

Navigating Sense-Aligned Lexical-Semantic Resources: The Web Interface to UBY



TECHNISCHE UNIVERSITÄT DARMSTADT



UKP

Iryna Gurevych, Michael Matuschek, Tri-Duc Nghiem, Judith Eckle-Kohler, Silvana Hartmann, Christian M. Meyer

<https://www.ukp.tu-darmstadt.de/uby>

Take Home Messages

Motivation:

UBY Web Interface represents attributes of resources in UBY intuitively (only sources with license are shown).

Functionalities:

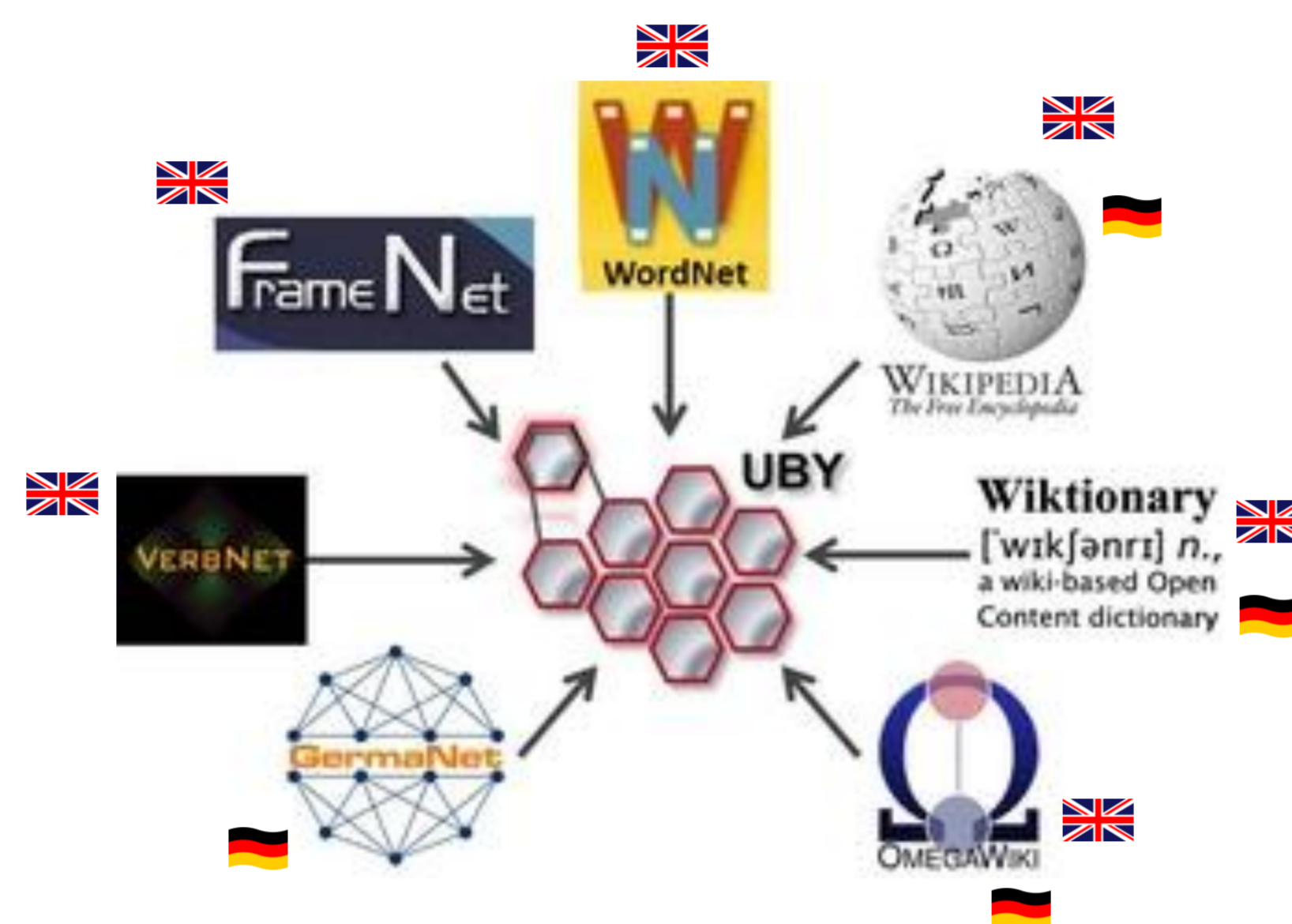
UBY Web Interface provides:

- A novel, intuitively understandable graph view for sense clusters.
- A textual browser that allows to explore the offered information in greater detail.
- A option of comparing senses from different resources.

Technical Basis

- UBY is deployed in MySQL database via hibernate, which is also the foundation of the UBY-API.
- The frontend of the Web application is based on Apache Wicket.

UBY



| UBY Lexicon | Lexical Entry | Sense | Sense Relation |
|---------------|------------------|------------------|------------------|
| FrameNet 1.5 | 9,704 | 11,942 | - |
| GermaNet 6.0 | 83,091 | 93,407 | 329,213 |
| OmegaWiki-DE | 30,967 | 34,691 | 60,054 |
| OmegaWiki-EN | 51,715 | 57,921 | 85,952 |
| Wikipedia-DE | 790,430 | 838,428 | 571,286 |
| Wikipedia-EN | 2,712,117 | 2,921,455 | 3,364,083 |
| Wiktionary-DE | 85,575 | 72,752 | 434,358 |
| Wiktionary-EN | 335,749 | 421,848 | 716,595 |
| WordNet 3.0 | 156,584 | 206,978 | 8,559 |
| VerbNet | 3,962 | 31,891 | - |
| UBY | 4,259,894 | 4,691,313 | 5,570,100 |

Visualization of Aligned Senses

Sense Comparison View

OmegaWikien
align (verb)
OW_en_Sense_44350
To arrange in a straight line.

Semantic Information:
Synset (OW_en_Synset_45083):
Definition: To arrange in a straight line.

Sense Alignment:
1. OW_de_Sense_21855 (Compare)
2. WktEN_sense_71550 (Compare)
3. WktEN_sense_71560 (Compare)

WordNet
align (verb)
WN_Sense_142795
bring (components or parts) into proper or desirable coordination correlation

Lexical Information:
Sense Examples:
1. align the wheels of my car
Semantic Labels:
1. verb.change

Semantic Information:
Semantic Predicate

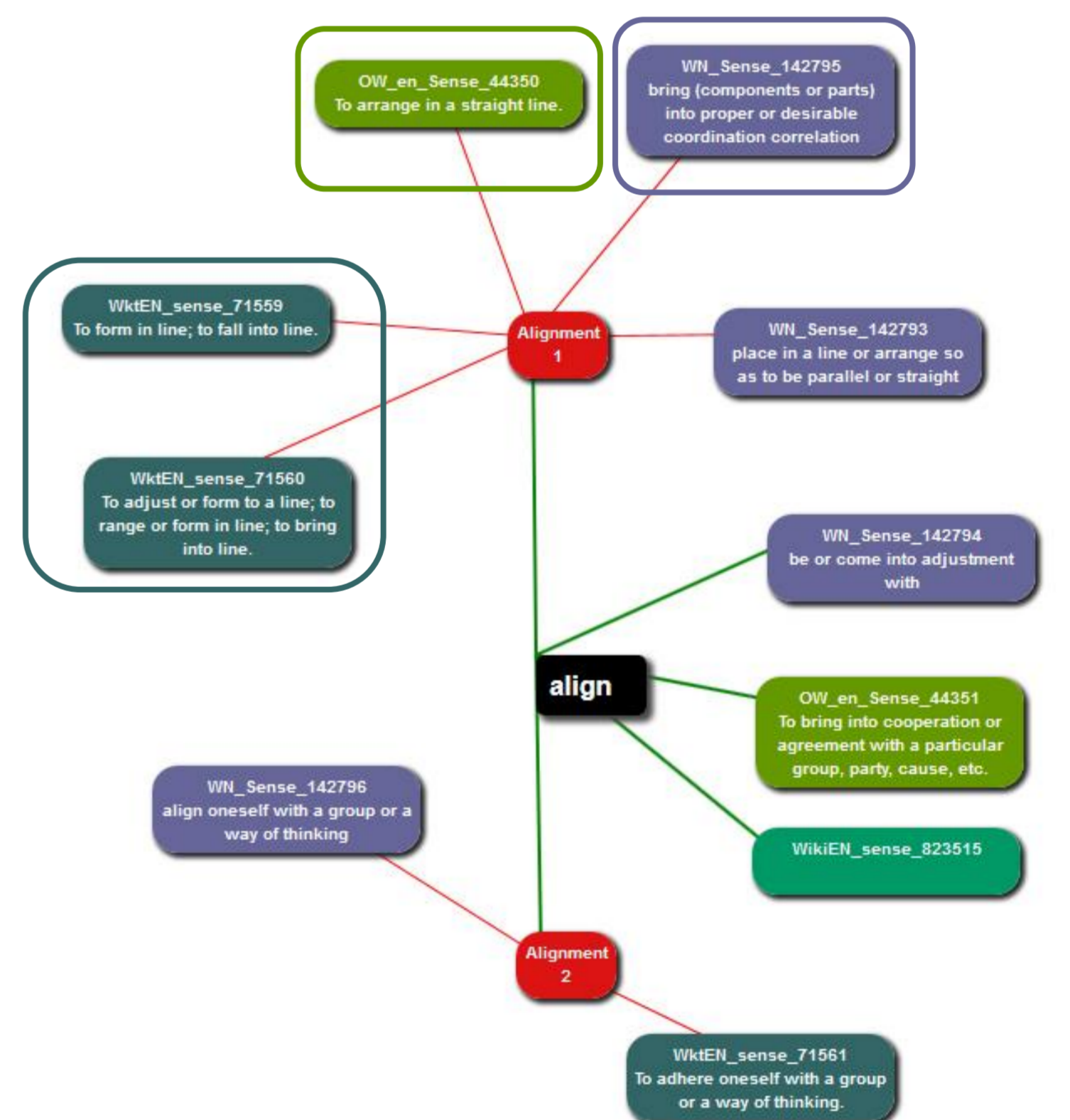
- Semantic Argument (1)
 - Semantic Role: somebody
- Semantic Argument (2)
 - Semantic Role: something

Synset (Original Synset Offset:466053):
Definition: bring (components or parts) into proper or desirable coordination correlation
Synonym:
1. ordinate (Compare)
2. coordinate (Compare)

Syntactic Information:
1. subject_nounPhrase + align + complement_nounPhrase

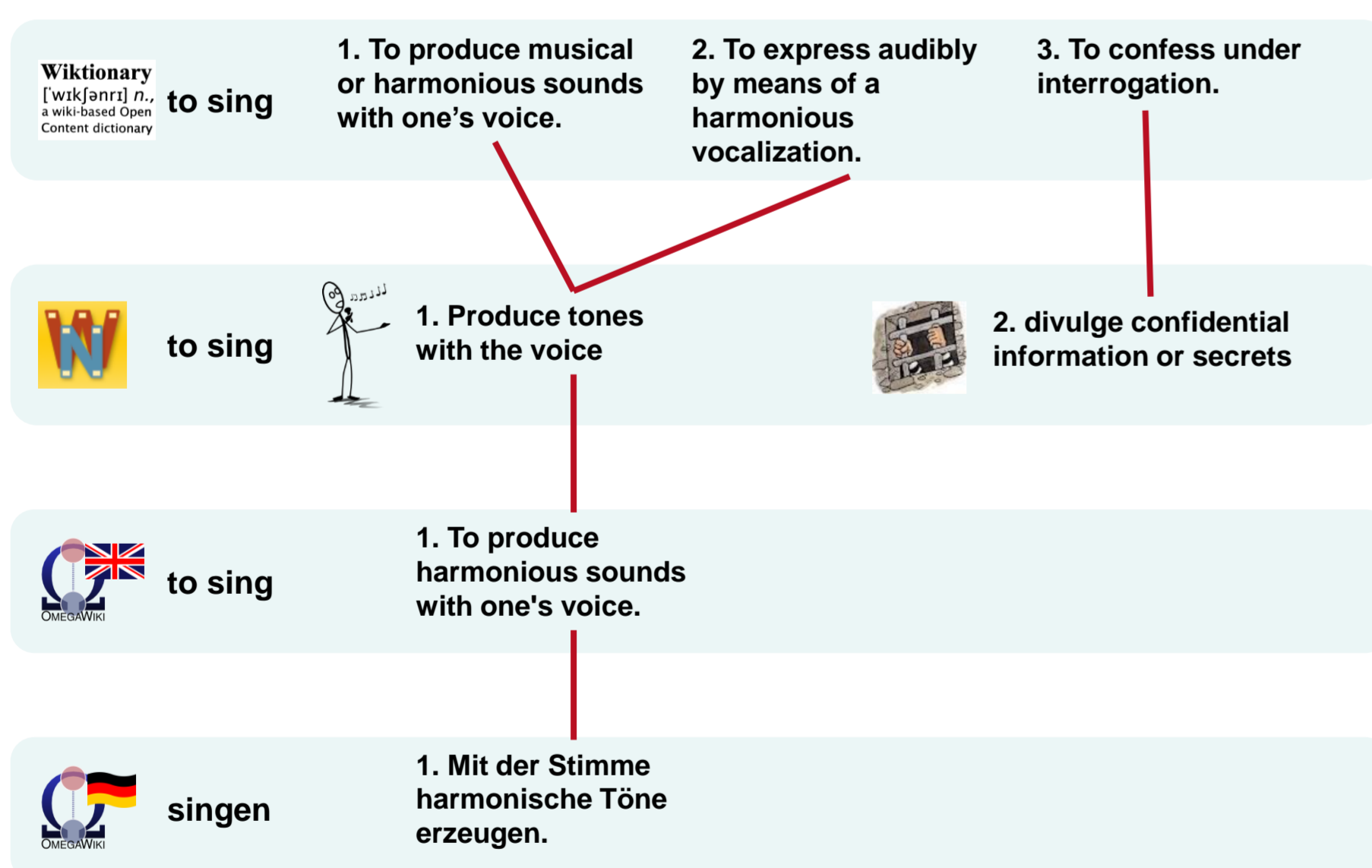
Sense Alignment:
1. WktEN_sense_71560 (Compare)

Two senses are compared in the left hand side. Aligned senses are grouped in the same node (e.g: **Alignment 1**) and visualized in the graph view.



Sense Alignments

Enable semantic operability between resources in UBY:



- Senses linked by **SenseAxis** class
 - Currently 758 435 SenseAxis instances
- **Existing alignments**
 - Created by experts, users, or automatically
- **Automatic alignments**
 - Created by **Alignment Framework**:
 - Cross-lingual alignment (OmegaWiki-DE – WordNet)
 - Based on semantic similarity (+ machine translation)
- **Planned alignments**
 - OmegaWiki-EN – Wiktionary,...

See also

UBY:

Iryna Gurevych, Judith Eckle-Kohler, Silvana Hartmann, Michael Matuschek, Christian M. Meyer, and Christian Wirth: Uby – A Large-Scale Unified Lexical-Semantic Resource, in: Proceedings of the 13th Conference of the European Chapter of the Association for Computational Linguistics (EACL), (to appear), April 2012. Avignon, France.

UBY-LMF:

Judith Eckle-Kohler, Iryna Gurevych, Silvana Hartmann, Michael Matuschek, and Christian M. Meyer: UBY-LMF – A Uniform Model for Standardizing Heterogeneous Lexical-Semantic Resources in ISO-LMF, in: Proceedings of the 8th International Conference on Language Resources and Evaluation (LREC), (to appear), May 2012. Istanbul, Turkey.