργασίας σερβιτόροι στην περιοχή Ελλάδα.
www.careerjet.gr/θέσεις-εργασία-σερβιτόροι.html

[Σερβιτόροι - Jobs in Cyprus](#)

Nippon Japanese Lounge Bar - Σερβιτόροι / Σερβιτόρες / Καθαρίστρια - Λεμεσός ... 29880, Αμερικάνικη αλεσίδα εστιατορίων SUBWAY - Νέες Θέσεις Εργασίας
www.ergodotisi.com/jobs/servitoroi



[Front Office Manager και σερβιτόροι στην Tresor Hotels - Εργασία ...](#)

22 Οκτ. 2014 ... Προσωπικό για τη στελέχωση ξενοδοχείων της στο Νότιο Αιγαίο αναζητά η εταιρεία Tresor Hotels, με τις "ανοικτές" θέσεις να αφορούν έναν Front ...
www.ergasia.gr/front-office-manager-ke-servitori-stin-tresor-hotels/



Conclusion

- A multilingual thematic metasearch engine can help the citizen to retrieve service information from **unstructured multilingual big data**
- **Bringing together multilingual terminological resources** is the only way to **disambiguate** big data sets