

LAW VII & ID

**7th Linguistic Annotation Workshop
&
Interoperability with Discourse**

Proceedings of the Workshop

August 8-9, 2013
Sofia, Bulgaria

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Linguistic Annotation and Interoperability with Discourse – Workshop Overview

The *Linguistic Annotation Workshop* (LAW) is organized annually by the *Association for Computational Linguistics Special Interest Group for Annotation* (ACL SIGANN). It provides a forum to facilitate the exchange and propagation of research results concerned with the annotation, manipulation, and exploitation of corpora; work towards the harmonization and interoperability from the perspective of the increasingly large number of tools and frameworks for annotated language resources; and work towards a consensus on all issues crucial to the advancement of the field of corpus annotation.

The LAW VII & ID mission statement

This year the LAW has been combined with a workshop proposed for ACL 2013 on *Collating Models of Discourse Annotation* (CoMoDA). The aim of CoMoDA was to stimulate debate on and encourage work that proposes methods, frameworks and tools for comparing or aligning the varied types of discourse annotation currently available with the goal of achieving interoperability. CoMoDA proposed to use scholarly text as the testbed for this initiative by introducing a shared task.

While both proposals were accepted as individual workshops, it was considered beneficial to combine them and create a two-day event which would reach out to both communities. Traditionally, the LAW features a theme, which provides a focus point for workshop submissions. More recently, it features also a challenge, which awards papers addressing certain aspects of the theme. We decided that a natural way of combining the two workshops would be to let the CoMoDA agenda guide the theme of the 7th LAW. This is how *LAW VII and Interoperability with Discourse* (LAW VII & ID) came into being.

Thus, the LAW VII & ID workshop accepted papers on all aspects of linguistic annotation and was particularly interested in the comparison and interoperability of different models and techniques used for and in conjunction with discourse annotation, focusing on any of the following goals:

- Creation of new insights within the field of discourse (by juxtaposing two or more points of view as reflected by different annotation schemes or annotation techniques).
- Fostering interoperability between pragmatic and semantic phenomena in discourse, ranging from functional categories (e.g. methods, results, hypotheses, etc.) to traditional discourse relations (connectives, anaphora, metonymies, etc.).
- Connecting syntactic, semantic and pragmatic layers of annotation.
- Working towards a framework, representation standards, tools and methods that will allow the integration and co-existence of current and future discourse-related annotation schemes.

It was decided that the workshop would have a challenge and a shared task to encourage focussed submissions addressing the workshop theme. Any paper which dealt with annotation interoperability or integration automatically qualified for the challenge, while special consideration was given to papers (1) integrating functional discourse annotation from one or more corpora with other types of annotation; and (2) demonstrating how interoperability can increase the understanding of the discourse. The shared task was introduced to provide a testbed of scientific corpora for experimentation with different discourse annotation schemes.

These proceedings include papers presented at LAW VII & ID, held in Sofia, Bulgaria, on 8-9 August 2013.

Overview of accepted papers

LAW VII & ID's call for papers was answered by 48 submissions. After careful review, the Programme Committee accepted 18 long papers, together with ten additional papers to be presented as short talks and/or posters. This year's submissions addressed many topics of interest for resource annotation. Among these, the following topics are strongly represented, and serve as the headers of the different sessions into which LAW VII & ID has been divided:

1. sparse annotations and annotation error correction (three accepted papers),
2. annotation comparison and evaluation (five accepted papers),
3. interoperability and/or discourse — the special theme of the workshop (five accepted papers),
4. discourse annotation (ten papers on this issue included in the proceedings),
5. semantic annotation (six accepted papers), and
6. novel methods in annotation (four papers fall under this category).

While part-of-speech or syntactic tagging do not seem to feature prominently in the above thematic categories, there is actually a considerable amount of work being done on the correction and improvement of part-of-speech and/or syntactic annotations. Papers representative of such work have been included in the session on 'Sparse Annotations & Error Correction'.

The wide range of languages addressed in the accepted papers, the domains for which annotation was performed, as well as the countries of origin of the authors, indicate that this is a very active and lively area globally. As shown by the papers in the workshop proceedings, English is still the language of preference for annotation purposes (11 out of the 38 contributions deal with annotating English data to some extent). None of the papers submitted discussed linguistic annotation for Spanish, despite it being one of the most spoken languages in the world. Russian, while being one of the ten most spoken languages in the world, is not represented either. Interestingly, the ratio of papers representing Turkish is higher than the ratio of papers representing German, inspite of the huge amount of annotation projects and research being carried out in Germany. Asian languages are represented in the workshop by Chinese, Hindi, Indonesian, Japanese and Vietnamese, while Arabic languages are also represented: by Darija (from North-Africa) and Egyptian Arabic. The remaining languages dealt with in the papers are Czech, Danish, French, Italian, Norwegian, Portuguese and Swedish. Having a look at the languages discussed in the workshop papers and the countries where they come from, one can see that a number of non-native English-speaking researchers are working on the annotation of English data. Globalization, research evaluation metrics and the lack of suitable open and/or free resources (amongst other reasons) may be the main explanation for this phenomenon. While not totally surprising or unexpected, this poses some concern for linguistic diversity in annotation and the preservation of these languages in the long run.

The following includes some general observations on the accepted papers. Firstly, most of the semantic and discourse-related annotations of the workshop have been performed manually. This may indicate that existing technologies are not yet mature enough to produce automatic reliable semantic and discourse annotations or the scarcity of resources for producing automated methods. Secondly, only four out of the thirty-eight accepted submissions deal directly with annotation standards and standardization, and only two additional ones provide some kind of (explicit) best practices for annotation. This raises some concern, since it may mean that either (a) people are not aware of the standards being developed for annotation; or (b) the authors do not think these standards are useful for their work. In any case, we believe that some actions should be taken to remedy this situation. Thirdly, only five accepted papers discuss the interoperability topic, despite it being this year's special theme. We believe this is a major

challenge: advances in linguistic research in coming years will require annotations at different levels, and thus providing and querying corpora with such multi-layered information should become the norm. Thus, annotations at different levels and layers will have to interoperate to a great extent, with corpora and resources not conforming to such requirements running the risk of quickly becoming obsolete.

The LAW VII & ID Challenge

To emphasise the need for interoperability in linguistic annotation the LAW VII & ID workshop presented *The LAW Challenge*, an award sponsored by the U.S. National Science Foundation (IIS 0948101 Content of Linguistic Annotation: Standards and Practices (CLASP)) and the ACL Special Interest Group on Annotation (ACL SIGANN). The aim of this year's challenge was to promote the use and collaborative development of open, shared resources, and to identify and promote best practices for annotation interoperability focusing on (but not restricted to) discourse and discourse annotations. The second and third call for papers placed an emphasis on the challenge.

Papers addressing one of the topics below were considered eligible for the challenge award:

1. integration of functional discourse annotation from one or more corpora with other types of annotation;
2. demonstration of how interoperability can increase understanding of the discourse;
3. interoperability or integration between different types of linguistic annotation.

Other evaluation criteria considered in the challenge selection process include:

- innovative use of linguistic information from different discourse annotation layers;
- demonstrable interoperability with at least one other annotation scheme or format developed by others;
- quality of the annotated resource in terms of scheme design, documentation, tool support, etc.;
- open availability of developed resources for community use;
- usability and reusability of the annotation scheme or annotated resource;
- outstanding contribution to the development of annotation best practices.

Based on the above criteria, the winner of the second LAW Challenge was: "Towards a Better Understanding of Discourse: Integrating Multiple Discourse Annotation Perspectives Using UIMA" Authors: Claudiu Mihaila, Georgios Kontonatsios, Riza Theresa Batista-Navarro, Paul Thompson, Ioannis Korkontzelos and Sophia Ananiadou.

This paper addresses interoperability between different types of discourse annotation and also some aspects of the shared task as it uses an extension of U-compare (a graphical UIMA-based workflow platform for combining NLP resources) to compare functional discourse annotations and correlate functional discourse annotations with discourse connectives. This work addresses both annotation interoperability and also how discourse annotations interact with other types of annotation, both in the context of scientific articles and other texts. It offers a framework on which future research can be based to further annotation interoperability and investigate the interaction and synergies between different discourse components.

The winning paper received a monetary award of \$2500 towards covering the authors' travel expenses and workshop registration.

The LAW VII & ID Shared Task

In the context of the challenge, we created an optional shared task to promote the comparison, alignment and interoperability of discourse annotation schemes between them and also between other annotation schemes. The shared task aimed to use scientific texts as a testbed to help participants address the goals of the challenge.

A paper was regarded as addressing the shared task when it used scientific papers to explore how discourse annotations interact, considering at least one functional discourse annotation scheme and potentially also other types of discourse annotations.

A platform for the dissemination of scientific corpora was provided, so that the same character offsets were used in each case. Links to the corresponding annotation guidelines, links to annotation tools for discourse annotation and links to visualisation tools were also provided. The corpora made available for the shared task all contain functional annotations. We are interested in how these types of annotations can be combined with traditional discourse relations covering connectives, anaphora, metonymies and such and the resulting synergies.

Collections of scientific texts were made available for download in a shared format, catering for visualizations using brat, a web-based tool for annotation visualisation and editing. Corpora released in comparable formats include:

- The BioScope Corpus,
- The GENIA corpus with meta-knowledge information for bio-events,
- The ART/CoreSC corpus,
- Chemistry AZ-II corpus (annotated with both CoreSC and AZ-II), and
- 3 papers annotated with CoreSC, Meta-Knowledge for bio-events and discourse segments.

A detailed description of the shared task along with the corresponding resources is available at <http://nactem.ac.uk/law7-id/sharedtask.html>.

The effort that went into the preparation of the material for the shared task was unfortunately not rewarded in terms of submissions received; only two papers addressed the shared task, of which only one was accepted for presentation at the workshop. We believe that the main reasons for this were the delay in releasing the shared task data and perhaps not advertising the existence of the shared task enough, since this is a first for the LAW series. The fact that one of the two shared-task related submissions won the challenge award offers some gratification, but we are hoping that more people will be able to contribute to this very interesting topic of comparing, aligning and integrating different types of annotation so as to connect together syntactic, semantic and pragmatic aspects of discourse. For this reason, we have scheduled a two hour session within the workshop itself. We will discuss the shared task and, potentially, also have some hands on experimentation with the data. This will help us envision how it could be explored for future use.

Acknowledgments

We would like to thank SIGANN for its continuing organization of the LAW series, as well as the support of the ACL 2013 workshop committee chairs, Aoife Cahill and Qun Liu. Most of all, we would like to thank all the authors for submitting their papers to the workshop and our program committee members and reviewers for their dedication and informative reviews.

Antonio, Maria and Stefanie – Workshop Chairs

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Fei Xia (University of Washington)
Nianwen Xue (Brandeis University)
Heike Zinsmeister (University of Stuttgart)

Invited Speaker:

Christopher Manning, Natural Language Processing Group, Stanford University

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Conference Program

August 8, 2013

8:45-9:00 Opening Remarks

Session 1.1: Sparse Annotations and Error Correction

9:00-9:40 Christopher Manning (invited talk): Improving the Linguistics of Linguistic Annotation: Opportunities and Limits

9:40–10:05 *Automatic Correction and Extension of Morphological Annotations*
Ramy Eskander, Nizar Habash, Ann Bies, Seth Kulick and Mohamed Maamouri

10:05–10:30 *POS Tagging for Historical Texts with Sparse Training Data*
Marcel Bollmann

10:30-11:00 Coffee break

Session 1.2: Comparison and Evaluation of Annotations

11:00–11:07 *Utilizing State-of-the-art Parsers to Diagnose Problems in Treebank Annotation for a Less Resourced Language*
Quy Nguyen, Ngan Nguyen and Yusuke Miyao

11:07–11:14 *Influence of preprocessing on dependency syntax annotation: speed and agreement*
Arne Skjærholt

11:15–11:40 *Continuous Measurement Scales in Human Evaluation of Machine Translation*
Yvette Graham, Timothy Baldwin, Alistair Moffat and Justin Zobel

11:40–12:05 *Entailment: An Effective Metric for Comparing and Evaluating Hierarchical and Non-hierarchical Annotation Schemes*
Rohan Ramanath, Monojit Choudhury and Kalika Bali

12:05–12:30 *A Framework for (Under)specifying Dependency Syntax without Overloading Annotators*
Nathan Schneider, Brendan O'Connor, Naomi Saphra, David Bamman, Manaal Faruqi, Noah A. Smith, Chris Dyer and Jason Baldridge

12:30-14:00 Lunch

August 8, 2013 (continued)

Session 1.3: Special Theme and Challenge - Interoperability and Discourse

14:00–14:25 *Converting Italian Treebanks: Towards an Italian Stanford Dependency Treebank*
Cristina Bosco, Simonetta Montemagni and Maria Simi

14:25–14:50 *Analyses of the Association between Discourse Relation and Sentiment Polarity with a Chinese Human-Annotated Corpus*
Hen-Hsen Huang, Chi-Hsin Yu, Tai-Wei Chang, Cong-Kai Lin and Hsin-Hsi Chen

14:50-15:15 LAW VII and ID Challenge Award:

Towards a Better Understanding of Discourse: Integrating Multiple Discourse Annotation Perspectives Using UIMA

Claudiu Mihăilă, Georgios Kononatsios, Riza Theresa Batista-Navarro, Paul Thompson, Ioannis Korkontzelos and Sophia Ananiadou

15:15–15:22 *Making UIMA Truly Interoperable with SPARQL*
Rafal Rak and Sophia Ananiadou

15:22–15:29 *Importing MASC into the ANNIS linguistic database: A case study of mapping GrAF*
Arne Neumann, Nancy Ide and Manfred Stede

15:30-16:00 Coffee break

Session 1.4: Shared-Task

16:00-18:00 Introduction to the task and hands-on work (Maria Lakata and Sampo Pyysalo)

End of Day 1

August 9, 2013

Session 2.1: Discourse Annotation

- 9:00–9:25 *Generic noun phrases and annotation of coreference and bridging relations in the Prague Dependency Treebank*
Anna Nedoluzhko
- 9:25–9:50 *Annotating Anaphoric Shell Nouns with their Antecedents*
Varada Kolhatkar, Heike Zinsmeister and Graeme Hirst
- 9:50–10:15 *Applicative Structures and Immediate Discourse in the Turkish Discourse Bank*
Isin Demirsahin, Adnan Ozturel, Cem Bozsahin and Deniz Zeyrek
- 10:15–10:22 *TURKSENT: A Sentiment Annotation Tool for Social Media*
Gülşen Eryiğit, Fatih Samet Çetin, Meltem Yanık, Tanel Temel and İlyas Çiçekli
- 10:22–10:29 *Tweet Conversation Annotation Tool with a Focus on an Arabic Dialect, Moroccan Darija*
Stephen Tratz, Douglas Briesch, Jamal Laoudi and Clare Voss
- 10:30–11:00 Coffee break

Session 2.2: Semantic Annotation

- 11:00–11:25 *Relation Annotation for Understanding Research Papers*
Yuka Tateisi, Yo Shidahara, Yusuke Miyao and Akiko Aizawa
- 11:25–11:50 *Developing Parallel Sense-tagged Corpora with Wordnets*
Francis Bond, Shan Wang, Eshley Huini Gao, Hazel Shuwen Mok and Jeanette Yiwen Tan
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Itisree Jena, Riyaz Ahmad Bhat, Sambhav Jain and Dipti Misra Sharma
- 12:15–12:22 *Automatic Named Entity Pre-annotation for Out-of-domain Human Annotation*
Sophie Rosset, Cyril Grouin, Thomas Lavergne, Mohamed Ben Jannet, Jérémy Leixa, Olivier Galibert and Pierre Zweigenbaum
- 12:22–12:29 *Abstract Meaning Representation for Sembanking*
Laura Banarescu, Claire Bonial, Shu Cai, Madalina Georgescu, Kira Griffitt, Ulf Hermjakob, Kevin Knight, Philipp Koehn, Martha Palmer and Nathan Schneider

August 9, 2013 (continued)

12:30-14:00 Lunch

Session 2.3: Novel Methods in Annotation

14:00–14:25 *The Benefits of a Model of Annotation*
Rebecca J. Passonneau and Bob Carpenter

14:25–14:50 *Ranking the annotators: An agreement study on argumentation structure*
Andreas Peldszus and Manfred Stede

14:50–15:15 *Leveraging Crowdsourcing for Paraphrase Recognition*
Martin Tschirsich and Gerold Hintz

15:15–15:40 *Investigation of annotator's behaviour using eye-tracking data*
Ryu Iida, Koh Mitsuda and Takenobu Tokunaga

15:40-16:00 Coffee break

Session 2.4: Further Discourse Papers; Posters and Demos

16:00–16:07 *Enunciative and modal variations in newswire texts in French: From guideline to automatic annotation*
Marine Damiani and Delphine Battistelli

16:07–16:14 *Annotating the Interaction between Focus and Modality: the case of exclusive particles*
Amália Mendes, Iris Hendrickx, Agostinho Salgueiro and Luciana Ávila

16:15-17:15 Posters and Demos

17:15-17:30 Concluding Remarks