



***SEM 2013: The Second Joint Conference on
Lexical and Computational Semantics**

**Volume 1:
Proceedings of the Main Conference
and the Shared Task: Semantic Textual Similarity**

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Introduction to *SEM 2013

Building on the momentum generated by the spectacular success of the Joint Conference on Lexical and Computational Semantics (*SEM) in 2012, bringing together the ACL SIGLEX and ACL SIGSEM communities, we are delighted to bring to you the second edition of the conference, as a top-tier showcase of the latest research in computational semantics. We accepted 14 papers (11 long and 3 short) for publication at the conference, out of a possible 45 submissions (a 31% acceptance rate). This is on par with some of the most competitive conferences in computational linguistics, and we are confident will set the stage for a scintillating conference.

This year, we started a tradition that we intend to maintain in all future iterations of the conference in integrating a shared task into the conference. The shared task was selected by an independent committee comprising members from SIGLEX and SIGSEM, based on an open call for proposals, and revolved around Semantic Textual Similarity (STS). The task turned out to be a huge success with 34 teams participating, submitting a total of 103 system runs.

*SEM 2013 features a number of highlight events:

Day One, June 13th:

- A timely and impressive panel on *Towards Deep Natural Language Understanding*, featuring the following panelists:
 - Kevin Knight (USC/Information Sciences Institute)
 - Chris Manning (Stanford University)
 - Martha Palmer (University of Colorado at Boulder)
 - Owen Rambow (Columbia University)
 - Dan Roth (University of Illinois at Urbana-Champaign)
- A Reception and Shared Task Poster Session in the evening, thanks to the generous sponsorship of the DARPA Deft program.

Day Two, June 14th:

- In the morning, a keynote address by David Forsyth from the Computer Science Department at the University of Illinois at Urbana Champagne on issues of Vision and Language. It promises to be an extremely stimulating speech, and is not to be missed.
- In the early afternoon, a panel on the relation between and future of *SEM, the *SEM Shared Task, SemEval and other events on computational semantics. In this panel, we will attempt to clarify and explain as well as devise plans for these different entities.
- Finally, at the end of the day, an award ceremony for the Best Long Paper and Best Short Paper.

As always, *SEM 2013 would not have been possible without the considerable efforts of our area chairs and an impressive assortment of reviewers, drawn from the ranks of SIGLEX and SIGSEM, and the computational semantics community at large. We would also like to acknowledge the generous support for the STS Task from the DARPA Deft Program.

We hope you enjoy *SEM 2013, and look forward to engaging with all of you,

Mona Diab (The George Washington University, General Chair)

Timothy Baldwin (The University of Mebourne, Program Committee Co-Chair)

Marco Baroni (University of Trento, Program Committee Co-Chair)

Introduction to SemEval

The Semantic Evaluation (SemEval) series of workshops focus on the evaluation and comparison of systems that can analyse diverse semantic phenomena in text with the aim of extending the current state-of-the-art in semantic analysis and creating high quality annotated datasets in a range of increasingly challenging problems in natural language semantics. SemEval provides an exciting forum for researchers to propose challenging research problems in semantics and to build systems/techniques to address such research problems.

SemEval-2013 is the seventh workshop in the series. The first three workshops, SensEval-1 (1998), SensEval-2 (2001), and SensEval-3 (2004), were focused on word sense disambiguation, each time growing in the number of languages offered in the tasks and in the number of participating teams. In 2007 the workshop was renamed SemEval and in the next three workshops SemEval-2007, SemEval-2010 and SemEval-2012 the nature of the tasks evolved to include semantic analysis tasks outside of word sense disambiguation. Starting in 2012 SemEval turned into a yearly event associated with *SEM.

This volume contains papers accepted for presentation at the SemEval-2013 International Workshop on Semantic Evaluation Exercises. SemEval-2013 is co-organized with the *SEM-2013 The Second Joint Conference on Lexical and Computational Semantics and co-located with The 2013 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL HLT).

SemEval-2013 included the following 12 tasks for evaluation:

- TempEval-3 Temporal Annotation
- Sentiment Analysis in Twitter
- Spatial Role Labeling
- Free Paraphrases of Noun Compounds
- Evaluating Phrasal Semantics
- The Joint Student Response Analysis and 8th Recognizing Textual Entailment Challenge
- Cross-lingual Textual Entailment for Content Synchronization
- Extraction of Drug-Drug Interactions from BioMedical Texts
- Cross-lingual Word Sense Disambiguation
- Evaluating Word Sense Induction & Disambiguation within An End-User Application
- Multilingual Word Sense Disambiguation
- Word Sense Induction for Graded and Non-Graded Senses

About 100 teams submitted more than 300 systems for the 12 tasks of SemEval-2013. This volume contains both Task Description papers that describe each of the above tasks and System Description papers that describe the systems that participated in the above tasks. A total of 12 task description papers and 101 system description papers are included in this volume.

We are indebted to all program committee members for their high quality, elaborate and thoughtful reviews. The papers in this proceedings have surely benefited from this feedback. We are grateful to *SEM 2013 and NAACL-HLT 2013 conference organizers for local organization and the forum. We most gratefully acknowledge the support of our sponsors, the ACL Special Interest Group on the Lexicon (SIGLEX) and the ACL Special Interest Group on Computational Semantics (SIGSEM).

Welcome to SemEval-2013!

Suresh Manandhar and Deniz Yuret

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Martha Palmer (University of Colorado at Boulder)

Owen Rambow (Columbia University)

Dan Roth (University of Illinois at Urbana-Champaign)

Panelists for Shared *SEM/SemEval panel:

*SEM and SemEval organizers

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	*SEM Main Conference and STS Shared Task (International D)	SemEval (starting on Day 2 below)
Day 1: Thursday June 13th 2013		
08:00--08:45	Registration	
08:45--10:30	Opening Remarks and *SEM Long Papers 1	*SEM1
10:30--11:00	Coffee Break	
11:00--12:30	STS Shared Task 1	ST1
12:30--2:00	Lunch	
2:00--3:30	STS Shared Task 2 and STS Poster boosters	ST2
3:30--4:00	Coffee Break	
4:00-4:25	*SEM Short Papers 1	
4:30--6:00	*SEM Panel: Toward Deep Natural Language Understanding: Kevin Knight, Christopher Manning, Martha Palmer, Owen Rambow, and Dan Roth	*SEM2
6:30--8:30	*SEM Reception and STS Poster Session (PLN1)	

	*SEM Main Conference and STS Shared Task (International D)		SemEval (International E)	
Day 2: Friday June 14th 2013				
08:00--08:30	Registration			
08:30--09:30	*SEM Short Papers 2	*SEM3	SemEval Session 1	SE1
09:30--10:30	Keynote Address: David Forsyth (PLN2)			
10:30--11:00	Coffee Break			
11:00--12:30	*SEM Long Papers 2	*SEM4	SemEval Session 2	SE2
12:30--1:30	Lunch (ends earlier!)	Lunch + Poster Session 1 for Tasks 1, 5, 8		SP1
1:30--2:30	Joint Panel: Future of *SEM / STS Shared Task / SemEval (PLN3)			
2:30--3:30	*SEM Long Papers 3	*SEM5	SemEval Session 3	SE3
3:30--4:00	Coffee Break		Coffee + Poster Session 2 for Tasks 4, 10, 11, 12	SP2
4:00--4:30	*SEM Long Papers 4	*SEM6		
4:30--5:30	Best Papers Awards & Closing remarks	*SEM7	4:30--6:30 SemEval Session 4	SE4
5:30--6:00				
6:00--6:30				

			SemEval (International E)	
Day 3: Saturday June 15th 2013				
08:40--10:30			SemEval Session 5	SE5
10:30--11:00	Coffee Break			
11:00--1:10			SemEval Session 6	SE6
1:10-3:30			Lunch + Poster Session 3 for Tasks 2, 3, 7, 9, 13	SP3

Conference Program

Day 1: Thursday June 13th 2013

(08:00–08:45) Registration

Session *SEM1: (08:45–10:30) Opening Remarks and *SEM Long Papers (1)

09:00–09:30 *Towards a Formal Distributional Semantics: Simulating Logical Calculi with Tensors*

Edward Grefenstette

09:30–10:00 *Montague Meets Markov: Deep Semantics with Probabilistic Logical Form*

Islam Beltagy, Cuong Chau, Gemma Boleda, Dan Garrette, Katrin Erk and Raymond Mooney

10:00–10:30 *Coarse to Fine Grained Sense Disambiguation in Wikipedia*

Hui Shen, Razvan Bunescu and Rada Mihalcea

(10:30–11:00) Coffee Break

Session ST1: (11:00–12:30) STS Shared Task (1)

11:00–11:30 **SEM 2013 shared task: Semantic Textual Similarity*

Eneko Agirre, Daniel Cer, Mona Diab, Aitor Gonzalez-Agirre and Weiwei Guo

11:30–11:50 *UMBC_EBIQUITY-CORE: Semantic Textual Similarity Systems*

Lushan Han, Abhay L. Kashyap, Tim Finin, James Mayfield and Jonathan Weese

11:50–12:10 *iKernels-Core: Tree Kernel Learning for Textual Similarity*

Aliaksei Severyn, Massimo Nicosia and Alessandro Moschitti

12:10–12:30 *UNITOR-CORE_TYPED: Combining Text Similarity and Semantic Filters through SV Regression*

Danilo Croce, Valerio Storch and Roberto Basili

Day 1: Thursday June 13th 2013 (continued)

(12:30–2:00) Lunch

Session ST2a: (2:00–2:40) STS Shared Task (2)

2:00–2:20 *NTNU-CORE: Combining strong features for semantic similarity*
Erwin Marsi, Hans Moen, Lars Bungum, Gleb Sizov, Björn Gambäck and André Lynam

2:20–2:40 *SXUCFN-Core: STS Models Integrating FrameNet Parsing Information*
Sai Wang, Ru Li, Ruibo Wang, Zhiqiang Wang and Xia Zhang

Session ST2b: (2:40–3:30) STS Poster boosters

(3:30–4:00) Coffee Break

Session *SEM2a: (4:00–4:25) *SEM Short Papers (1)

4:00–4:25 *Distinguishing Common and Proper Nouns*
Judita Preiss and Mark Stevenson

Session *SEM2b: (4:30–6:00) *SEM Panel: Toward Deep Natural Language Understanding: Kevin Knight (USC/ISI), Christopher Manning (Stanford University), Martha Palmer (University of Colorado, Boulder), Owen Rambow (Columbia University), Dan Roth (University of Illinois Urbana Champagne)

Session PLN1: (6:30–8:30) *SEM Opening Reception and STS Poster Session

UCAM-CORE: Incorporating structured distributional similarity into STS
Tamara Polajnar, Laura Rimell and Douwe Kiela

PolyUCOMP-CORE_TYPED: Computing Semantic Textual Similarity using Overlapped Senses
Jian Xu and Qin Lu

HENRY-CORE: Domain Adaptation and Stacking for Text Similarity
Michael Heilman and Nitin Madnani

DeepPurple: Lexical, String and Affective Feature Fusion for Sentence-Level Semantic Similarity Estimation
Nikolaos Malandrakis, Elias Iosif, Vassiliki Prokopi, Alexandros Potamianos and Shrikanth Narayanan

UMCC_DLSI: Textual Similarity based on Lexical-Semantic features
Alexander Chávez, Héctor Dávila, Yoan Gutiérrez, Armando Collazo, José I. Abreu, Antonio Fernández Orquín, Andrés Montoyo and Rafael Muñoz

Day 1: Thursday June 13th 2013 (continued)

BUT-TYPED: Using domain knowledge for computing typed similarity

Lubomir Otrusina and Pavel Smrz

ECNUCS: Measuring Short Text Semantic Equivalence Using Multiple Similarity Measurements

Zhu Tiantian and Man Lan

UBC_UOS-TYPED: Regression for typed-similarity

Eneko Agirre, Nikolaos Aletras, Aitor Gonzalez-Agirre, German Rigau and Mark Stevenson

KnCe2013-CORE: Semantic Text Similarity by use of Knowledge Bases

Hermann Ziak and Roman Kern

UPC-CORE: What Can Machine Translation Evaluation Metrics and Wikipedia Do for Estimating Semantic Textual Similarity?

Alberto Barrón-Cedeño, Lluís Màrquez, Maria Fuentes, Horacio Rodriguez and Jordi Turmo

MayoClinicNLP-CORE: Semantic representations for textual similarity

Stephen Wu, Dongqing Zhu, Ben Carterette and Hongfang Liu

SRIUBC-Core: Multiword Soft Similarity Models for Textual Similarity

Eric Yeh

LIPN-CORE: Semantic Text Similarity using n-grams, WordNet, Syntactic Analysis, ESA and Information Retrieval based Features

Davide Buscaldi, Joseph Le Roux, Jorge J. Garcia Flores and Adrian Popescu

UNIBA-CORE: Combining Strategies for Semantic Textual Similarity

Annalina Caputo, Pierpaolo Basile and Giovanni Semeraro

DLS@CU-CORE: A Simple Machine Learning Model of Semantic Textual Similarity

Md. Sultan, Steven Bethard and Tamara Sumner

KLUE-CORE: A regression model of semantic textual similarity

Paul Greiner, Thomas Proisl, Stefan Evert and Besim Kabashi

IBM_EG-CORE: Comparing multiple Lexical and NE matching features in measuring Semantic Textual similarity

Sara Noeman

Day 1: Thursday June 13th 2013 (continued)

SOFTCARDINALIRY-CORE: Improving Text Overlap with Distributional Measures for Semantic Textual Similarity

Sergio Jimenez, Claudia Becerra and Alexander Gelbukh

CLaC-CORE: Exhaustive Feature Combination for Measuring Textual Similarity

Ehsan Shareghi and Sabine Bergler

UniMelb_NLP-CORE: Integrating predictions from multiple domains and feature sets for estimating semantic textual similarity

Spandana Gella, Bahar Salehi, Marco Lui, Karl Grieser, Paul Cook and Timothy Baldwin

CFILT-CORE: Semantic Textual Similarity using Universal Networking Language

Avishek Dan and Pushpak Bhattacharyya

CPN-CORE: A Text Semantic Similarity System Infused with Opinion Knowledge

Carmen Banea, Yoonjung Choi, Lingjia Deng, Samer Hassan, Michael Mohler, Bishan Yang, Claire Cardie, Rada Mihalcea and Jan Wiebe

INAOE_UPV-CORE: Extracting Word Associations from Document Corpora to estimate Semantic Textual Similarity

Fernando Sánchez-Vega, Manuel Montes-y-Gómez, Paolo Rosso and Luis Villaseñor-Pineda

CNGL-CORE: Referential Translation Machines for Measuring Semantic Similarity

Ergun Bici and Josef Van Genabith

Day 2: Friday June 14th 2013

(08:00–08:30) Registration

Session *SEM3: (08:30–09:30) *SEM Short Papers (2)

08:30–08:55 *A Dataset of Syntactic-Ngrams over Time from a Very Large Corpus of English Books*

Yoav Goldberg and Jon Orwant

08:55–09:20 *Unsupervised Word Usage Similarity in Social Media Texts*

Spandana Gella, Paul Cook and Bo Han

9:20–9:30 Short break for re-organization

Day 2: Friday June 14th 2013 (continued)

Session PLN2: (09:30–10:30) Keynote address: David Forsyth (University of Illinois Urbana Champagne)

09:30–10:30 *More Words and Bigger Pictures*
David Forsyth

(10:30–11:00) Coffee Break

Session *SEM4: (11:00–12:30) *SEM Long Papers (2)

11:00–11:30 *Exploring Vector Space Models to Predict the Compositionality of German Noun-Noun Compounds*
Sabine Schulte im Walde, Stefan Müller and Stefan Roller

11:30–12:00 *Predicting the Compositionality of Multiword Expressions Using Translations in Multiple Languages*
Bahar Salehi and Paul Cook

12:00–12:30 *Metaphor Identification as Interpretation*
Ekaterina Shutova

(12:30–1:30) Lunch

Session PLN3: (1:30–2:30) *SEM / STS Shared Task / SemEval Panel

Session *SEM5: (2:30–3:30) *SEM Long Papers (3)

2:30–3:00 *Using the text to evaluate short answers for reading comprehension exercises*
Andrea Horbach, Alexis Palmer and Manfred Pinkal

3:00–3:30 *Choosing the Right Words: Characterizing and Reducing Error of the Word Count Approach*
Hansen Andrew Schwartz, Johannes Eichstaedt, Eduardo Blanco, Lukasz Dziurzyński, Margaret L. Kern, Stephanie Ramones, Martin Seligman and Lyle Ungar

Day 2: Friday June 14th 2013 (continued)

(3:30–4:00) Coffee Break

Session *SEM6: (4:00–5:30) *SEM Long Papers (4)

4:00–4:30 *Automatically Identifying Implicit Arguments to Improve Argument Linking and Coherence Modeling*

Michael Roth and Anette Frank

4:30–5:00 *Bootstrapping Semantic Role Labelers from Parallel Data*

Mikhail Kozhevnikov and Ivan Titov

5:00–5:30 *Semantic Parsing Freebase: Towards Open-domain Semantic Parsing*

Qingqing Cai and Alexander Yates

Session *SEM7: (5:30–6:00) Best Papers Awards and Closing Remarks

