Summer School "ESSLLI 2018"

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1 About Summer School

European Summer School in Logic, Language and Information, ESSLLI 2018, was held 6–17 August 2018. It took place in Sofia, the capital of Bulgaria. Flawless organisation was not surprising, since the school has been held for the thirtieth time this year. The previous schools were held in Toulouse (France), Bolzano (Italy), Barcelona (Spain), Tübingen (Germany), Dusseldorf (Germany), etc. The following institutions organised the event: Sofia University "Sv. Kliment Ohridski", Institute for Information and Communication Technologies, Bulgarian Academy of Sciences, and Bulgarian Association for Computer Linguistics. All the lectures were held at the premises of the University's main building. An official poster of the school can be seen in Figure 1.

2 Organisation

Programme committee was composed of:

– Chairing Laura Kallmeyer (Düsseldorf University, Germany)
– Co-chairing Galia Angelova (IICT-BAS, Sofia, Bulgaria)
– (Language and Computation) Noah Goodman (Stanford University, USA) and Barbara Plank (University of Groningen, The Netherlands)
– (Language and Logic) Márta Abrusán (CNRS, IRIT Toulouse & IJN Paris, France) and Robert Levine (Ohio State University, USA)
– (Logic and Computation) Wojciech Jamroga (Polish Academy of Sciences, Warsaw, Poland)

Organising committee was composed of:

– Petya Osenova (Sofia University, Bulgaria)

Figure 1. A poster for the school

– Kiril Simov (IICT-BAS, Sofia, Bulgaria)
– Galia Angelova (IICT-BAS, Sofia, Bulgaria)
– Svetla Boytcheva (IICT-BAS, Sofia, Bulgaria)
– Vladislava Grigorova (IICT-BAS, Sofia, Bulgaria)
– Ivan Koychev (Sofia University, Bulgaria)
– Ivelina Nikolova (IICT-BAS, Sofia, Bulgaria);
– Tsvetomira Pashova (Sofia University, Bulgaria)
– Alexandra Soskova (Sofia University, Bulgaria)
– Irina Temnikova (Sofia University, Bulgaria)
– Anelly Kremenska (Sofia University, Bulgaria)
– Gueorgui Jetchev (Sofia University, Bulgaria)

With a support of around twenty more people, this team was responsible for the impeccable organisation of the ESLLII 2018 school.

3   Courses

The school offers almost 50 courses. Each course lasts seven and a half hours (five working days, an hour and a half per day). Each of the courses is classified into one of the following three categories:

– Language and Logic;
– Logic and Computing;
– Language and Computing.

Courses are also classified by level, and within each category there are fundamental, introductory and advanced courses. All the classes are held in English.[1,2]

A participant can attend eight courses at most, since there are four time slots in five days, both weeks.

09.00–10.30 Lecture
10.30–11.00 Coffee break
11.00–12.30 Lecture
12.30–14.00 Lunch break
14.00–15.30 Lecture
15.30–15.50 Coffee break
15.50–16.50 Student session
17.00–18.30 Lecture
18.30–19.00 Coffee break
19.00–20.00 Evening lecture

In addition to various courses, workshops can also be attended by the participants, that are more practically-oriented. In the first week, the following workshops were organised:

– Ambiguity: Perspectives on Representation and Resolution
– Bridging Formal and Conceptual Semantics
– Annotation in Digital Humanities (annDH): How Can Linguistics/Computational Linguistics Help with Annotation in DH

During the second week, the following workshops were held:

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[1] Review of the first week (on-line)
[2] Review of the second week (on-line)

– NLP in the Era of Big Data, Deep Learning, and Post Truth
– Quantity in Language and Thought

A one-hour slot was allocated for student sessions. In fifteen minutes, the participants were able, if desired, to present some of their research and invite other participants to collaborate in the future.

During the weekend, a *Formal Grammar 2018* conference was organised.[3]

In addition to the all aforementioned professional activities, social activities were not neglected. After the reception during the first day of the school, excursions were organised for the weekend. The first excursion led to Plovdiv, the second largest city in Bulgaria, dating from the 6th century BC. On the following day, the students could visit the monastery of Saint Ivan of Rila from the X century, located in the Rila Mountains. At the end of the first week, all participants gathered once more and enjoyed live music at the official ESSLLI party. In the second week, the participants even played a football game against the lecturers. An overview of all the activities can be found on-line.

4   Selected Courses

In this Section, several selected courses according to the author's choice will be briefly described.

4.1   Advanced Regression Methods for Linguistics

Lecturer Martijn Wieling (University of Groningen, The Netherlands) held this course in the first week. The course introduced students to advanced regression methods in *R*. The course began with a lecture on multiple regression. After that, two lectures included Gaussian and logistic mixed-effect regression, which take into account the structural variability present in the data.[4] The final two lectures of this course provided an introduction to generalised additive modeling, which is a powerful method to analyse non-linear patterns in data. This approach is especially useful when time-series data (such as EEG, eye-tracking, or articulatory data) need to be analysed.

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[3] Formal Gramar Conference (on-line)

[4] For example, linguistic experiments often include participants who respond to multiple items. This structure must be brought into the model to prevent overconfident (i.e. too low) p-values.

4.2   Multiword Expressions in a Nutshell

Carlos Ramisch (Aix Marseille University, France), Agata Savary (Université François Rabelais Tours – IUT de Blois, France) and Aline Villavicencio (University of Essex, UK and Universidade Federal do Rio Grande do Sul, Brazil) held the course about one of the hottest topics in computational linguistics during the second week. The goal of this hands-on course is to provide a broad introduction to Multiword Expressions, with strong multilingual emphasis. It covered theoretical foundations, discussing properties and guidelines for their annotation, possible scenarios for their computational treatment, and techniques for idiomaticity prediction. Practical exercises provided participants with an opportunity to use different language technologies for corpus annotation and idiomaticity prediction. This course was tailored for students and researchers in computational linguistics who wish to analyse and integrate Multiword Expressions into their computational tools and linguistic studies.

4.3   Probabilistic Modeling and Bayesian Data Analysis in Experimental Semantics and Pragmatics

During the second week, Michael Franke (University of Tübingen, Germany) and Michael Henry Tessler (Stanford University, USA) posed the following questions: how do established theoretical notions lead to empirically testable predictions and what can we learn from experimental data about theoretical variables of interest? This course addresses these questions by introducing theory-driven probabilistic modeling in connection with Bayesian data analysis as a helpful set of tools to learn from observational data through the lens of a theoretical model. Lecturers introduced the basics of Bayesian data analysis and probabilistic modeling through a series of concrete case studies in natural language semantics and pragmatics.

4.4   Word Vector Space Specialisation

Ivan Vulić (University of Cambridge, UK) during the second week introduced students with the latest methods for constructing specialised vector spaces for a variety of applications in the field of natural language processing. Modern representation approaches are mainly based on the distribution hypothesis "You shall know a word by the company it keeps", because they are based on information about the word co-occurrences in large corpora,

but on other types of information, as well. Proposed approaches fall into two broad categories:

− Unsupervised methods which learn from raw textual corpora in more sophisticated ways (e.g. using context selection and attention);
− Knowledge-base driven approaches which exploit available resources to encode external information into distributional vector spaces.

The lecturer delivered a detailed survey of the proposed methods and discussed best practices for their intrinsic and application-oriented evaluation.

5   Additional Features

The organising committee of the school offers students different types of financial support each year. Grants can cover travel expenses, accommodation costs or the attendance only. When choosing grant holders, preference is given to students who actively participate in the student session, students without alternative financial support for the participation and to the outstanding and highly motivated students.

When registering on the first day, each participant received, in addition to the certificate, one paper form with empty fields for signatures. The ESSLLI organisation encourages the Universities and Educational institutions to accept ESSLLI courses as obtaining ECTS credits (at most 3 EC). After a held course, a participant can ask a lecturer for a signature. The amount of the awarding ECTS credits depends of the educational institution itself. Organisers propose that full participation in: two courses, including required reading and work, counts as 1 EC; four courses as 2 EC; and in six or more courses as 3 EC.

Next summer school will be held 5–16 August 2019 in Riga (Latvia).